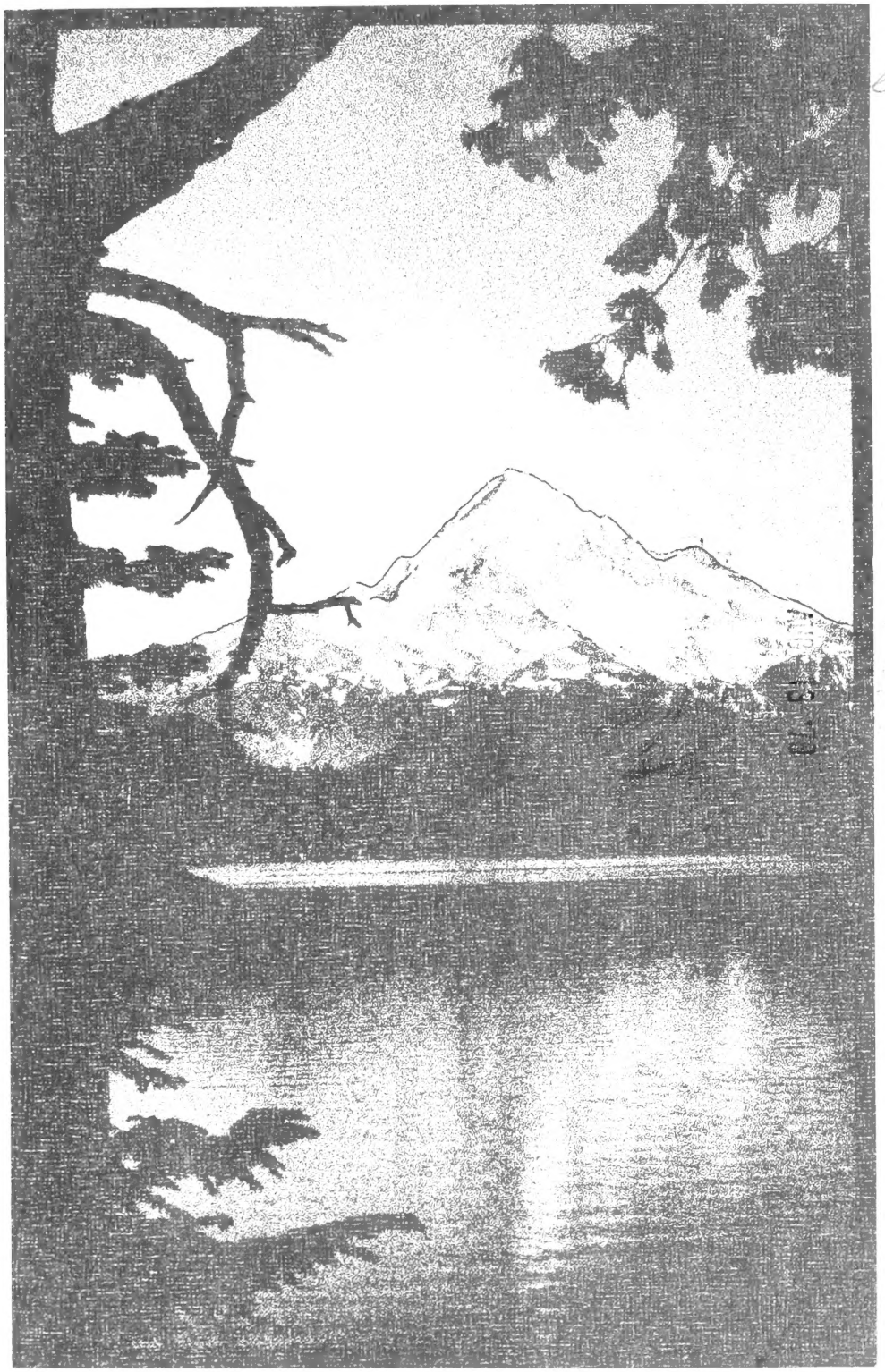
THE LPK TIMBER SALE PLAN FOR 1979-84:

The final environmental statement of the 5-year operating plan, part of the long-term sale of Tongass National Forest timber to the Louisiana-Pacific Corporation, Ketchikan Division.



U.S. Department of Agriculture, Forest Service, Alaska Region, Tongass National Forest, Ketchikan Area

THE LPK TIMBER SALE PLAN FOR 1979-84. U.S. Department of Agriculture, Forest Service, Alaska Region, Tongass National Forest, Ketchikan Area. December 1978, Series No. R10-59.

FINAL ENVIRONMENTAL STATEMENT

10-05-79-01

THE LOUISIANA-PACIFIC CORPORATION, KETCHIKAN DIVISION, TIMBER SALE PLAN FOR THE 1979-84 OPERATING PERIOD

KETCHIKAN AREA, TONGASS NATIONAL FOREST, ALASKA

Responsible Federal agency:
U.S. Department of Agriculture
Forest Service
Washington, D.C. 20250

Responsible official:
John R. McGuire
Chief, Forest Service
U.S. Department of Agriculture
Washington, D.C. 20250

For further information, contact:
James S. Watson
Forest Supervisor, Ketchikan Area
Tongass National Forest
USDA Forest Service
Federal Building
Ketchikan, Alaska 99901
Tel. (907) 225-3101

Abstract:
This final environmental statement describes five alternatives for the harvest of as much as 960 million boardfeet of timber in the Ketchikan Area of the Tongass National Forest in Alaska. This statement relates to the 1979-84 operating plan of the long-term sale of national forest timber to the Louisiana-Pacific Corporation, Ketchikan Division. The estimated effects of implementing each of the alternatives, including a "no action" alternative, are discussed. The Forest Service preferred alternative is identified, and the rational for this identification is shown.

Summary

FINAL ENVIRONMENTAL STATEMENT

THE LOUISIANA-PACIFIC CORPORATION, KETCHIKAN DIVISION,
TIMBER SALE PLAN FOR THE
1979-84 OPERATING PERIOD

10-05-79-01

Type of action:	Administrative
Responsible Federal agency:	U.S. Department of Agriculture Forest Service Washington, D.C. 20250

Date of transmission to the Environmental Protection Agency and the public:

Draft: December 7, 1978
Final:

Responsible official:	John R. McGuire Chief Forest Service U.S. Department of Agriculture Washington, D. C. 20250
For further information, contact:	James S. Watson Forest Supervisor, Ketchikan Area Tongass National Forest Federal Building Ketchikan, Alaska 99901

This is a final environmental statement published by the U.S. Department of Agriculture, Forest Service. It describes an administrative type of action.

The action proposed is the harvesting of as much as 960 million boardfeet (MM bf) of timber on the north end of Prince of Wales Island and on Revilla Island, which are part of the Tongass National Forest in Alaska. Timber, fish, wildlife, water, and outdoor recreation opportunities are all important resources on the sale area. The harvesting of timber and associated activities is authorized by an existing 50-year Timber Sale Agreement between the United States and Louisiana-Pacific Corporation, Ketchikan Division.

The five alternatives considered are:

1. Harvest 960 MM bf of timber on the sale area in the units proposed by the Louisiana-Pacific Corporation, Ketchikan Division (LPK).

2. Harvest no timber.

3. Harvest 790 MM bf of timber on the sale area and emphasize forest values other than timber resources.

4. Harvest 960 MM bf of timber on the sale area from units proposed by the Forest Service interdisciplinary team (IDT).

5. Harvest 694 MM bf of timber on the sale area in currently roaded areas and avoid entering all roadless areas larger than 5,000 acres.

Alternative 4 is preferred by the Forest Service. It meets the policies of the "Southeast Alaska Area Guide" and Tongass Land Management Plan for resource protection, avoids sensitive roadless areas, and satisfies the contractual commitment for timber volume.

Timber harvesting in the sale area would convert old-growth stands to young, faster growing stands. Naturalness and aesthetic qualities of the area would decrease. Wildlife habitat would be modified by clearcutting and roads. Wilderness characteristics would be lost in areas where timber harvesting and related activities are planned.

Comments on the draft environmental statement of this proposed action have been received from the following Federal, State, and local agencies and others: U.S. Department of Commerce; U.S. Department of Housing and Urban Development; U.S. Department of the Interior; U.S. Department of Treasury; U.S. Department of Transportation, Federal Highway Administration; U.S. Environmental Protection Agency; U.S. Department of Energy, Federal Energy Administration; U.S. Department of Commerce, National Marine Fisheries Service (Juneau, Alaska); USDA Soil Conservation Service; State of Alaska, Office of the Governor, State-Federal Coordinator; Others invited to comment include the Tongass Conservation Society, Southeast Alaska Conservation Council, South Tongass Land Review Committee, Southern Southeast Regional Aquaculture Association, Point Baker Association, Petersburg Conservation Society, Louisiana-Pacific Corporation, Seine Boat Owners and Operators, Western Federation of Outdoor Clubs, Alaska Trollers Association, Orvel and Carmen Holum, Constance Griffith, Alan and Linda Deubner, Lloyd A. Jones, Elzie Isley, James A. Wilson, M.D., Lewis K. McClendon.

Contents

		Page
I.	INTRODUCTION	1
II.	AFFECTED ENVIRONMENT	4
	A. Physical	4
	1. Geography	4
	2. Climate	4
	3. Soil	5
	4. Water	6
	B. Biological	8
	1. Flora	8
	2. Fauna	9
	C. Social Aspects	11
	1. Recreation	12
	2. Visual	14
	3. Wilderness	15
	4. Cultural	15
	5. Transportation	16
	D. Economic Aspects	21
	E. Land Status	24
	F. Issues	24
	G. Management Concerns	25
III.	EVALUATION CRITERIA	25
IV.	ALTERNATIVES CONSIDERED	26
V.	EFFECTS OF IMPLEMENTING ALTERNATIVES	28
	A. Soil	29
	B. Water	31
	C. Fish	37
	D. Wildlife	52
	E. Vegetation	59
	F. Timber	60
	G. Socioeconomic	66
	H. Minerals	68

Page

I. Recreation 68
J. Wilderness 72
K. Visual 72
L. Cultural Resources 74
M. Atmosphere 76

VI. EVALUATION OF ALTERNATIVES 76

VII. IDENTIFICATION OF FOREST SERVICE PREFERRED ALTERNATIVE 79

VIII. MANAGEMENT REQUIREMENTS 80

IX. CONSULTATION WITH OTHERS 81

X. REFERENCES

XI. GLOSSARY

XII. INDEX

XIII. APPENDIX

A. Timber Sale Contract A10fs-1042
B. Operating Guidelines

Tables

	Page
TABLE 1--Recreation cabin use on sale area in 1976	12
TABLE 2--Primary employment by sector and Area on the Tongass National Forest, 1970-76	21
TABLE 3--Average annual employment by industry in southeast Alaska, 1970-76	22
TABLE 4--Average employment by industry in the Ketchikan Area, 1970-76	23
TABLE 5--Estimated number of acres in areas planned for timber harvest in the 1979-84 period by slope class for each alternative	35
TABLE 6--Extent of stream miles affected on the sale area by timber harvesting alternative	36
TABLE 7--Areas of habitat and potential numbers and values of fish affected by road drainage structures by alternative	45
TABLE 8--New and reconstructed log transfer facilities by alternative	50
TABLE 9--Percentage of natural cover types believed necessary to maintain wildlife populations	53
TABLE 10--Relative effects on individual species or species groups by alternative	55
TABLE 11--Size of areas to be harvested on the sale area by alternative	59
TABLE 12--Blowdown area, harvesting units, and deleted areas by location, 1979	63
TABLE 13--Cutting units larger than 160 acres by alternative	65
TABLE 14--Locations which have high values for dispersed primitive recreation and are proposed for entry by alternative	71

Page

TABLE 15--Locations which have high values for dispersed semiprimitive recreation and are proposed for entry by alternative 71

Table 16--Relationship of alternatives to evaluation criteria 79

The LPK Timber Sale Plan For 1979-84

I. Introduction

This final environmental statement (FES) evaluates alternatives for the harvest of as much as 960 million boardfeet (MM bf) of timber on Tongass National Forest lands in southern southeast Alaska. The harvest will occur over a 5-year period starting July 1, 1979, and ending June 30, 1984. The preferred alternative would have the activities take place on the northern portions of Prince of Wales and Revillagigedo Islands as part of the 50-year timber sale agreement between the United States and Louisiana-Pacific Corporation, Ketchikan Division (LPK). (See Alternative maps for the boundary of the sale.)

This environmental statement was considered necessary because some previously unroaded and undeveloped areas of the sale area were planned for timber harvest prior to completion of the Tongass Land Management Plan (TLMP). The Tongass Land Management Plan, which was fully coordinated with the nationwide Roadless Area Review and Evaluation (RARE II) process, will assign various land use designations to the Forest ranging from Wilderness to development of the natural resources on the Forest. 1/

The interdisciplinary team (IDT) preparing the DES for the 50-year sale coordinated their plan with TLMP and RARE II so as not to contain any publicly expressed Wilderness proposals. This meant leaving options open to TLMP by remaining on the primary sale area and by deferring harvest in Karta, Salmon Bay Lake, and those portions of Sarkar and Honker Divide roadless areas that are within the long-term sale area.

1/ TLMP and RARE II assessments were released in June 1978 through draft environmental statements. The final TLMP and RARE II environmental statements may be obtained by contacting the USDA Forest Service (OI), P.O. Box 1628, Juneau, Alaska 99802.

Section 15(a) of the National Forest Management Act validated existing timber sale contracts in Alaska. This section of the Act also directed the Secretary of Agriculture to revise the long-term sale contracts in Alaska to make them consistent with the guidelines and standards provided in the Act and to reflect such revisions in the contract price of timber. The Act further states, however, that any such action shall not be inconsistent with valid contract rights approved by the final judgment of a court of competent jurisdiction. In conformance with this law, the Government is making revisions in the contract which will affect activities after July 1, 1979. The harvest unit selection process for the 1979-84 operating period is occurring according to existing contract requirements.

The 50-year term of the sale has been divided into a series of 5-year operating periods for purposes of redetermining rates of payment. Two years in advance of each 5-year operating period, the purchaser selects logging units for cutting in the ensuing 5-year period. The Forest Service then has 1 year to review the purchaser's selections and request modifications necessary to prevent damage or protect the national forest. There is, then, 1 year left to cruise and appraise the selected units so that new rates for stumpage and road construction can be established.

The timber sale was sold on July 26, 1951, and is scheduled to terminate June 30, 2004. During this time the Forest Service must make available 8,250,000,000 boardfeet of timber (see contract section 1, Appendix A). The Forest Service SHALL make up to 960 MM bf available in each 5-year period if the purchaser requests. If this volume is not available on the primary sale area, it must be made up from the remainder of pulpwood allotments E, F, and G, which include essentially the remainder of Prince of Wales Island and its associated islands, Revilla Island, Cleveland Peninsula, and the Ketchikan Area mainland.

The interdisciplinary process described in the "Southeast Alaska Area Guide" was followed in preparing this FES. A study plan was prepared and the IDT selected in June 1977.

In 1976 and throughout 1977, Forest Service and LPK crews reconnoitered the sale area to determine specific areas feasible for development. Information was gathered by use of aerial photographs, maps, and aerial and ground reconnaissance missions. Data were gathered on the physical factors which affect the management of natural resources primarily concerning vegetative and terrain features.

From these investigations, LPK proposed its selection of units under the contract and submitted them for Forest Service approval. This proposal ultimately became Alternative 1. The IDT team met and reviewed the LPK proposal and developed Alternatives 3 and 4. Additional field reconnaissance was conducted by team members to investigate various aspects of Alternatives 1, 3, and 4. These investigations supplemented previously gathered data.

Some of the proposed harvesting areas were subjected to high-speed winds since the DES was published. The winds caused extensive damage, which is described in the section "Effects."

Alternatives 2 and 5 were developed last by the core team. They reflect national concerns for roadless recreation opportunities.

The IDT included the following individuals:

Edward Johnson	Team Leader, Forest Service (FS)
Jim Rhodes	Engineer, FS
Paul Harrington	Wildlife Biologist, FS
Ed Blankenship	Forester, FS
Dave Loggy	Soil Scientist, FS

Additionally, the following specialists advised the team in the development of Alternatives 3 and 4 as well as the analyses of Alternatives 1, 2, and 5.

Mike Pease	Fisheries Biologist, FS
John Short	Landscape Architect, FS
Steve Haavig	Alaska Dept. of Fish and Game
Bob Wood	Alaska Dept. of Fish and Game
Chuck Osborne	U.S. Fish and Wildlife Service

Others also provided professional advice and assistance throughout the development of this statement, including:

Keith McGonagill	Logging Systems, FS
Stan Davis	Archeologist, FS
Chris Rabich	Archeologist, FS
Doug Campbell	Landscape Architect, FS
Duane Peterson	National Marine Fisheries Service
Dana Young	Soil Scientist, FS
Darl Enger	Engineer, FS
Louis Bartos	Hydrologist, FS

This was done basically at the prescriptive level of planning as described in the "Southeast Alaska Area Guide." Prior to release

of any unit for timber harvesting or roading, an IDT review will be required.

II. AFFECTED ENVIRONMENT

Following is a brief discussion of the environment of the sale area. In many aspects, it is the same as much of the rest of southeast Alaska. A more detailed description, relative to each of the following topics, can be found in the "Southeast Alaska Area Guide," the "Tongass Land Management Plan," and the series "The Forest Ecosystem of Southeast Alaska," numbers 1 through 10 (see references).

A. Physical

1. Geography

The geography of the sale area is characterized by completely glaciated islands within the Alexander Archipelago. Deep fiords and bays are prevalent through the many intricate waterways. The primary sale area is bounded to the west and south by the Pacific Ocean and by Sumner Straits, Clarence Straits, and Behm Canal to the north and east. The uplands consist of steep mountain ranges dissected by glaciated valleys of varying widths. Elevations range from sealevel to about 4,000 feet. No glaciers are present within the area, but some perpetual snow patches exist in some of the higher mountains.

2. Climate

All of southeast Alaska is in the humid maritime zone (Miller). The sale area has over 1,000 miles of ocean shoreline. A few offshore islands separate the western coast of Prince of Wales Island from the open Pacific Ocean.

Strong winds are frequent, especially from mid-September to mid-May, but they may occur in any month. More than 80 percent of the total yearly precipitation falls during these months. The more severe storms are often accompanied by winds in excess of 50 miles per hour. However, precipitation intensities are not severe. The expected maximum 1-hour precipitation is 1 inch for a 100-year storm and 0.8 inch for a 25-year storm.

The average temperature for the coldest month is slightly above 32° F, and the average temperature for the warmest month is below 60° F. Rainfall is high, averaging over 100 inches per year at sealevel. The maximum summer day length is 17.5 hours at nearby Ketchikan. Cloudiness is the rule. For example, the percentage of possible sunshine throughout the year is 27 percent at Annette near the southern end of the forest and 23 percent at Juneau near the north end.

The average length of the growing season at Hollis is 177 days, but the average air temperature during that time is below 55° F. Evapotranspiration is estimated to be 23 inches at Craig and at Hollis.

Thus, the climate is mild with cool temperatures, high humidity, and high precipitation. In winter, snowfall is generally light along the beaches, but a deep snowpack accumulates inland and at higher elevations.

3. Soil

Most mineral soils of southeast Alaska have several characteristics common to northern coniferous forests. These include thick organic mats, ranging from a few inches to over a foot in thickness. These mats are largely responsible for the soils being totally resistant to sheet erosion and highly resistant to other types of erosion so long as these mats are not removed. Other common characteristics include very strong acidity, low natural fertility, extremely rapid infiltration rates, rapid permeability in their upper layers, perpetual moistness, and very low bearing strength. They also are thixotropic, meaning they tend to change state from a solid to a gel when agitated. These last three characteristics have a marked influence on excavation and use of the soils for various engineering purposes, especially roadbuilding. Nearly all road embankments have to be built from rock blasted from quarries. Only a few soils from fresh glacial and alluvial deposits are worthwhile for embankment purposes.

Because of these soil characteristics, sheet erosion problems are minor. However, soil mass movement resulting from steep slopes or unstable soils or both is a major soil management problem under natural and utilized conditions. To date, this problem has been dealt with mainly

by avoiding or minimizing activities on such areas. These areas are restricted to slope classes of 34 to 37 degrees and 37 degrees or more, except for two soil series where drainage and soil texture can cause mass movement to occur on slopes of less than 34 degrees. New logging systems and advanced logging technologies will be applied in the next 5 years so that some soils and slopes, previously avoided because of potential mass movement problems, will become available for the harvest of timber.

On oversteep slopes, nearly all mass movement is related to exposure of the mineral soil with a subsequent intensive storm. Mineral soil disturbance results from blowdown of trees under natural conditions and by logging and road-building in timber sale units. Some research indicates that the decay of stump roots in logged areas causes loss of binding in the soils, resulting in a weakening of the soil strength which can result in mass movement on over-steep slopes. These slides are also associated with intense storms which may occur 3 to 5 years after logging. Past slide history on some logged oversteep slopes supports the theory of root decay causing soil changes.

Even though mass movement has been shown to increase on oversteep logged slopes, it is generally a relatively small amount of the total productive acreage in the watershed. Mass movement on logged areas is a small percentage of the total mass movement occurring. In 1976, an analysis was made of 345,920 acres, which included the Maybeso Creek drainage near Hollis where slides increased four times on logged oversteep slopes. The analysis showed that slides associated with logged areas amounted to only 11 percent of the total slides on this sample area. A main concern is whether the slides occur on the landscape where they can produce sediment to spawning streams. The analysis showed that 81 percent of the slides associated with the harvested areas directly or indirectly affected fish streams. It is this effect that has initiated requirements for better management practices in timber harvesting discussed in section "Water" under "Effects."

4. Water

The sale area has 30 major streams and many small, largely unnamed streams. The watersheds are generally small, ranging from a few hundred acres to a few thousand

acres. There are a few larger ones, such as Staney Creek (46,000 acres) and Thorne River (96,000 acres), but most are short with irregular characteristics of early stage development.

Stream flow fluctuates widely. Peak flows occur in the fall and spring, and low flows in the summer and winter.

Most stream patterns are dendritic or rectangular. Streams usually originate in the alpine or high muskegs and flow down steep bedrock control V-notches. Along valley floors, they may cut through deep, compact till deposits or follow faults and joints in the bedrock.

Despite the abundant amount of precipitation in this region, groundwater is generally scarce. Through rapid soil percolation and drainage and high water tables in some soils, the majority of the precipitation is rapidly returned to the ocean by the large number of streams in the area.

Any land use activity that might reduce water quality must be carefully controlled. Many watershed problems are associated with landforms or slopes where geologic erosion and sediment production are naturally high. These areas are frequently sensitive to such activities as logging and road construction. Water temperature and flow may also be affected by land management practices.

The Forest Service is conducting an extensive water quality monitoring program. The State of Alaska, Department of Environmental Conservation, is revising its water quality standards and developing best management practices (BMPs) for control of nonpoint source pollution. Administrative control and implementation of watershed protection measures are increasing through hydrologic and fisheries input to the planning process.

On May 24, 1977, the President issued Executive Order 11988 directing that development on flood plains be avoided where there is a practical alternative. Executive Order 11990 provides similar direction for protection of wetlands.

Some stream crossings in the sale area have abutments and fill material on land that meets the Flood Plan Definition in the Executive Order. Other than this, there are no

facilities planned on flood plains. Under the selected alternative, the number of stream crossings have been minimized to the extent practical.

It is not surprising that southeast Alaska with its high rainfall (100-200 inches per year), impervious substrata, and frequent rainfall (30-40 percent) has an abundance of wetlands. Technically, wetlands as defined in Executive Order 11990 constitute about 30 percent of the landscape within the bulk of the sale area.

Peat bogs (muskegs) commonly occur on slopes up to 30 percent and are defined as wetlands. Road construction has a negligible effect on these bogs. The sensitive wetlands of southeast Alaska are the tide influenced meadows in the estuarine zone. No development is planned in the selected alternative on these lands.

B. Biological

1. Flora

The major floral associations of the sale area are true forest grass-sedge meadows, muskegs, and alpine tundra.

The true forest is part of the cool, very moist rain forest that extends from northern California to Cook Inlet. It extends from sealevel to an altitude of 2,000 to 3,000 feet. This forest is comprised primarily of western hemlock and Sitka spruce, with a scattering of mountain hemlock, western redcedar, and Alaska cedar. Red alder is common along streams, beach fringes, and on recently disturbed soils. Blueberries, huckleberries, copperbrush, devilsclub, and salal are the most important shrubs on the forest floor. Mosses grow in great profusion on the ground, on fallen logs, and on lower tree branches.

Grass-sedge meadows are usually small areas around streams at low elevations and on the upper intertidal areas. Vegetation consists mainly of grasses, sedges, and other herbaceous plants.

Openings occupied by muskegs, or bog plant communities dominated by sphagnum mosses and sedges are dispersed throughout the forest. These openings also support low

shrubs, forbs, and a few scattered hemlock and lodgepole pine. Muskegs vary greatly in size from small pockets, where drainage has been retarded, to relatively broad expanses, such as portions of the Thorne River Valley. Muskegs may even occur on fairly steep slopes. The underlying substrate is highly organic and ranges from about 1.5-feet to 40-feet thick. These openings create variety in the unbroken coastal forest and add to its value as wildlife habitat. Shrubs growing at the edge between the forest and muskeg provide further habitat variety.

The alpine tundra usually lies above 2,500 to 3,000 feet. Thus, it occupies the region above the coastal forest and is separated from the forest by a subalpine or transition zone. Soils are generally thin, but gravelly and stony organic soils may form locally in depressions. Snow remains in some glacial basins year-round, particularly on north-facing slopes. Resident plants have adapted to snowpack and wind abrasion by evolving low-growth forms. Low, mat-forming vegetation covers most of the tundra, and cushion-like plants occupy crevices on exposed rock outcrops and talus slopes.

None of the plant species threatened or endangered in Alaska are known to occur within the sale area.

2. Fauna

Fish and wildlife resources of the sale area are major commercial, subsistence, recreational, and aesthetic assets. The commercial and sport fisheries depend upon the forest ecosystem to provide spawning and rearing habitats as well as a quality source of freshwater entering the estuarine environment.

Salmon, char, and trout are the fish species most dependent on the forest environment. Salmon are also the mainstay of the southeast Alaska fishing industry. In terms of wholesale value, canned and frozen salmon accounted for 72 percent of the value of all fish products for 1970-76.

Seven species of anadromous salmonids occur on the sale area. Of these, four species are of commercial value. These are the pink, chum, coho, and sockeye salmon. The coho and pink salmon are also of major recreational importance.

Three sport fish species, in addition to the coho salmon, occur within the sale area. These are steelhead or rainbow trout, cutthroat trout, and Dolly Varden char. Both resident and anadromous forms of these species occur in the area. Several of the major stream systems on the sale area are known for their recreational steelhead fishing. Also, many lake systems contain suitable sport fish populations of cutthroat trout. Cutthroat trout and Dolly Varden also occur as resident populations in small isolated stream reaches.

Detailed field development of the Fish Habitat Management Units (FHMU) will not be made at this time. However, they will be identified during implementation planning prior to release of units. There are six sub-FHMUs that are descriptive of typical habitat situations encountered in the southeast Alaska forest and stream environments. These sub-FHMU overlap in many instances; therefore, prescriptions will be tailored to each situation encountered.

These typical sub-FHMUs are:

*Pink and chum salmon spawning streams.

*Coho salmon and steelhead trout spawning and rearing streams.

*Dolly Varden and cutthroat trout spawning and rearing streams.

*Potential fish habitat for commercial and sport fisheries populations.

*Nonfish habitat.

*Temperature sensitive streams.

Esturine areas also provide significant contributions to the fisheries resources of the sale area. Emergent pink and chum salmon fry depend entirely upon esturine food supplies for growth and survival. Estuaries also are important nursery areas for several commercial species of crab and shrimp.

The long-term sale area furnishes the necessary habitats and niches for over 250 vertebrate wildlife species. Some of the major land types or wildlife habitats include

alpine areas, muskeg forests, muskegs, spruce-hemlock forests, estuarine grassflats, rock outcroppings, freshwater lakes, saltwater lagoons, and intertidal areas. The spruce-hemlock forest is the largest, making up over 56 percent of the land area, of which 85 percent is in the climax old-growth type. This old-growth climax forest represents an essential component of the habitat requirements of many of the wildlife species or species groups. The existing habitats include a mixture of uneven-age timber stands in mixed volume classes, giving varying degrees of crown closure, tree species composition, opening size, varying composition of dead trees (snags), and understory vegetation, thus providing varied habitats and niches.

Each of the more than 250 species of wildlife have varying social significance. Populations of wolves and bald eagles create a national awareness or concern for wildlife. Game species, primarily the Sitka black-tailed deer, contribute to a regional and local sport and subsistence hunting need which, in turn, contributes to the socioeconomic well-being and lifestyle of many residents. The attraction of wildlife also adds to a successful tourism industry equally valuable to the region.

None of the animals listed on the U.S. Department of the Interior's U.S. Fish and Wildlife Service list of endangered and threatened species are known to exist on the sale area.

Several sources provide a more complete discussion of the fish and wildlife resources and related management problems. These include the "Fish and Wildlife Specialists Reports," "Wildlife Task Force Report," "Fisheries Task Force Report," and "Socioeconomic Overview" that were previously issued by the Forest Service.

C. Social Aspects

The social situation on the sale area is constantly changing. Examples of this change in the last 5 years are the Ketchikan-Hollis ferry connection; road connections from Hollis to Craig, Thorne Bay, and Naukati Bay; a new logging camp at Labouchere Bay; and establishment of a sawmill in Klawock. Each of these changes has, in some way, changed the lives and lifestyles of many residents of the sale area and vicinity.

Since Thorne Bay and Naukati have been connected to the public road system, Craig has become a shopping area for these communities. The people are forming intercommunity social ties, and the communities have began cooperating to achieve mutually beneficial projects, such as State highways, power facilities, and community fairs. Similar development is expected as Whale Pass, Coffman Cove, and Labouchere Bay are connected in the future.

1. Recreation

In the long-term sale area, recreation use is concentrated in the Barnes Lake-Sweetwater Lake area, Karta River-Salmon Lake area, Thorne Bay-Staney Creek road system, Salmon Bay Lake, Sarkar Lakes, Port Protection area, Hollis, Red Bay, Traitors Cove, and Behm Canal area. A list of recreation cabins in the sale area and their use for 1976 is displayed in table 1.

TABLE 1--Recreation cabin use on the sale area in 1976

Recreation cabin	Visitor days of use
Red Bay Lake	30
Salmon Bay	160
Shipley Bay	78
Barnes Lake	96
Sweetwater	242
Sarkar Lake	60
Staney Creek	182
Salmon Lake	320
Karta Lake	790
Karta River	660
McGilvery Creek	266
Blind Pass	240
Plenty Cutthroat	234
Marguerita Bay	542

For inventory purposes, recreational opportunities were divided into three broad categories: Dispersed primitive, dispersed semiprimitive, and concentrated.

Dispersed Primitive--Recreational pursuits involving isolation and an appreciation of the natural environment. They provide a high degree of challenge and risk, and they require a high degree of self-reliance and outdoor skills. Major activities include fishing, hunting,

backpacking, and watching or photographing wildlife. Nature is met on its own terms without convenience facilities, except for access by water or air.

Opportunities for dispersed primitive recreation are abundant because of the large amount of roadless area and the small number of users. According to inventories of the recreation opportunity done for TLMP, several areas on the sale area rated high and moderate in quality for dispersed primative recreation.

Dispersed Semiprimitive--Recreational pursuits require a moderate to high degree of self-reliance and basic outdoor skills. Activities are often oriented toward the taking of fish, wildlife, and edible plants. The natural environment dominates, but some modifications for human conveniences are allowed. Rudimentary roads or trails, as well as airplane and small boat access, may be available.

Opportunities for dispersed semiprimitive recreation are abundant because of the large amount of relatively undeveloped forest land, air and water access, primitive trails, both public and special-use cabins, and old logging roads. In TLMP inventories, several areas on the sale area rated high and moderate in quality for dispersed semiprimitive recreation.

Concentrated--Recreational pursuits include group learning and structured activities, such as downhill skiing and organized sports. (A moderate to high level of sport skills is required.) Although the natural environment is important, modifications for comfort, convenience, and participation are emphasized.

National forest lands surrounding communities are often highly suitable settings for concentrated recreation and provide good potential for facility development. However, opportunities for concentrated recreation are the least abundant of the three major types, primarily because large numbers of users are necessary to justify the expense of development. Consequently, those developments that do exist are found near urban centers, such as Ketchikan. In TLMP inventories, most of the sale area rated low in quality for concentrated recreation.

Further details concerning recreation are in the "Recreation and Visual Resource Specialists Report" and the "Recreation/Wilderness Task Force Working Report."

2. Visual

The sale area encompasses two of the characteristic landscape types of southeast Alaska--the Kupreanof Lowlands and the Coastal Hills.

The northern half of Prince of Wales Island is almost entirely in the Kupreanof Lowland character type. Much of the landscape is characterized by a low, rolling terrain, except for the blocky mountains between Luck Lake and Thorne Bay and the range of more angular peaks around Shakan Bay, El Capitan Pass, Shipley Bay, and Devilfish Bay.

The major water feature in this part of the sale area is the West Coast Waterway extending from Shakan Bay in the north to Tonowek Bay in the south. Included within this main channel are many bays, narrow channels, and island groups. Other major water features are such bays as Port Protection, Red Bay, Salmon Bay, Whale Pass, and Thorne Bay; the Sarkar Lakes and Sweetwater-Barnes Lake systems; and three major stream systems--Thorne River, Karta River, and Staney Creek.

Intricate channels and island groups and extensive tidal flats are generally the features that make up the most diverse landscapes on this portion of Prince of Wales Island. The highest rated landscapes in terms of variety of features in this area of Prince of Wales Island are the Salmon Bay and Calder Mountain areas. Most of the remainder of the sale area on Prince of Wales Island is a more common landscape with respect to the Kupreanof Lowland character type.

The portion of the sale area on the northwest corner of Revilla Island is part of the Coastal Hills character type. The landscape is primarily characterized by very steep slopes and moderately rugged terrain surrounding Traitors Cove, Neets Bay, Gedney Pass, and Shrimp Bay.

Past logging and roading activities changed the character of the landscape to differing degrees in various areas of the sale area. In the Sarkar Lakes, Salmon Bay, Salmon Bay Lake, Honker Divide, and Karta River areas, there has been virtually no change in the character of the natural landscape. But, in the areas around Thorne Bay, Coffman Cove, Staney Creek, and Whale Pass, the natural landscape

as seen from recreation use areas has been extensively altered by large clearcuts.

Between these two extremes are areas where the natural landscape, as seen from key viewing areas, has been only slightly altered by management activity. These would include areas as seen from portions of the West Coast Waterway, Sumner Straits, Red Bay, and Sweetwater Lake.

In other areas, such as Traitors Cove and Neets Bay, the natural landscape has been extensively altered in the past. However, 20 to 25 years of regrowth have partly restored the forested texture and green color to the landscape.

3. Wilderness

No portion of the sale area is classified as Wilderness. The Karta River drainage area is currently included in several bills before the U.S. Congress.

RARE II and TLMP studies have evaluated the wilderness potential on all roadless areas on the sale area. Some public interest has been expressed for Wilderness for Karta, Salmon Bay Lake, Honker Divide, and Sarkar. Therefore, alternatives have been developed to satisfy contractual volumes for the 1979-84 operating period without entering these areas. This was done so as to not constrain the RARE II and TLMP processes.

4. Cultural

No cultural resources are listed as being on or eligible for the National Register for Historic Places in the Federal Register, Volume 43, Number 26 (Tuesday, February 7, 1978), or in any of the monthly updates through Volume 43, Number 243 (Tuesday, December 5, 1978). However, the sale area was traditionally occupied by the Tlingit Indians with the exception of southern Prince of Wales Island, which was inhabited by the Haida Indians. Although detailed studies have not been undertaken to find all sites of past Indian occupancy, more than 50 known cultural resources are on the sale area. These include villages, canoe landings, middens, fish weirs, forts, petroglyphys, and burial sites. Many more sites are likely to exist, but most of them are covered with a dense growth of vegetation.

Since late in the 1700's, Euro-Americans have had contact with Natives in southeast Alaska. Evidence of early activites on the sale area is primarily from mining and prospecting activities late in the 1800's and early in the 1900's. Also, early in the 1900's, salteries and later canneries were built to utilize the fishery resource. Remains of these can be found in many bays on the sale area. Logging also started in the 1900's, and evidence of this early occupation can also be found scattered throughout the sale area.

5. Transportation

The present transportation system in the sale area involves air, land, and water travel. The main waterways are Sumner Strait, Clarence Strait, Behm Canal, and El Capitan Pass. Land access routes are confined to localized systems on the individual islands, and in most cases the individual island systems cannot be linked by land. Thus, transportation of goods and people generally requires combined land and water or air transportation means.

Prince of Wales and Revillagigedo Islands contain the greatest population centers. The other islands contain temporary logging camps with localized road systems primarily for timber harvest.

Revillagigedo Island is occupied by Ketchikan, Saxman, Loring, and three small floating logging camps. Revillagigedo Island has an extremely difficult terrain that limits the integration of the existing road systems. Continued development will generally expand existing systems, with expansion directed toward local intraconnection only where feasible.

Prince of Wales Island contains six small communities and numerous logging camps with a population of about 2,300 people. A large portion of these are isolated with only local road systems. Continued development has generally trended toward linking these systems. The terrain on Prince of Wales Island is favorable for development of an intraisland road system. Figure 1 shows the main road system (arterials and major collectors), existing and planned, on Prince of Wales Island. Past development has been accomplished by public works contracts, cooperative agreements, and timber sale developments.

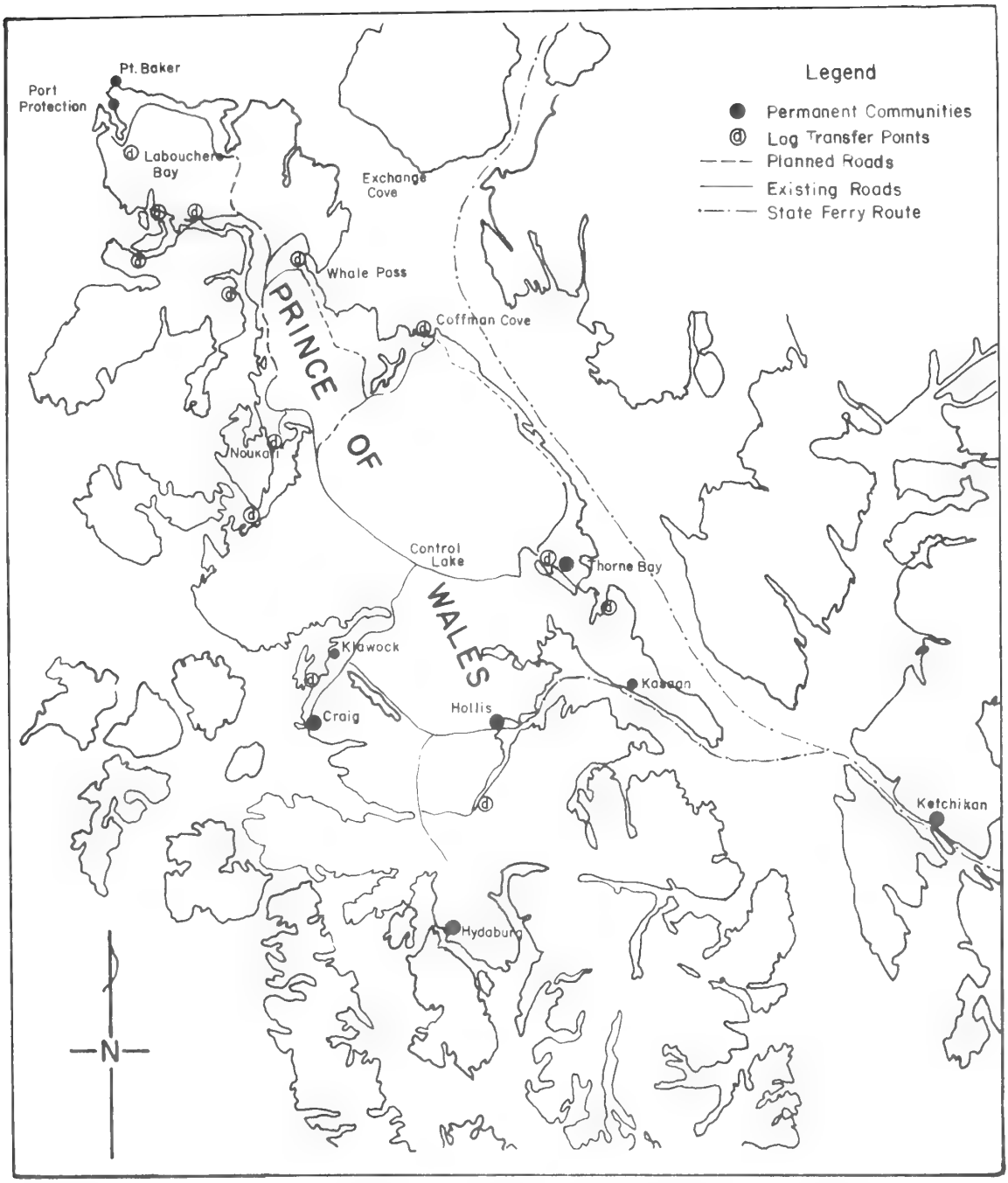


Figure 1 - Basic Transportation System for PRINCE of WALES ISLAND

A major purpose of linking the existing parts of the Prince of Wales Road System is to improve management of national forest resources. An integrated road system will reduce the need for new logging camps and eventually allow for a reduction in the total number of logging camps. Similarly, the need for new log transfer sites is reduced by joining road segments to existing sites instead of creating new sites to serve a new isolated road system.

Integrating the road system allows the transfer of specialized logging equipment to readily take place between camps instead of making costly equipment investments at each camp. These savings reduce costs for the purchaser and increase the stumpage value to the United States. Another benefit is reduced occupancy of the land by camps and log transfer sites with, as a result, a restricted extent of environmental impacts from human activities.

An integrated road system within the sale area provides reliable surface access on a daily basis, 8 to 9 months a year. This reduces time lost because of inclement flying weather. It also reduces the number of hours Forest Service and industry employees and their families are exposed to hazardous airplane and helicopter travel. Over the past 5 years, 12 Forest Service employees have been killed in aircraft accidents. All of these people were engaged in duties relating to the long-term timber sale on Prince of Wales Island. Although there is no assurance that they would be alive today if the roads had been connected before their deaths, enough of a possibility exists to make road construction highly desirable. Motor vehicle accidents undoubtedly will occur on the connected road system, but the consequences of motor vehicle accidents on low-speed roads with a normal speed limit of 25 miles per hour (mph) are not expected to be so severe as aircraft accidents.

Forest Service roads and State roads connect Craig, Klawock, Thorne Bay, and Naukati to each other and to Hollis on Prince of Wales Island. There are approximately 210 miles of main Forest Service road and 20 miles of State road terminating at these population centers. One objective of transportation planning has been to connect the isolated road segments radiating from Coffman Cove, Whale Pass, El Capitan, and Labouchere Bay to the other population centers to better facilitate National Forest management.

All roads on Prince of Wales Island, with the exception of the State roads, have been constructed primarily for timber harvest. The rate of construction and the time table for interconnecting segments depended heavily on the location of timber to be harvested and the location of log transfer terminals.

Forest Service policy by regulation is to construct roads to standards appropriate for the intended use, considering safety, cost of transportation, and impacts on lands and resources. Locally, the main roads (arterials and major traffic collectors) have been constructed to a single lane width with turnouts and with a rough shot rock surface but built wide enough to accomodate future crushed gravel surfacing. Bridges have generally been of temporary log stringer construction. All roads are designed for heavy off-highway loads, but only the main roads are intended to receive future surfacing for efficient log hauling and to accomodate low-clearance vehicles.

This type of construction is the result of economic limitations and a conservative approach to accomodating an unknown amount of future public traffic when there were very few connecting routes and mostly industrial traffic. The recent connections, however, of main roads between some of the communities and logging camps, plus the establishment of ferry service at Hollis in 1974, have expanded public use on the main roads beyond the predictions of 5 years ago for the 1974-79 operating period.

Approximately 55 temporary log stringer bridges are in use on the Prince of Wales Island main road system. All but four of the temporary log stringer bridges on the Hollis-to-Thorne Bay route have been replaced by permanent bridges with public works funds. If the temporary bridges (8- to 10-year service life for loaded log trucks) are not replaced through the next 5-year period, load limit restrictions will be required and will close some routes to log hauling.

Currently, public use is restricted in the southern Staney Creek area during periods of log hauling, which include most of the daylight hours from Monday through Saturday. The restrictions are applied because of inadequate width or numbers of passing turnouts and because logging traffic is on the roads during these times.

Future management for the forest development roads will continue to emphasize connection of main logging camps and log transfer sites by construction of the remaining planned segments of the Prince of Wales Island main road system. Reconstruction of sections of existing main road systems, including temporary bridge replacements, will be required to accommodate log hauling or unrestricted public traffic. The construction schedule, road restrictions or closures, and road standards are affected by national policies, local needs, and the ability to finance. To the extent that financing is available, the following direction will be applied to the development of the transportation system:

*Main road new construction will be limited to a single-lane width with a 25-mph design speed and constructed wide enough to accommodate crushed gravel surfacing. Permanent bridges on the main routes will be constructed initially to a two lane standard.

*Main roads will be surfaced for log hauling savings and public traffic.

*Public traffic will be restricted on isolated portions of the main roads under Forest Service jurisdiction as necessary for safety or other management needs.

*Permanent bridges will be constructed initially on all main roads, as determined by available funds, environmental impacts on fisheries and water quality, and the need to maintain continuous traffic. Applying the same considerations on the local temporary road systems, permanent or portable bridges with permanent abutments will be constructed on some major stream crossings and, temporary log stringer or portable bridges will be built on the rest.

*The local road systems will be constructed and managed for only industrial or administrative use, unless there is a need for other uses, such as hunting or fishing. These routes will be closed to public use during log haul periods and will be either closed to all traffic or posted as "not maintained for public travel" when not needed for log hauling. Closures or restrictions may be applied for a variety of other reasons, for example, to limit the effect of access on wildlife.

D. Economic Aspects

The relative structure of the primary sectors of the Ketchikan Area is shown in table 2. Data and discussion on nearby areas of southeast Alaska are included for comparison.

TABLE 2--Primary employment by sector and Area on the Tongass National Forest, 1970-76

Type of employment	Percentage of primary employment by Area			
	Ketchikan	Stikine	Chatham Excluding Juneau	Chatham Only Juneau
Commercial fishing and fish processing.	17.1	64.2	31.0	1.8
Logging and forest products	53.4	26.7	56.5	---
State and Federal Government	18.8	1.7	4.8	87.3

The socioeconomic situation in southeastern Alaska is described at length in the "Socioeconomic Overview" published by the Alaska Region, Forest Service, USDA, in 1978 as part of the Tongass National Forest Land Management Plan. Tables 3 and 4 illustrate the recent average annual employment by industry both for the Ketchikan Area and for southeastern Alaska as a whole.

Timber-related activities are clearly of primary importance in the Ketchikan Area and the Chatham Area, excluding Juneau, accounting for more than half the primary employment in each. Commercial fishing and fish processing is significant in the Ketchikan area, and it accounts for approximately two-thirds of the primary employment in the Stikine Area. The percentage of the 12-month average fisheries-related employment in the Stikine Area is probably accounted for by the labor-intensive shellfish production at Petersburg, the resident fleet's greater capabilities of participating in the Gulf halibut and groundfish fisheries, and the almost year-round activities of both harvesting and processing as compared with the more narrowly limited seasonal operations elsewhere.

TABLE 3--Average annual employment by industry in southeast Alaska, 1970-76

Type of employment	Number of jobs during -- 1970	1971	1972	1973	1974	1975	1976	7 years	Percentage of to
	Annual average								
Primary:									
Commercial fishing	1,375	1,210	1,330	1,490	1,690	1,340	1,590	1,430	6.5
Fish processing	732	566	762	703	638	636	662	671	3.1
Contract construction (estimated major public works) 1/	--	75	472	581	461	285	368	321	1.5
Federal Government	1,667	1,562	1,284	1,345	1,364	1,282	1,325	1,404	6.4
State government	2,258	2,434	2,627	2,716	2,941	3,252	3,432	2,809	12.8
Logging	1,079	1,114	1,201	1,444	1,467	1,230	1,076	1,230	5.6
Lumber	560	517	521	639	697	506	515	565	2.6
Pulp	1,003	995	1,002	1,011	1,295	1,187	1,178	1,096	5.0
Log and timber product transportation	125	120	120	130	120	90	100	115	.5
Tourism	480	540	600	670	740	830	920	683	3.1
Subtotal	9,279	9,132	9,919	10,729	11,413	10,638	11,167	10,324	47.1
Induced:									
Federal Government	1,182	1,086	1,138	1,119	1,175	1,265	1,239	1,172	5.4
State government	696	774	890	870	963	1,049	1,012	893	4.1
Local government	1,842	2,082	2,384	2,431	2,531	2,797	2,938	2,429	11.0
Contract construction (local) 1/	601	568	589	655	611	607	593	605	2.8
Distributive industries	5,206	5,533	6,105	6,355	6,994	7,576	7,656	6,489	29.6
Subtotal	9,527	10,043	11,106	11,430	12,274	13,294	13,438	11,588	52.9
Total employment	18,806	19,175	21,025	22,159	23,687	23,932	24,605	21,912	100.0
Total population	42,565	43,346	44,772	46,417	50,232	50,438	51,172	46,991	---
	Percent								
Participation rate	44.2	44.2	47.0	47.7	47.2	47.4	48.1	46.6	---

1/ Primary contracted construction employment estimates for major public works. Induced (local) employment i difference between total reported employment and estimated primary employment.

TABLE 4--Average employment by industry in the Ketchikan Area, 1970-76

Type of employment	Average number of jobs during --								Percentage of total
	1970	1971	1972	1973	1974	1975	1976	7 years	
	Annual average								
Primary:									
Commercial fishing	340	270	420	375	475	280	285	350	5.5
Fish processing	129	89	235	172	179	131	118	150	2.4
Contract construction (estimated major public works) 1/	--	--	125	237	192	104	141	114	1.8
Federal Government	334	304	292	307	325	312	305	311	4.9
State government	240	240	240	240	240	240	240	240	3.7
Logging (including road construction)	494	547	634	780	810	591	596	636	10.0
Lumber	2/244	2/247	2/280	346	308	149	214	255	4.0
Pulp	2/535	2/541	2/537	2/586	2/789	2/651	2/620	609	9.6
Log and timber product transportation	70	70	70	75	70	50	60	66	1.0
Tourism	150	160	180	200	220	240	260	201	3.2
Subtotal	2,536	2,468	3,013	3,318	3,608	2,748	2,839	2,932	46.1
Induced:									
Federal Government	251	205	220	225	250	274	282	244	3.8
State government	219	248	302	286	332	349	298	291	4.6
Local government	610	645	735	840	881	945	1,006	809	12.7
Contract construction (local) 1/	188	117	150	150	120	110	150	141	2.2
Distributive industries	1,675	1,630	1,853	1,936	2,097	2,223	2,148	1,937	30.6
Subtotal	2,943	2,845	3,260	3,437	3,680	3,901	3,884	3,422	53.7
Total employment	5,479	5,313	6,273	6,755	7,288	6,649	6,723	6,354	100.0
Total population	13,823	13,530	14,267	14,220	15,750	15,577	15,155	14,617	---
	Percent								
Participation rate	39.6	39.3	44.0	47.5	46.3	42.7	44.4	43.5	---

1/ Primary employment estimates include construction of Ketchikan International Airport and other State facilities and State-financed community facilities. Induced employment (local) is the difference between reported total employment and estimated primary employment.

2/ Estimated. Published data are combined with other classifications to avoid disclosure of confidential date.

E. Land Status

The land status situation on the sale area is constantly changing. Since the Tongass National Forest was created, scattered areas have been removed for private homesites, townsites, and so forth. Mining claims have been patented to remove more areas. Currently, lands are being withdrawn and transferred to the KAVILCO and to SEALASKA under the Alaska Native Claims Settlement Act of 1971. The State of Alaska, under the Statehood Act of 1958, is in the process of selecting land on the sale area. This is primarily at existing logging camps, but some selections are scattered and are for purposes other than community development. The Forest Service has approved the Thorne Bay and Port Protection selections that include units to be cut during the 1979-84 operating period, with the condition that these units will be cut under the contract. Details on these selections are shown on a map accompanying the "Tongass Land Management Plan Final Environmental Statement."

F. Issues

Most of the issues relative to the long-term timber sale are thoroughly described in the TLMP and in the "Southeast Alaska Area Guide." One additional issue relative to this timber sale is the large timber volume and long-term duration of the contract between LPK and the Forest Service. The concern is that this contract is a constraint on the Forest Service in applying measures to manage other resources. It is felt the large volume committment becomes a constraint which forces the Forest Service to give less attention to other values. However, the other side to this issue is that if the job level is to be maintained, the same volume commitment would still be needed regardless of the kind of contract. The National Forest Management Act of 1976 validated the existing long-term timber sales in Alaska, but the issue is still disputed by some.

Those issues which are pertinent to the 1979-84 operating period of LPK and covered in more detail in the TLMP are as follows:

Economic Issue--The Ketchikan Area greatly relies on the existance of the pulp mill, sawmills, and related logging for its economic well-being. The issue is whether or not the Tongass National Forest will continue to supply the timber volume needed to maintain this reliance at its present level.

Wilderness/Backcountry Issue--The areas on the LPK sale where wilderness is an issue are Salmon Bay Lake, Karta, and parts of Sarkar and Honker Divide. The concern is that all or some of these should be preserved as wildands for future generations.

G. Management Concerns

The timber that is selected for harvest must "appraise out." This means that it must be economically viable. It must give a return, including capital investment in road construction, greater than the costs associated with harvesting and allow a reasonable opportunity for profit. The degree to which the marginal component will be included and the way in which other resources are protected are factors that are balanced against selling values to indicate a viable sale.

Another management concern is that the harvest should be planned so as to allow road connections desirable for National Forest management. This is to enhance recreation access on the island, provide safer and cheaper transportation between administrative sites, and access for future management activities.

The LPK contract provides that the Regional Forester may not deny permission to export western redcedar logs harvested from the sale area unless a competitive market for those logs exists in Alaska. No competitive market now exists. Therefore, western redcedar logs harvested from this sale area may be exported outside Alaska without primary manufacture. The Regional Forester intends to implement alternate pricing systems for western redcedar logs that may permit a competitive market to develop. While no competitive market has been demonstrated, the Regional Forester intends to monitor market conditions. If a market develops during the 5-year period, export of unprocessed western redcedar logs may be restricted.

III. EVALUATION CRITERIA

The evaluation criteria used to weigh the alternatives are a combination of contractual, social, economic, and resource management requirements. The long-term timber sale agreement specifies several conditions relating to the selection of harvest units. The entire agreement is printed as Appendix A. The following criteria were developed from this agreement.

1. The volume of timber selected should equal 960 MM bf and be located on the primary sale area.

2. Timber selected for harvesting shall include rapidly deteriorating timber killed or damaged by fire, insects, or windthrow or selections made in order to protect other important national forest interests.

3. Timber selected for harvest will result in an economically viable operation as described in Section 1d. of the long-term contract.

Other noncontractual criteria are as follows:

4. Refrain from selecting units in roadless areas nationally identified as having potential for wilderness or roadless recreation. Within the primary sale area, these are Karta, Salmon Bay lake, and parts of Sarkar Lakes and Honker Divide.

5. Design harvest units and logging systems so that leave strips and deferred areas will be economically available in the future.

6. Complete the forest multipurpose intraisland road system to connect all land-based logging camps on the Prince of Wales Island portion of the sale area to better facilitate National Forest management.

7. Maintain social and economic stability in the Ketchikan Area of the Tongass National Forest.

8. Conform to policies established by the "Southeast Alaska Area Guide," published by USDA Forest Service, Alaska Region, in April 1977.

9. Conform to "Operating Guides for Timber Sale Layout" when not in conflict with other criteria. These guides are printed in Appendix B.

IV. ALTERNATIVES CONSIDERED

Alternative maps are enclosed showing proposed timber harvesting and roading activities for each alternative. These are small-scale maps; for those wanting to review detailed maps, they are available for review at the Ketchikan Area Office of the Forest Service.

Alternative 1 is the LPK selection of harvest units presented to the Forest Service. The alternative would harvest 960 MM bf from the primary sale area in 380 units averaging 82 acres in size. Twenty-two of these units are 160 acres or larger. The size range is from 9 to 546 acres. The unit boundaries when overlaid with timber type boundaries generally coincide with the highest volume timber types available in the area and emphasize harvest economy. The logging systems proposed include hi-lead, hi-lead with cold deck swing, A-frame with cold deck swing, helicopter, and skyline.

Road construction under this alternative would extend the existing network and tie Coffman Cove camp to Naukati. Ratz Harbor would be connected to Coffman through Baird Peak. Log transfer sites would have to be constructed or rebuilt as shown on the alternative map. Under this alternative most roadless and undeveloped areas over 5,000 acres in size and remaining on the primary sale area would be entered by 1984.

Alternative 2 is a plan to take no action. Under this alternative the Forest Service would not allow the harvest of any other timber or the construction of any roads on the sale area in 1979-84. Lack of maintenance would require closure of all roads to the public.

Alternative 3 has 400 units averaging 60 acres in size for harvesting 790 MM bf from the primary sale area. Eight of these units are 160 acres or larger. The size range is from 1 to 700 acres. This alternative places emphasis on the forest's amenity values, such as wildlife habitat and scenic beauty. Areas were selected for harvest only if no adverse, or only minor adverse, activities would affect amenity values. Exceptions were made to harvest major blowdown areas as a result of the late-October storm in 1978.

Logging proposed under this alternative would include hi-lead, hi-lead cold deck, A-frame cold deck, and several skyline variations. Favorable factors of timber operability are used to protect amenity values.

Road construction would extend the existing network from Naukati to Labouchere Bay through Coffman Cove, Whale Pass, El Capitan, and Turn Creek. Ratz Harbor would be tied to Coffman Cove through Luck Lake. Except for Karta, Salmon Bay Lake, Sarkar Lakes, and Honker Divide, most roadless and undeveloped areas would be entered this period.

Alternative 4 has 480 units averaging 70 acres in size for harvesting 960 MM bf from the primary sale area. Fifteen of these units are 160 acres or larger. The size range is from 1 to 700 acres. These

units would not necessarily provide the highest timber volume per acre, but instead they would develop areas so as to salvage blowdown timber and prevent loss of residual timber because of windthrow or lack of access.

The logging systems proposed include hi-lead, hi-lead with cold deck, A-frame with cold deck, and several skyline variations.

Road construction under this alternative would extend the existing network of roads and connect Coffman Cove to Naukati. El Capitan, Whale Pass, and Labouchere Bay would be connected to Naukati through Sarkar Rapids. To facilitate the completion of the intraisland road system, it is necessary to leave the primary sale area between Naukati and Whale Pass, thus including the "Clam Chance" timber in the long-term sale. Additionally, a road connection from Coffman Cove to Ratz Harbor through Luck Lake would be built. With the exception of Karta, Salmon Bay Lake, Sarkar Lakes, Honker Divide, most of the roadless and undeveloped portion of the sale area would be entered during 1979-84.

Alternative 5 would exclude from harvest all areas over 5,000 acres on the sale area which are now roadless and undeveloped. These areas were identified in the RARE II planning process. Within the sale area, this alternative is the same as Alternative 4 minus development in roadless areas. It has 350 units averaging 70 acres in size for harvesting 694 MM bf on the primary sale area. Twelve of these units are 160 acres or larger. The size range is from 1 to 700 acres. The only arterial road connection would be from Coffman Cove to Naukati and Ratz Harbor through Luck Lake.

V. EFFECTS OF IMPLEMENTING ALTERNATIVES

This section describes the effects of implementation that each alternative would have on the sale area. The types of effects are described, based on experience with previous logging on the sale area. The degree of effect is based on an estimate of various data, such as acres to be cut, miles of roads to be built, and steepness of slopes involved. These and other similar data are estimated, because the fieldwork, such as road design and sale unit layout, will be done during the next 5 years. Thus, this information cannot yet be quantified. But, all available information was used to develop the effects discussed in this section, including aerial photographs and on-the-ground assessments by specialists.

A. Soils

Some soil disturbance, with resulting consequences, is unavoidable when natural systems are disturbed. Soil erosion as a mass land failure on slide-prone slopes may be accelerated where mineral soils are exposed, overland drainages are altered, and roads concentrate runoff. The first step in reducing or preventing erosion is to minimize the occurrence of factors leading to accelerated rates. Yarding of suspended or partially suspended logs disturbs less area than tractor logging or high leading with little or no lift. Also, suspended logs disturb less area than partially suspended logs when yarding downhill on steep slopes. Surface runoff materials will be less likely to reach the streams if the proximities of landings, roads, and sale units to streams are properly designed and regulated. Where mineral soils are bared and pose a threat of lower productivity or high stream sedimentation, grass seeding with fertilization will be done to minimize surface erosion.

Canopy removal increases solar radiation reaching the forest organic layer. This results in surface warming (Gregory 1956) and increased decomposition rates. By increasing decomposition, more available nutrients are released. The long-term effects from this are not yet known.

Youthful alluvial soils are subject to extensive erosion from periodic flooding and stream abraiding, depending on the degree of hazard. Activities on these soils must be done carefully or avoided to prevent stream damage.

Timber harvest units and roads could accelerate streambank cutting and surface erosion on V-notch drainages. These impacts can be largely controlled when properly managed. Yarding across or down V-notch drainages generally requires total suspension of logs. V-notches are high hazard areas, that require a detailed investigation by an interdisciplinary team before proposed activities begin.

Alternative 1--More soil erosion and loss of productivity would occur in this alternative than any of the others. The unfavorable impact in this alternative would result from not meeting many required guidelines during logging and roading. Timber productivity would be temporarily impaired over a greater number of units and acres through organic layer removal. This disturbance would result from using high-lead yarding on areas where partial or full suspension should be used. Organic layer removal and mineral soil disturbance in these units

would result in unacceptable accelerated soil erosion through mass failures and sheet erosion, especially where associated with V-notch drainages, slopes in excess of 68 percent, and soils with unstable characteristics.

Ordinarily, duff layer disturbance (raw mineral soil exposure) from high-lead logging amounts to about 5 to 15 percent, but under this alternative up to 50 percent can be expected. Soil productivity for conifers will be reduced (on a 100-year cutting cycle) about 15 to 20 percent on soils not scoured to bedrock if they go through an alder stage. Without an alder stage, the setback is usually much higher, perhaps 50 percent. Where the soils are scoured to bedrock, productivity will be greatly impaired for the duration of the cutting cycle.

Several sections of roads are on soils and slopes where erosion would result in unacceptable sedimentation to streams and lakes. Other adverse effects on water quality because of sedimentation from road construction would be short-termed and perhaps significant or measurable only during major rainstorms.

Alternative 2--Soils would be affected minimally under this alternative. The Forest Service would be required to take some immediate actions for closing unneeded roads and stabilizing exposed soil areas. Some soil disturbance and sedimentation, although minimal and short-termed, will result from removing nonessential bridges and culverts and ending road maintenance for permanent roads on Prince of Wales Island.

Alternatives 3 and 4--These two alternatives from the soil aspect would be equivalent in environmental impacts, even though Alternative 4 has more units and acres. The increase of units and acres in Alternative 4 over Alternative 3 are units and acres that would not need special mitigating action from the soil aspect. Mitigating actions in the form of partial suspension or full suspension over nearly the entire length of the yarding distance would be required for 40 units to decrease adverse soil disturbance effects. Despite all mitigating actions that could be applied in these two alternatives, some adverse impacts would result; however, these impacts would be less than under Alternative 1.

Timber productivity can be expected to be temporarily impaired wherever the organic layer is removed. This disturbance would amount to about 5 to 15 percent under these alternatives. The effect would be the same as stated in Alternative 1 for conifer regeneration and the cutting cycle.

Surface erosion would be accelerated in some areas, and some sediment production to streams could be expected when roadbuilding across streams or logging on stream edges.

Alternative 5--This alternative is nearly the same as Alternatives 3 and 4, except only 19 of the 40 units needing special mitigating action would be logged. The other 21 units are dropped in this alternative, since they are in roadless areas. The adverse and beneficial effects for the units in the roaded portion will be the same as stated in Alternatives 3 and 4. Short-term adverse impacts would result despite mitigating actions.

A more complete discussion of the effects on soils may be obtained on request in the "Soils Specialist's Report." See also the soils guidelines in Appendix B for soil management practices used in this plan.

B. Water

The following analyses are presented to highlight the key impacts. Timber harvests can affect both water quality and quantity. In southeast Alaska, the primary impact would be a slight increase in sedimentation over natural levels. Many stream systems are susceptible to increased sediment loads caused by harvesting activities. The most sensitive streams are those which naturally produce the greatest amount of sediment, namely V-notch drainages, alluvial fans, and abraided stream systems. Roads pose the greatest threat for increased sedimentation from road pioneering work, culvert and bridge construction, cut and fill slopes, road surfaces, and borrow pits.

Although the increase in sediment is the main effect from logging and road construction, increases are relatively low compared with other regions of the United States. One of the main reasons for the low recorded increase in sediment in Alaska is the type of roads most frequently constructed. Roads are, for example, generally of overlay construction, built with rock blasted from quarries. When properly graded material is used, there is little source of sediment available, and the coarser material also provides an effective trap for what does exist. Stream crossings then become the key location and control point from the standpoint of sediment production.

In general, southeast Alaska streams are not considered to be highly sensitive to temperature changes resulting from timber harvest. Frequent cloudiness, low air temperatures, steep channel gradients, and frequent precipitation tend to keep stream temperatures below the range considered harmful to fish. However, stream temperatures may be increased if long strips of shade-producing vegetation are removed from along south, southwest, west, and northwest banks of temperature-sensitive streams. The streams most likely to be temperature-sensitive usually contain lakes and muskegs and organically-stained water, have low channel gradients, and southeast to southwest exposures.

The same natural characteristics that keep stream temperatures low also act to maintain high concentrations of dissolved oxygen (D.O.). Dissolved oxygen levels and biochemical oxygen demand may be affected if logging slash is allowed to accumulate in streams. There are requirements to remove logging debris from streams and to mitigate reduction in water quality, mainly D.O. and tannins and lignin's. But, generally, southeast Alaska streams are not considered highly sensitive to D.O. depletion from timber harvesting activities.

Temporary changes in water quality can be expected from timber harvesting. But, all anticipated changes could be reduced to acceptable levels and returned to natural levels through proper planning and enforcement of watershed protection measures during and after logging activities.

Changes in streamflow would probably be negligible. Normally, restrictions on cutting design eliminate the potential for a measurably increased streamflow.

Sewage effluent from logging camps would have an impact on the marine environment in the form of nutrients. In all alternatives, onsite investigations and development of specific watershed protection measures would be required whenever sensitive landforms and channel systems are encountered.

At present, an active program for monitoring water quality is being conducted to help quantify the effects under various natural and manmade conditions. To develop some insight into the effects of hydrologic responses resulting from timber harvesting, other accounts were reviewed and documented.

In western Oregon, streamflow changed, annual yields and summer low flows were changed significantly on very small headwater basins. These changes have only onsite importance, since water flowing from uncut areas overshadow the increases. Changes in yields in larger basins were indicated as being very small (Harr 1975). Also in western Oregon (Rothacher 1973), the report states, "Under these conditions there are indications that the highest peak flows from logged watersheds are rarely greater than they would have been if no logging occurred." In Canada, the time to the streamflow peak and to increased and peak flow magnitude both decreased significantly (Cheng, Black, de Vries, Willington, and Goodell 1975). Under certain circumstances, the potential water-yield increase on a northern Idaho watershed may be high; but, under other conditions, the increase can range from negligible to moderate (Cline, Haupt, and Campbell 1977). Though these increases or decreases occur to varying degrees, their significance depends on the size of drainage, orientation, wind exposure, forest stand density, and soils. The Harris River study examplifies this in that a large drainage was harvested with insignificant affect to the streamflow when compared to unlogged Indian Creek (Meehan, Farr, Bishop, and Patric 1969). The logging in Harris River was 20 percent of the drainage area, the study conclusions were drawn at the mouth of its 31.8-square-mile area which dampened a great percentage of the response to timber harvest.

A more recent investigation on streamflow response after timber harvesting (Bartos 1978), showed that responses were detectable when 30-35 percent of the watershed was harvested, and a substantial increase in water yield began to be evident in the analysis.

The investigation on the Staney Creek on Prince of Wales Island drainage shows that the increased discharge is primarily included in the mean to lower flows. The peak flows show little to no significant affect from timber harvest. So, is presumable that harvesting less than 20 percent of a drainage area would have little to no detectable affect on streamflow.

At the present time, there are studies proposed to investigate sediment production from road construction, mainly at or near culverts and bridges on Prince of Wales Island. Data thus far obtained from bridge site construction show insignificant increases in suspended sediments for very short durations (5-15 minutes) during a stream contact period.

The Water Resource Inventory Program (beginning in the 1979 field season) will determine landform-streamchannel sensitivity relationships which, in turn, will be related to other hydrologic data. In all alternatives but Alternative 1, either the "best management practices" developed by the Alaska Department of Environmental Conservation or equivalent measures developed by the Forest Service would be implemented to control nonpoint pollution from timber harvest activities. The effectiveness of these measures would be evaluated through the monitoring program, and results would be used to determine compliance with existing State water quality standards.

Water quality monitoring at baseline or project gaging stations has and will obtain the following data:

*Temperature.
*Dissolved oxygen.
*Alkalinity.
*Ph.
*Suspended sediment (with a DH-48 integrating sampler).
Bedload transport volume.
Bed gravel to a 4 inch depth.
*Conductance turbidity in NTU's.
*Water quantity in cubic feet per second and (discharge) and measured in percentages by weight.

Water samples obtained in the field will be analyzed in a laboratory for the following:

*Total nitrogen.
*Total phosphorous.
*Calcium.
*Magnesium.
*Potassium.
*Sodium.
*Tannins and lignins.

Baseline and project stations are:
*Bonnie Creek at Shaheen.
*Alpha I Creek at Sweetwater.
*Perkins Creek at Moria Sound.
*Big Creek at Whale Pass.
*Old Tom Creek at Skowl Arm.
*Indian Creek near Hollis.

The time frame of sampling is once every 2 weeks between April/May to November/December and every 2 months during

winter. At project sites, such as culvert or bridge construction or any other environmental alteration, the following items are measured (Sampling at these sites is done above and below the project site):

*Suspended sediment with a DH-48 integrating sampler or ISCO pumping sampler. Duration of sampling 15 minutes to 1 hour between sampling for the period of operation in or near a stream.
*Discharge in cubic feet per second.
*Bedload, if possible.
*Turbidity in NTU's.
*Conductance.

If, at any time before construction of roads or timber harvest, an IDT anticipates a violation of the State water quality standards, a short-term variance from the D.E.C. will be requested. All other timber harvest activities will be initiated with the full intent of following Forest Service "best management practices." For other specific analyses of effects that would also apply to water, see "Effects on Fish" and "Effects on Soil."

Table 5 shows the extent of harvest areas by slope class. Table 6 lists the miles of water courses adjacent to timber harvest units. The table shows Alternative 1 as having significantly more miles of water course affected by timber harvest than the other alternatives.

TABLE 5--Estimated number of acres in areas planned for timber harvest in the 1979-84 period by slope class for each alternative

Alternatives	Slope class	
	34-37 degrees	37 degrees or more
	Acres	
1	5,800	2,000
2	0	0
3	3,900	900
4	4,650	1,100
5	3,300	800

TABLE 6--Extent of stream miles affected on the sale area by timber harvesting alternative 1/

Stream location or description adjacent to harvest units	Extent of streams affected by Alternative--				
	1	2	3	4	5
			Miles		
Watercourses	55.55	0	19.7	26.10	15.55
Waters inaccessible to anadromous fish	13.30	0	7.15	9.00	4.95
Intertidal areas	4.50	0	.80	1.20	0
Lakeshores	3.55	0	.30	.40	.15
Streams accessible to anadromous fish	34.20	0	11.45	15.50	10.45
Temperature-sensitive streams accessible to anadromous fish	17.50	0	3.30	3.80	1.35

1/ Distances scaled from 2-inch-per-mile forest maps.

Alternative 1--This alternative would have the highest potential effect on water quality because of the excessive ground disturbance as a result of high-lead logging mainly on planned harvest acres in the slope classes of 34 to 37 degrees and 37 degrees or more. Some acreages on these slopes were not accepted in the other alternatives, even with use of best available management practices.

Several sections of roads are on critical soils and slopes where soil erosion will result in unacceptable sedimentation to streams and lakes. These sections of roads are on slopes greater than 34 degrees and are close to water bodies. Other adverse effects on water quality because of sedimentation from road construction will be short-termed and may be significant or measurable only during major rainstorms.

Alternative 2--The only effects foreseeable under this alternative would arise from sedimentation resulting from removal of bridges and culverts following closure of no-longer-needed roads in the sale area.

Alternatives 3, 4, and 5--These would affect water quality in similar ways. These alternatives call for less timber harvesting on steep slopes than would Alternative 1, and they provide for appropriate logging systems to mitigate impacts that would otherwise occur if high-lead logging took place on 34- to 37-degree and 37-degree or more slope classes selected for harvest in these three alternatives. The appropriate logging systems planned for these alternatives will supply partial and full suspension on slopes greater than 34 degrees. These logging systems will reduce the potential for short- and long-term mass movements by minimizing ground disturbances during yarding of logs. Partial and full suspension on sensitive landforms protects other ground cover and usually does not uncover and expose mineral soil. Protection of other ground-cover plants and the organic duff do much to help stabilize steep slopes, especially when stump roots are no longer effective in holding the soil. The soil guidelines in Appendix B for soils management practices gives the specific guidelines for logging on these slopes and soils. Considerably fewer miles of streams would be affected by timber harvesting adjacent to streams under these alternatives than would Alternative 1. But, temporary stream sedimentation will occur where roads cross streams or where harvest units are adjacent to streams.

All alternatives, except Alternative 1, are believed by the IDT to be within the guidelines established for the long-term sale (Appendix B) and the "Southeast Alaska Area Guide." Even so, some adverse but acceptable effects will result, despite whatever mitigating actions are applied.

A more complete discussion of the effects on water may be obtained on request from the Forest Service in the "Hydrologist Specialist's Report."

C. Fish

Reviews of literature on the effects of logging indicate that many environmental variables simultaneously operate in the forest/stream ecosystem. Complex variable interactions occur when development activities are being initiated, are underway, or have ceased. Research efforts over the past 25 years have identified many parameters and interactions that result when timber harvest developments and fisheries resources occur together. Numerous studies have shown that indiscriminate logging practices do have measurable adverse consequences upon the aquatic environment at site-specific locations. However, many detailed research efforts to determine long-term effects

have resulted in inconclusive results. To date, research has not shown that timber harvesting as conducted in southeast Alaska has significantly affected fisheries resources on a long-term basis.

Anyone familiar with research efforts must be continually aware of all the essential data related to the stream environment. Likewise, the extreme difficulty in isolating or controlling these interacting factors must be carefully scrutenized so that the selected factor may be clearly assessed. The problem of factor isolation is especially evident in the controversy between timber harvest and protection of the fisheries resource of southeast Alaska. Many researchers, in their efforts to relate the effects of logging to salmon populations and harvest, believe that fisheries stock management (regulation of fishing) is a significant factor that overshadows environmental influences. Conversely, other researchers feel that habitat modification is the major factor to consider. Until more definative research is completed in southeast Alaska, and these interactions are defined, conjecture will continue and managers of both fish stocks and habitats will continue to be criticized.

Both critics and managers have acknowledged the nonexistence of valid research data that statistically and conclusively demonstrate that forest practices in southeast Alaska have affected long-term fisheries production. However, all parties concerned do recognize the results obtained from laboratory and field research regarding short-term effects from specific manipulations. This is especially true when timber harvest is conducted without regard for the aquatic environment.

Optimum management directions of both timber and fisheries resources are often in direct conflict. It is not realistic to expect or allow total development or protection of one resource at the expense of another.

To achieve the necessary interaction required for multiple use management, resource management and protection guidelines and policies were developed (See Appendix B and the "Southeast Alaska Area Guide"). All available information, techniques, and research data regarding the effects of logging on aquatic resources were reviewed in an effort to formulate effective resource guidelines. Biologists and land managers from State and Federal agencies, working together, have developed the policies of the "Southeast Alaska Area Guide" and the timber harvest guidelines for the LPK long-term sale. These efforts

were intended to relate and thus, control environmental factors that are critical and may be damaging during timber harvest.

When attempting to describe and document the effects of forest development on fisheries resources, several aspects must be considered. These relate to the frequency, distribution, and magnitude of a given effect or set of effects. These three aspects that describe an effect must be related to a time frame in which an effective description and evaluation may result.

For the purpose of evaluating the 5-year harvest plan and its effects on fisheries resources, effects are grouped into short-term and long-term impacts. For discussion purposes, short-term impacts are considered to be those that persist up to 5 years from their initial occurrence; long-term impacts are those lasting for more than 5 years.

To adequately emphasize and distinguish long- and short-term impacts, certain assumptions must be made; the present state of the art in research leaves little choice. These assumptions have a rational foundation in available research information. Using the basic assumptions stated in the fisheries specialist report, predictions can and must be made regarding effects on the fisheries resource and its habitats. Little evidence indicates that resource protection prescriptions will be totally adequate. They need testing. However, there is also little evidence to indicate their failure.

Current Forest Service policies and guidelines represent the best effort of specialists to incorporate the knowledge of environmental variable interactions into management proposals for resource protection. It is assumed that adoption of these procedures will minimize or prevent disruption of all important environmental variables that influence fish habitats and that it will minimize or prevent adverse impacts. Adequate administration of policies and guidelines is necessary and assumed. Until such time as more definitive data show the guidelines to be in error, the best action is to use what has been developed.

Few measurable values were available to the IDT preparing this plan. Prescriptions were developed (see Appendix B and the "Southeast Alaska Area Guide") to protect fish habitat. Current monitoring programs are testing these prescriptions for adequacy. With this background and for the purposes of this operating plan, a basic assumption will be made. That is, if all forest development activities conform to accepted

policies and guidelines, completed as through site-specific prescriptions, then unfavorable effects on fish and fish habitat will be minimized to an acceptable level.

Alternative 2 will result in no adverse environmental impact to fisheries resources resulting from the long-term sale. Opportunities to conduct direct fish habitat improvement projects using income from timber harvest would not be available. Future impacts would depend upon what activities were eventually undertaken.

Implementation of the timber-harvesting alternatives (Alternatives 1 3 4 and 5) will result in these general impacts:

*Increased stream sedimentation.
*Altered stream temperature regime.
*Loss and alteration of fish habitat.
*Altered estuarine habitat productivity.
*Increased access by people to productive fish habitats.
*Increased opportunities to conduct fish habitat improvement projects.

Increases in stream sedimentation--These increases are normally short-term, lasting from 1 to 5 years. Most sediment is introduced during rainstorms from areas where the ground is disturbed during logging and road construction,.

Blowdown of streamside timber and mass wasting are also sources of sediment. Intensive studies in the Hollis area on Prince of Wales Island between 1956 and 1964 have shown that instream sedimentation increased temporarily following timber harvest. Subsequent sediment contents returned to prelogged levels within 5 years. The natural hydraulic characteristics of southeast Alaska streams (frequent flooding) are considered to be responsible for reductions in sediment levels. The digging activities of spawning salmon also contribute to gravel cleansing.

Sedimentation inhibits intragravel flow and interrupts the necessary gas exchange between deposited fish eggs and alevins and the aquatic environment. Emergence of fry is also inhibited by sediment filling the intragravel voids. Sediment also contributes to physical, physiological, and thermal stress of juvenile and adult salmon. Additional impacts of sedimentation may be alterations in the biomass and species composition of aquatic insects.

Adverse impacts of sedimentation may be expected to occur if timber harvest and road construction coincide with areas of unstable soils or steep slopes or if an unexpected mass wasting event should occur that would affect fish habitat. Such impacts would be cumulative when associated with similar naturally occurring events in the same watershed.

Altered stream temperature regime--Fish streams in southeast Alaska receive a substantial amount of shade from the streamside forest canopy. This canopy, in addition to the streamside riparian vegetation, acts as a temperature moderator for summer and winter temperature extremes.

Removal of the forest canopy by timber harvest directly increases the input of solar radiation into the stream environment. Increased absorption of solar radiation results in an increase in ambient stream temperature. This is especially true for temperature-sensitive streams. Metabolic rates for cold-blooded animals which inhabit this environment, primarily rearing fish and aquatic insects, vary directly with the ambient stream temperature. As an average stream temperature increases, a relatively greater portion of the energy ingested by a fish is required for bodily maintenance functions rather than for growth. If demands for maintenance energy continue to increase, eventually metabolic stress and death will result. Dissolved oxygen levels also decrease.

It has been theorized that temperature sensitivity is not confined strictly to summer warming. The forest canopy acts as a temperature moderator during certain types of winter extremes. Removal of the forest canopy followed by relatively dry, cold winters will contribute to expanding the winter extremes into the stream environment, resulting in mortality of eggs, alevins, and juvenile fish. Thus, the overall effect of altering the temperature regime of the stream environment could reduce the potential productivity of the system to produce fish.

The time span over which these temperature effects operate may be several years. Where the shade-producing streamside canopy is removed, ambient stream temperatures will not return to normal until new forest regeneration and riparian vegetation have attained sufficient height to provide adequate shade. The time required for streamside vegetation to provide adequate shade varies directly with the width of a stream. For the latitudes of the Ketchikan Area, a stream 4 feet in width will require streamside cover about 6 feet in height for effective

shade production. Coniferous regeneration will require 8 to 10 years to attain such heights. However, riparian vegetation consisting of alder, salmonberry, and Devils' Club, will reach the desired shade-producing heights considerably before the coniferous trees.

Sufficient data are not available to quantify the loss in potential fish production resulting from stream temperature changes. It is estimated that, through proper streamside management practices and application of the streamside cutting restrictions for temperature-sensitive streams, the potential reduction in fish productivity will be minimized to an acceptable level and approach normal 10 years after harvest, depending on the width and aspect of the stream.

Loss and alteration of fish habitat--Corrugated metal culverts and log stringer bridges are the primary stream crossing structures used by design engineers for forest roads in the sale area. Stream crossing structures generally result in habitat loss or alteration. This is especially true for coho salmon, since many small streams are affected. Habitat loss occurs from the installation of structures with artificial bottoms directly over suitable fish habitat. The prime example of this is where corrugated metal culverts are installed in streams. Here, the stream bottom is replaced by metal and is no longer suitable as spawning habitat.

There are however, recognized exceptions to the above situation. Present-day culvert design guides require that, where natural conditions provide suitable stream gradient and substrate, culverts must be designed to pass both juvenile and adult fish and encourage use of bottom materials for spawning. A design concept that incorporated oversizing and burying of the culvert has been tested and found to be very adequate for passing fish. This concept further assumes that the natural streambed will become reestablished inside the culvert following the installation through deposition from upstream areas. A necessary part of this design is a plunge pool built as an energy dissipator at the outlet of the culvert. This pool is intended to insure the maintenance of the deposited streambed inside the pipe and also prevents formation of an out-fall drop. Periodic storm events will wash this material from within the culvert. Redeposition will occur from subsequent normal flows.

The suitability of habitat inside culverts for spawning and rearing is uncertain. Except for culverts on the gentlest of

gradients, the repeated flushing and shifting of substrate inside the culvert will contribute to such unsuitability. Observations of many culverts using this design have shown that the resulting plunge pools provide very suitable rearing habitat for juvenile coho salmon and adult and juvenile cutthroat trout and Dolly Varden char. Unobstructed fish passage is also insured.

Additional habitat alteration results from natural undercut streambanks being broken or removed or both during structual installation. When log stringer bridges are constructed, every effort is made to maintain the natural character of the stream under the bridge. However, portions of the undercut streambanks are often broken or lost by machine activity. Reestablishment of these undercut banks requires extensive periods of natural processes. Habitat from undercut banks is lost completely when culverts are installed. It should be noted, however, that undercut banks are dynamic in nature, new ones being formed and old ones being lost through natural stream cutting processes.

A further habitat alteration results when bridges create channel restrictions. Restrictions cause stream velocities to increase, and, in so doing, the scourability of the stream increases. Shifting and redeposition of streambed substrate downstream of a bridge will result. Eventually, a natural equilibrium will be established between flow and substrate deposition. The net result can be creation of major pools and redistribution of spawning habitat. Such pools are often beneficial to sport fisheries, because fish congregate in the deeper water.

In an effort to quantify the loss or alteration or both of fish habitat resulting from stream crossing structures, the following analysis was conducted for this operating plan. This analysis considers only corrugated metal culverts and log stringer bridges. For each alternative, the number of miles of new specified forest roads required were measured from maps. For Alternatives 1, 3, 4, and 5, some of the existing forest roads will require reconstruction. Replacement of many road drainage structures will be required to meet new standards. The numbers of such structures requiring replacement with subsequent related fisheries impacts is unknown.

The necessary criteria and assumptions used to conduct this analysis are listed as follows:

1. Pink salmon are dependent on the amount and quality of spawning habitat available. They have no dependence on stream rearing areas.

2. Coho salmon production in streams affected by road structures is limited by the available rearing rather than spawning habitat.

3. Using information derived from the appraisal package for the 1974-79 operating period, an average of seven culverts per mile of specified road was found. It is estimated that of these, 15 percent occur on fish streams where fish habitat will be affected.

4. Average stream areas affected by culverts are 40 feet in length by 4 feet in width for an average area of 17.78 square yards of altered habitat.

5. Few culvert installations on fish streams affect pink salmon spawning habitat. Since culverts are primarily confined to smaller streams, pink salmon spawning habitats are adversely affected only on an estimated 1 percent of all culverts installed.

6. Rearing habitat is not totally adversely affected by culvert installation. On streams of gentle gradient, the redeposition of substrate materials inside the culvert will continue to function as rearing area. Outlet plunge pools create a very suitable rearing habitat that helps to mitigate effects on habitat altered because of the structures. Thus, it is assumed that for all culverts installed on fish streams, 50 percent of the coho salmon spawning and rearing habitat is adversely affected.

7. Past appraisal data indicate an average of one bridge per 2.8 miles of road.

8. Log stringer bridges, if correctly designed and constructed, do not contribute to the loss of spawning habitat and only somewhat to the disruption of rearing habitat.

9. An estimate of the habitat altered by log stringer bridges uses the length of each streambank affected by the bridge. It is estimated that 15 yards of streambank is affected by each bridge. Of this, it is further estimated that only 50 percent of this

streamside distance is significantly disturbed. An estimated width of 2 feet is applied to this distance to calculate the habitat area affected.

10. It is assumed that spawning habitat will support two spawners per square yard for pink salmon.

11. Coho smolt production is estimated by multiplying the total habitat area in square feet by 0.031. This value represents a summary of past research information on habitat productivity for coho salmon. An estimated 10 percent of the smolts will survive to return as adults.

12. It is assumed that 60 percent of total annual pink and coho salmon production is available for harvest; the remaining 40 percent is necessary for spawner escapement.

13. Current average commercial fish values were obtained from the Alaska Department of Fish and Game. These are $1.12 per fish for pink salmon, and $8.00 per fish for coho salmon.

Using the above information and assumptions, the calculations in table 7 estimate the areas of habitat and the potential numbers and value of fish affected by road structures during the 1979-84 operating period for each alternative. The numbers presented in parentheses in table 7 refer to the criteria and assumptions previously stated.

TABLE 7--Areas of habitat and potential numbers and values of fish affected by road drainage structures by alternative

Item 1/	Alternative--				
	1	2	3	4	5
Miles of road	260	0	250	235	125
Number of culverts (3)	1,820	0	1,750	1,645	875
Number of bridges (7)	93	0	89	84	45

--Continued

TABLE 7--Areas of habitat and potential numbers and values of fish affected by road drainage structures by alternative--Continued

Item 1/	Alternative-- 1	2	3	4	5
Number of structures affecting fish habitat					
Culverts (3)	273	0	263	247	131
Bridges	93	0	89	84	45
Total habitat affected by:					
Culverts (sq. yds) (4)	4,850	0	4,675	4,390	2,330
Bridges (sq. yds.) (9)	465	0	445	420	225
Pink salmon spawning habitat affected by culverts (sq. yds.) (5)(8(3)(4)	325	0	310	290	155
Coho salmon rearing habitat affected					
Culverts (sq. yds) (6)	2,425	0	2,340	2,200	1,165
Bridges (sq. yds.) (8)(9)	465	0	445	420	225
Total (sq. yds)	2,890	0	2,785	2,620	1,390
Estimated loss in annual pink salmon escapement (no. of fish) (10)	650	0	620	585	310
Estimated loss in annual pink salmon harvestable surplus (no. of fish) (12)	970	0	935	875	470
Estimated loss in annual coho smolt production (no. of fish) (11)	810	0	775	730	390
Estimated annual loss in surviving coho smolt (no. of fish) (11)	80	0	80	75	40

--Continued

TABLE 7--Areas of habitat and potential numbers and values of fish affected by road drainage structures by alternative--Continued

Item 1/	Alternative-- 1	2	3	4	5
Estimated annual loss in harvestable surplus for coho salmon (no. of fish) (12)	50	0	50	45	25
Estimated annual monetary loss, in dollars, from:					
Pink salmon (13)	1,090	0	1,045	980	525
Coho salmon (13)	385	0	375	350	185
Total	$1,475	0	$1,420	$1,330	$710
Estimated monetary loss, in dollars, from affected fish habitat during 1979-84 operating period	7,375	0	7,100	6,650	3,550

1/ Numbers in parentheses refer to the criteria and assumptions outlined in this section.

Evaluation of the results of the analysis in table 8 must be tempered by the following conditions:

*Estimated annual monetary losses from affected fish habitats are maximum figures.

*This analysis is confined to specified roads only.

*Not all specified roads will remain open.

*Not all stream crossing structures are installed at the beginning of the operating period.

*Some stream crossing structures are removed before the end of the operating period.

From the data previously presented, it may be concluded that Alternative 1 will result in the greatest adverse impact on fish habitat from road construction. Except for Alternative 2, Alternative 5 has the least impact.

Impacts on estuarine habitat productivity--Because the geographical nature of southeast Alaska restricts heavy hauling to water transportation, marine log transfer and storage sites are a necessary aspect of timber harvest. Log transfer sites physically require road access to the saltwater with a relatively steep intertidal and subtidal terrain to insure ready access of logs to deep water. Protection from severe weather and rough water conditions is required. Specific guidelines are available for selecting log transfer and storage sites. These are listed in Appendix B of this document. Acceptable log transfer and storage sites are locations away from the mouths of fish streams, bay heads, shallow intertidal areas, and other areas of highly productive esturine habitat.

Definite conflicts exist between current fisheries guidelines and the aspects of site suitability for log transfer and storage. From an economic standpoint, storage areas consist of shallow estuarine areas with sufficient freshwater contributions and periodic exposure to air by grounding at low tide. Such conditions inhibit log deterioration from marine boring animals. However, such sites have undesirable environmental impacts.

An estuary is defined as "all or part of the mouth of navigable or interstate river or stream or other body of water having unimpaired natural connection with the open sea and within which the sea water is measurably diluted with freshwater derived from land runoff."

Considerable research efforts have been conducted to establish the commercial significance of estuarine resources. Efforts have also been made to describe and quantify the environmental consequences of log transfer sites and log storage on estuaries and estuarine resources.

Estuarine resources of commercial significance consist of Dungeness crab, King crab, shrimp, sablefish, halibut, herring, and clams. All species of salmon depend on estuaries and nearshore waters, especially post-emergent and rearing pink and chum salmon. Commercial populations of crab and shrimp commonly exist in bays where log transfer activities occur. Diverse and abundant populations of other organisms provide important food sources for commercially important species. These organisms contribute to the productivity or "richness" of the estuary.

During the process of transferring logs from the upland to saltwater, several impacts occur. First, productive estuarine habitat is covered by rockfill during construction of the facility. Second, physical abrasion during handling dislodges bark from logs. Bark accumulates in areas immediately below and adjacent to the site. Investigations of existing and past transfer sites have revealed extensive bark accumulations. Variability in bark accumulation is high because of a combination of submarine terrain features and tidal currents. Bark accumulations cover the natural habitat, smothering estuarine plants and sessile animals. The necessary substratum for planktonic larvae could adversely affect the estuarine food chain. The species diversity of marine organisms can be expected to decrease as a result of bark accumulations. Probable reductions in species abundance may also result. Levels of dissolved oxygen within the benthic substrate are depressed to near anoxic levels when covered with bark. These impacts are both short- and long-term in duration.

The sloughing of bark and debris during log rafting and storage is not so severe as it is during log transfer. When log storage rafts are allowed to ground, benthic habitat is compacted and organisms are crushed. Log storage rafts interfere with the light pentration, which reduces estuarine primary production.

Organic leachates from bark are also contribute to adverse effects on estuarine waters. Controlled laboratory tests have shown bark leachates to be toxic to most estuarine organisms at various concentrations. Lethal concentrations of leachates throughout a natural estuarine environment have never been shown.

Log transfer and storage does have definite effects on estuarine resources. Significant quantification of these effects on commercial resources is not possible by using present state of the art measurements.

Site surveys and evaluations of log transfer facilities proposed for use in this plan were conducted by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. These efforts are intended to insure that all log transfer facilities conform to the "Southeast Alaska Area Guide" directives. The results of this work are included in the Appendix.

Estuarine effects from log transferring facilities will be similar for each alternative, differing only in the number of transfer facilities needed on the primary sale area for each alternative. These are shown in table 8. The magnitude of these effects on estuarine habitat are unknown until such time as each facility is constructed, surveyed, and monitored. Quantitative descriptions of the effects on estuarine productivity and commercial resource populations are also not available. It is assumed that site-specific surveys and guideline application will reduce estuarine impacts to acceptable levels.

TABLE 8--New and reconstructed log transfer facilities by alternative

Alternative	New facilities		Reconstructed facilities	
	Transfer points	Camps	Transfer points	Camps
	Number			
1	8	6	3	6
2	0	0	0	0
3	7	5	3	7
4	9	6	6	5
5	4	4	3	8

Increased access by people to lakes and streams--Expansion of road systems would lead to increased sport fishing on many stream systems. This impact would be long term if the roads were kept open in the future as many are planned to be.

Increased opportunities to conduct direct fisheries habitat improvement--Several streams on the sale area offer opportunities for stream enhancement work. This could be done through appropriated funds or with KV funds from this timber sale. Habitat improvement opportunities consist primarily of alteration of natural barriers to fish passage. Other opportunities are for removal of natural debris accumulations that adversely affect fish habitat.

Opportunities to accomplish fish and wildlife management projects would be increased by proposed actions during the 1979-84 operating period of this plan. These increased opportunities are related to better accessability of project sites and to the use of KV funds to finance work at selected locations. Many of the projects could be accomplished without the timber harvesting operations, for example, fishway construction. Other projects would be induced by timber harvesting

activities and would not occur independently, such as stream cleanup of blowdown timber along a harvest unit boundary. Three categories of fisheries project work can be done:

*Fish habitat rehabilitation involving the removal of instream debris and the stabilization of streambanks where windfelled timber occurs within or adjacent to harvest units.

*Fish habitat improvements involving the construction of fishways to provide fish access beyond natural instream barriers. These projects may be funded by (KV) money if they are adjacent to harvest units.

*Fisheries administrative studies involving the study of fish habitat and population relationships on or adjacent to harvest units. These may also be funded by KV money.

Predicted effects of implementation--It is assumed that the degree of impact on fisheries is directly related to the extent of harvesting adjacent to fish streams. The proximity to fish streams is not the sole criterion, however, as stable or relatively problem-free ground immediately adjacent to a fish stream can be less of a concern for fish habitat protection than unstable ground well away from the stream.

Table 6 shows the varying extent of streamside cuts by each alternative. Comparisons of these data show that the amount of proposed timber to be harvested in low-elevation and valley bottom lands is substantially greater for Alternative 1. Also, considering the nature of the topography and stream morphology in southeast Alaska, a large percentage of the accessible habitat for anadromous fish occurs in these same low-elevation valley bottom lands. Therefore, it may be concluded that Alternative 1 will cause a substantially greater impact on fisheries resources than will any of the other alternatives.

Unavoidable short-term impacts from timber harvesting, even in conjunction with the best possible application of habitat protective prescriptions, are sedimentation and disruption of fish habitats from temporary road drainage structures. Additional short-term impacts will result from occasional slash and logs from hazardous trees falling into or across fish streams. Some fish and wildlife species would receive increased localized pressure from recreational activities near logging camp facilities.

Unavoidable long-term impacts will be habitat loss or alteration or both from permanent road drainage structures, fill from log transfer facilities, and accumulations of bark in estuaries. The altered temperature regime in temperature-sensitive streams would be a long-term impact for Alternative 1. Additional possible long-term impacts will be sedimentation, streambank disruption, migration blockages, human use, and disruption of stream channel stability resulting from blowdown of residual streamside timber.

Environmental impacts that are cumulative in nature are habitat losses from expansion of the forest road system and fills and bark accumulations at log transferring facilities. Continuous timber harvesting in watersheds that contain temperature-sensitive streams would create a cumulative impact on the temperature regime if Alternative 1 were chosen.

For further details on impacts on fisheries, see the "Fisheries Specialist's Report."

D. Wildlife

Developmental activities in the forest environment have varying effects on different species of wildlife. Many of the species present in southeast Alaska are most adapted to using the old-growth spruce-hemlock stands. Converting these stands to second growth, as Alternatives 1, 3, 4, and 5 propose, would change the habitat productivity for these wildlife species.

Table 9 shows estimates of the amount of old-growth habitat each of several key wildlife species need for maintaining populations levels.

TABLE 9--Percentage of natural cover types believed necessary to maintain wildlife populations

Specie or group	Extent cover needed in the wildlife habitat management unit 1/				
	Sub-alpine	General forest	Estuarine	General beach	Winter range
	Percent				
Sitka Black-tailed Deer	50	50	50	50	90
Black Bear	50	25	100	25	25
Wolf	50	50	50	50	90
Waterfowl	-	-	100	-	-
Pine Marten	50	50	50	50	50
Land Otter	-	-	50	50	50
Mink	-	-	50	50	50
Beaver	-	-	50	50	50
Upland Game Birds	50	50	50	50	50
Shore Birds	-	-	100	-	-
Nongame Land Birds	50	50	50	50	50
Small Mammals 2/	50	50	50	50	50
Marine Mammals 2/	-	-	-	-	-
Amphibians and Reptiles	25	25	25	25	25
Water Birds	-	-	100	-	-
Raptors 2/	25-50	25-50	25-50	25-50	25-50
Old-Growth Obligate Birds	50	50	50	50	50
Northern Bald Eagle	-	-	100	50	100

1/ Dashes mean that the cover type is not directly related to the primary habitat need by that kind of wildlife.

2/ Levels of natural habitat necessary for population maintenance were not set as a part of TLMP. These estimates considered the habitat needs of species; others were set as a part of TLMP.

With these levels in mind, the following habitat management objectives were set for each wildlife habitat management unit (WHMU):

Alpine--Habitat alteration by management activities is minimal in this WHMU. Adjacent activity and disturbance of the wildlife utilizing the alpine is the main concern because of the lack of escape cover. Land management activities should be planned in and adjacent to this WHMU so as to control human disturbance and access.

Subalpine--Properly spaced units could allow harvest of up to 50 percent of the subalpine without significantly affecting population levels of species utilizing this WHMU. Timber

harvesting patterns should emphasize dispersed patchcutting with a maximum number of entries during a rotation period (100 years).

General Forest Area--Conversion of more than 50 percent of the mature timber types of this area to management of even-age stands can be expected to reduce populations of certain indigenous species. The spatial and temporal arrangement of cutting units is critical to proper management of this habitat. Maximizing the number of cover types will decrease impacts on individual wildlife species and increase species diversity to an area.

Key Winter Range--To maintain the natural carrying capacity of the Forest for Sitka black-tailed deer, nearly all or at least 90 percent of this WHMU should be retained in the natural state of climax spruce-hemlock forest or in a state which approximates the climax forest attributes.

General Beach Fringe--This WHMU is highly utilized by wildlife species. At least 50 percent retention of the natural cover types is necessary to maintain the potential for natural levels of wildlife populations.

Estuarine--It is necessary to retain 100 percent of the cover types adjacent to the estuarine areas to maintain natural levels of wildlife species. The adjacent cover types retained should be 500 to 1,000 feet wide.

Each alternative is then evaluated to see how well it meets the WHMU objectives. The sale area was divided into seven subareas having similar past cutting practices. Analyses of WHMUs were made for each subarea by alternative.

The average size of clearcuts would be 82 acres for Alternative 1, 70 acres for Alternative 3, and 77 acres each for Alternatives 4 and 5. A smaller clearcut size creates more edge and therefore more habitat diversity. Figures 2 and 3 show previous and proposed cuttings in key winter deer range and the general forest zone. Table 11 shows the impact of each alternative on certain species and groups of species.

Alternative 1--This alternative adversely affects all the subarea's key deer winter range by changing more than 10 percent of the climax forest cover type to even-age stands managed primarily for timber production (fig. 2). Analysis of this alternative indicates that three WHMUs are negatively

affected. They include the general forest zone, key winter range, and estuarine. Alpine, subalpine, and general beach fringe receive little or no impacts as a result of the proposed action.

The effects indicated vary according to subarea considered. The effects are mostly related to the amount of key winter range and estuarine WHMU timber harvested and to the spatial and temporal arrangements of cutting units in the general forest habitat management unit.

This alternative proposed cutting in the estuarine habitat management units of Staney, Naukati, Shaheen, Whale Pass, Exchange Cove, and Lake Bay. The resulting cutting would reduce the suitability of these areas to support natural populations of indigenous species of wildlife.

Seven species or species groups will suffer adverse effects. Three will be favorably affected (table 10).

TABLE 10--Relative effects on individual species or species groups by alternative

Specie or group	Effects of Alternative-- 1/				
	1	2	3	4	5
Sitka Black-tailed Deer	-	0	-	-	-
Black Bear	0	0	0	0	0
Wolf	-	0	-	-	-
Waterfowl	-	0	0	0	0
Pine Marten	-	0	-	-	-
Land Otter	0	0	0	0	0
Mink	0	0	0	0	0
Beaver	0	0	0	0	0
Upland Game Birds	0	0	0	0	0
Shore Birds	0	0	0	0	0
Nongame Land Birds	+	0	+	+	+
Small Mammals	+	-	+	+	+
Marine Mammals	-	0	0	0	0
Amphibians and Reptiles	-	0	-	-	-
Water Birds	0	0	0	0	0
Raptors	+	0	+	+	+
Old-Growth Obligate Birds	-	0	-	-	-
Northern Bald Eagle	-	0	-	-	-

1/ - = adverse effect, 0 = no effect, and + = favorable effects.

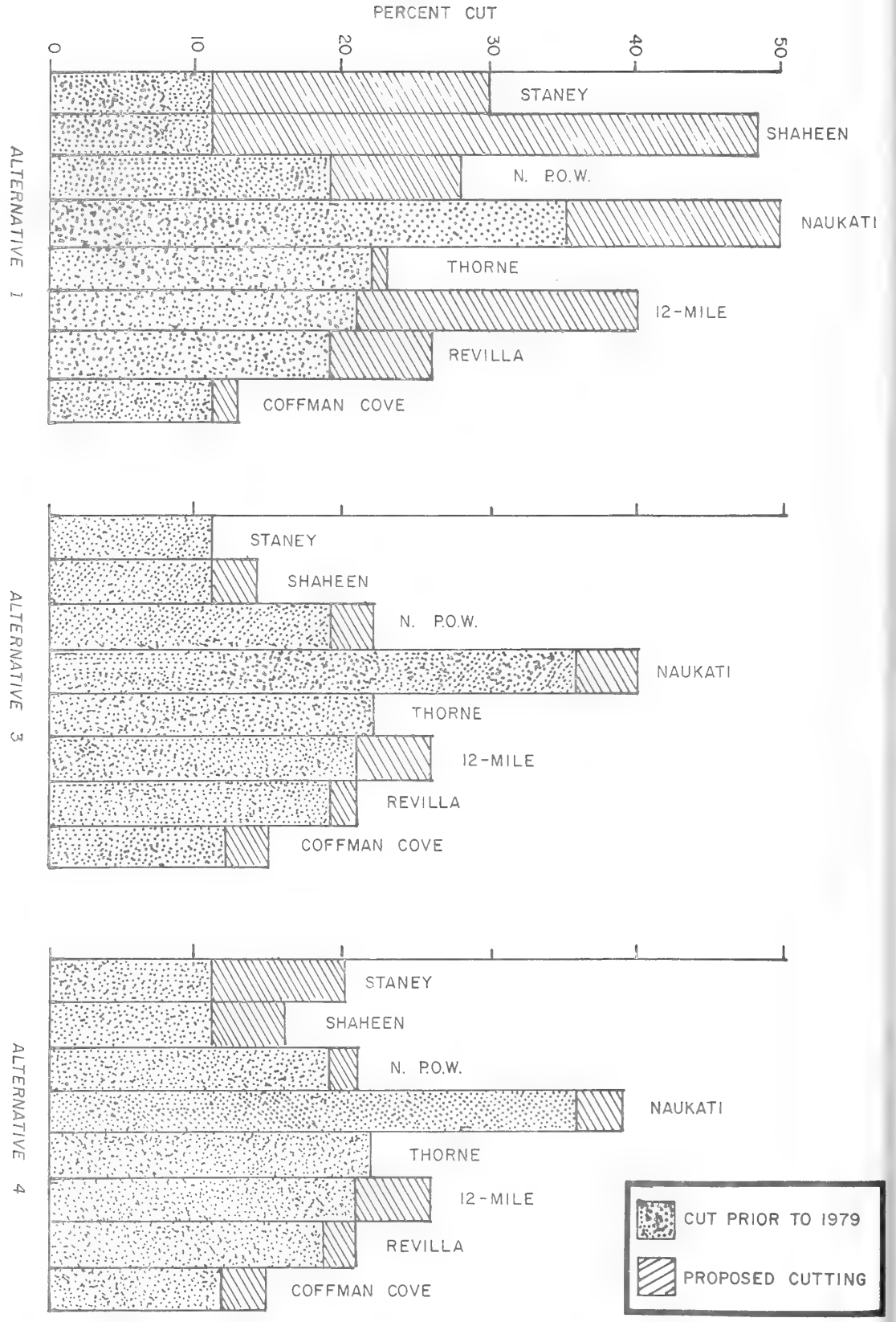


FIGURE 2--Percentage of key winter deer range cut by alternative for each subarea

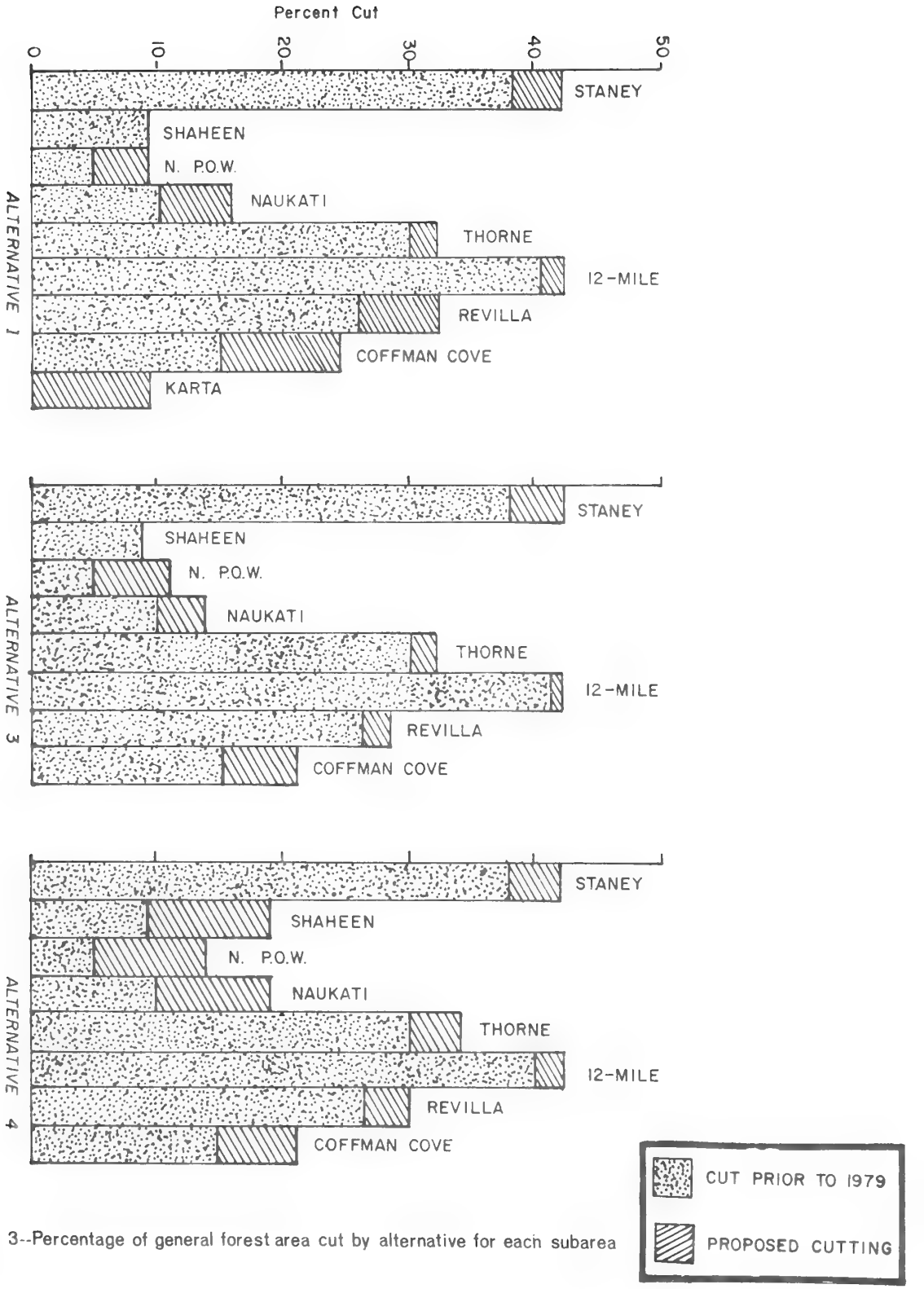


FIGURE 3--Percentage of general forest area cut by alternative for each subarea

Alternative 2--This alternative will have no adverse effects on wildlife populations, nor does it allow for enchancement through patchcutting to increase edge and increase habitat diversity. Species and their habitats would remain in their natural balance without the habitat alteration of timber harvesting.

Alternative 3--During the IDT process, wildlife resource considerations were given emphasis by stressing smaller clearcuts, maximizing spacing between proposed and existing clearcuts, harvesting in beach fringe areas only as habitat improvement, protection of specialized habitat types including lake shores and riparian zones, and maximizing age-class variety over large areas, especially those areas with high recreation potential. Areas of high potential recreational use of wildlife included the Sarkar Lake, Behm Canal, Hollis, Harris River, Gold and Galligan Lagoon, and along the main Prince of Wales Island interconnecting road system.

This alternative would basically meet all the habitat management objectives, except for key winter deer range. Cutting in this WHMU, although minor in extent, would reduce the carrying capacity for deer in all areas except Staney Creek (fig. 2). Alpine, general beach fringe, and subalpine habitat management units would receive little or no impacts as a result of this proposed alternative.

Alternative 4--The effects of this alternative on the wildlife resource are similar to those of Alternative 3 (figures 2 and 3). During the IDT process, some minor wildlife tradeoffs were made to stay within the primary sale area. Additional cutting units in key winter deer range were made in the Staney and Shaheen areas. Units were added in the general forest zone, some adjacent to existing clearcuts. Any resulting effects would be minor and localized, not significantly affecting wildlife populations for any subareas.

Alternative 5--The units dropped from Alternative 4 to create this alternative are all located in upland roadless areas away from critical wildlife habitat. The impact of this alternative would be slightly less than Alternative 4 for wildlife dependent on old-growth stands. Further details on wildlife effects may be obtained on request in the "Wildlife Specialists Report."

E. Vegetation

Clearcutting under Alternatives 1, 3, 4, or 5 would lead to a series of vegetative changes. A detailed description of these can be found in the TLMP.

After logging, the vegetation would basically consist of shrubs, forbs, and a few hemlock seedlings and saplings. During the first 5 years, the additional light and heat reaching the forest floor would cause a proliferation of shrubs and forbs along with seedlings of spruce and hemlock. The shrubs dominate the cover type for 10 to 15 years, at which time spruce and hemlock begin to appear above the brush. After 20 to 30 years, the tree canopy normally closes and the brush is shaded out. From then through the planned rotation age (generally 100 years), the stand would thin naturally to 100 to 300 trees per acre. The average 100-year-old tree is 110 feet tall in southeast Alaska. Table 11 summarizes the number of acres that would be harvested by alternative.

TABLE 11--Size of areas to be harvested on the sale area by alternative

Alternative	Area
	Estimated acres
1	31,330
2	0
3	24,000
4	33,600
5	24,500

Reforestation of cutover lands depends primarily on natural reseeding from adjoining stands of timber and, to some extent, from seedlings established previous to harvest. With minor exceptions, natural reforestation has proved adequate in southern southeast Alaska coastal forests. Planting with nursery-grown spruce seedlings is anticipated on 50 to 100 acres per year where extreme competition from salmonberry is expected to reduce natural restocking below acceptable levels.

Natural stands, especially on better sites, usually regenerate too many stems per acre rather than too few. Under this circumstance, it is often necessary to thin excess stems by hand, usually 10 to 15 years after logging. This process concentrates the growth potential on the fewer remaining trees

resulting in faster diameter growth. "Patchy" reproduction also occurs under some conditions of natural reforestation. Under this situation, some parts of the new stand are overstocked with thousands of new trees, and adjacent areas may have only a few scattered seedlings. A combination of thinning and planting is used to correct this problem. A possible prevention, suggested by limited observations in southeast, is to burn the slash and brush remaining after logging to create a more favorable uniform seedbed.

Much of the old-growth hemlock in southeast Alaska is infected with dwarf mistletoe, a green parasitic plant. Hemlocks heavily infected with this parasitic plant are subject to a volume loss and are more vulnerable to attack by other diseases and insects. Current control of dwarf mistletoe is to sever all the unmerchantable hemlock left behind following clearcutting to prevent reinfection of the new seedlings.

F. Timber

Clearcutting is the principle silvicultural system applicable in the spruce-hemlock forests of southeast Alaska (Ruth and Harris) for several reasons. Among these are species composition, dwarf mistletoe control, windfirmness, growth rate, and susceptibility to injury during logging. Following are some general impacts of harvesting timber by clearcutting that would occur under Alternatives 1, 3, 4, or 5:

Loss of timber volume and productivity under this plan would occur from the following sources: Unsalvageable windthrow, areas retained to protect other values, and not converting the entire area to young-growth stands now. These losses would be irretrivable.

Increased tree vigor in new stands would reduce the loss of wood fiber because of insect pests and diseases. Thus, annual production or volume of wood harvested would increase following the harvesting of old stands. The net annual growth of the old-growth stands in southeast Alaska is zero, but in an average stand on an average site, the mean annual increment is 524 boardfeet per acre or 52.4 M bf per acre at 100 years of age (TLMP).

Roads constructed for timber harvesting would provide access for timber management activities. Timber harvested by patchcutting would provide greater ecological variety in various stages of plant succession as compared with cutting entire drainages as done in the past.

Blowdown would occur along edges of some clearcuts; cutting in small clearcuts under this plan could increase total blowdown. However, Ruth states that windfall is closely related to other factors, such as topography, soil, species, and stocking, and that these other variables apparently exert more effect than size of clearcut. Care would be taken during layout to locate cutting lines to minimize blowdown.

Blowdown salvage--Severe windstorms on October 30 and November 1, 1978, did extensive damage to timber stands on north Prince of Wales Island. Wind speeds of about 100 mph were recorded at nearby Wrangell. The storm track appeared to come out of the southwest and trend northeasterly, contrary to the prevailing direction of winds from the southeast. Heavy rains accompanying the winds saturated the ground, contributing to the windthrow of trees.

Red Bay, Salmon Bay, and Whale Pass areas were hardest hit, although extensive damage also occurred as far south as Staney Creek and Naukati. Much of the blowdown was associated with existing roads and clearcuts, although notable exceptions occurred on Marble Island and near Salmon Bay Lake.

Extent of storm damage was measured by visual estimates made by foresters' from aircraft late in November 1978. Additionally, photographs were taken of some areas and sketch maps made on topographic base maps while observers were airborne. Roadside observations were made in a few areas where the roads were not blocked by fallen timber. A low sun angle and overcast skys limited the hours of observation available. Thus, some damaged areas may not be discovered until this summer. But, it is unlikely that any significant area (more than 80 acres) was overlooked.

The stands that blew down included areas laid out for logging in the current (1974-79) operating period or areas planned for inclusion in one of the 1979-84 alternatives, as well as in areas reserved for future entries. The degree of damage within stands varies as to the number of individual stems blown over or broken off from approximately 40 to 100 percent. Stands with damage to less than 40 percent of the stems are difficult to see with aerial observation methods.

Intermingled with, and adjacent to, the downed trees are standing live trees which must be felled and yarded with the damaged trees. This is because the nature of the logging techniques available to harvest timber. Timber is removed

from a harvest area by various overhead cable systems anchored at both ends to stumps or trees. Logs are then pulled along the cable system to a road for shipment by truck. Placement of both ends of the system is important to insure strong cable anchor points and to provide "lift" so that logs can be swung free of obstacles where necessary. Scattered, intermingled live trees interfere with the placement of the cables, and the blown over, uprooted trees do not provide secure anchors, thus necessitating the harvest of additional green timber.

Also, some blowdown occurred in leave strips between previously harvested units. To remove just the damaged portion of these leave strips would, in most cases, make the remainder physically unloggable or uneconomical to harvest. The rest would also be more subject to future windthrow because of the openings made by the 1978 storm.

Table 12 shows the estimated acreage of windthrown timber, as well as the total estimated acreage, including live green timber, that will be harvested because of the windthrow. Also shown is the acreage of previously planned units that will be deferred because of their proximity to the blowdown.

The interdisciplinary team reviewed the logging plans to harvest the blowdown timber in relation to Alternatives 4 and 5. Even though the team made strong efforts to hold the size of units to less than 160 acres, this was not possible in every case because of the desirability of cutting to windfirm boundaries, the pattern of previous cutting, and the requirements of logging systems. Five of the 110 units necessary to log damaged timber are larger than 160 acres. One of these, near Red Bay, exceeds 700 acres. Also, 18 to 20 leave strips between previously cut units will be harvested. Although not in themselves greater than 160 acres, their removal will join units which aggregate more than 160 acres.

One effect of the windstorm on the long-term sale is to increase the acreage available for harvest in 1979-84 by 2,940 acres in Alternative 4 and 2,380 acres in Alternative 5. For Alternative 3, the increase is estimated to be 2,300 acres. This assumption is based on salvage of the accessible down timber, with a minimum of associated standing green timber. Unit size would be kept small to enhance wildlife and visual values even if nearby timber stands would be made uneconomical.

TABLE 12--Blowdown areas, harvesting units, and deleted areas by location, 1979

Location	Estimated area of blowdown	Alternative 4 area of logging units	Alternative 5 area of logging units	Previously planned area deleted
		Acres		
Lab Bay/Red Bay	1,200	1,450	1,220	500
Salmon Bay Lake	250	0	0	0
El Capitan	130	470	470	210
Whale Pass	320	700	700	0
Thorne Bay	430	375	375	0
Baird Peak	50	0	0	0
Coffman Cove	70	180	180	0
Naukati	425	390	390	60
Marble Island	300	330	0	225
Orr Island	40	40	40	0
Total	3,215	3,935	3,375	995

By alternative, the overall effects on timber would vary as follows:

Alternative 1 would harvest 960 MM bf of timber from the sale area. Emphasis would be placed on obtaining maximum wood fiber at low development cost. Generally, this would result in large harvest units located in valley bottoms and lower sideslopes. Harvesting of blowdown timber would be restricted to timber which is readily available at roadside.

Heavy reliance on valley bottom road systems and high-lead logging often isolates timber stands upslope from harvest units. Future logging of such upslope stands is made difficult by lack of tail holds for cable systems or the need to construct roads through young stands of trees wasting the new growth.

This alternative seeks to harvest the lands with the highest potential for timber growth remaining on the sale area. These stands should be the easiest to regrow and yield the highest return for the investment.

Alternative 2 would stop the harvesting of timber on the sale area. The oldest stands would continue to breakup, blowover, and regenerate naturally as they have for hundreds of years. Very little if any net growth is occurring in these stands.

The younger stands originating from the cutting of the past 25 years would continue to grow at a fairly rapid rate, depending on their site index. On the average, these stands should reach culmination of mean annual increment at about age 80 (Taylor). They will of course continue to grow and add wood for another 100 years before they reach a static old-growth condition.

This alternative would forego the opportunity to replace the old-growth timber with fast-growing second-growth stands. The volume lost would be the difference in growth rates per acre per year; the loss would be irretrivable.

Alternative 3 would harvest 790 MM bf on the sale area. The emphasis of this alternative would be to harvest timber where it would have a minimal impact on the wildlife and visual resources. This generally means locating small or no-harvest units along beaches adjacent to the ferry lane or in key winter deer range. Cutting adjacent to previously harvested areas would be restricted to only blowdown trees and intermingled green trees. These areas would be left when the cost

of harvesting becomes greater than the value of the wood recovered. These areas would also be left if salvage would have required additional harvest of standing green timber to reach a windfirm boundary.

In many cases, the Alternative 3 layout would not include all timber available for harvesting in the first entry. In some cases, camps would be moved by the end of the 5-year period, leaving a few available first-entry units unlogged. It would be costly and inefficient to return to these a few years later.

Alternative 4 would harvest 960 MM bf of timber from the sale area. Most of the units included in Alternative 3 are included in Alternative 4. These units were made larger to increase volume and salvage blowdown or to reach windfirm boundaries. Additional units were placed along the Prince of Wales Island main road system but not along the ferry route. A few units were added in the beach zone.

Alternative 5 would harvest 694 MM bf of timber from the primary sale area. The main emphasis of this alternative would prevent development of any inventoried roadless area greater than 5,000 contiguous acres. The units to be harvested are identical with Alternative 4 units that occur in currently roaded and developed areas.

TABLE 13--Cutting units larger than 160 acres by alternative

Log transfer facility	Alternative-- 1 Units	1 Area	2 Units	2 Area	3 Units	3 Area	4 Units	4 Area	5 Units	5 Area
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Labouchere Bay	1	169			1	703	3	1,134	3	1,134
Whale Pass	2	341			1	160	1	171	1	171
Coffman Cove	5	888			1	161	3	697	3	697
El Capitan	-	---			-	---	-	---	-	---
Calder	-	---	No		-	---	1	165	1	165
Shakan Bay	-	---	cutting		-	---	-	---	-	---
Marble Island	-	---	would		-	---	1	234	-	---
Naukati	2	330	occur.		2	330	-	---	-	---
Shaheen	2	320			-	---	-	---	-	---
Thorne Bay	1	162			-	---	3	545	3	545

--Continued

TABLE 13--Cutting units larger than 160 acres by alternative--Continued

nsfer facility	Alternative-- 1 Units	1 Area	2 Units	2 Area	3 Units	3 Area	4 Units	4 Area	5 Units	5 Area
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
	-	---			-	---	-	---	-	---
	1	217			-	---	-	---	-	---
rbor	-	---			-	---	-	---	-	---
	-	---			-	---	-	---	-	---
Bay	1	197			1	298	1	197	1	197
	1	160			-	---	-	---	-	---
eets	-	---			-	---	-	---	-	---
ve	3	1,318			1	348	1	342	-	---
Hole	1	546			-	---	-	---	-	---
ita	-	---			-	---	-	---	-	---
's Cove	-	---			-	---	-	---	-	---
Point	-	---			-	---	-	---	-	---
Bay	1	282			1	168	1	168	-	---
A-Frames	-	---			-	---	-	---	-	---
Creek	-	---			-	---	-	---	-	---
and	-	---			-	---	-	---	-	---
	1	168			-	---	-	---	-	---
l Harbor	-	---			-	---	-	---	-	---
k	-	---			-	---	-	---	-	---
tals	22	5,098			8	2,168	15	3,653	12	2,909
erage unit size		232				271		243		243

shes indicate that no units were larger than 160 acres.

G. Socioeconomic

Implementation of any one of the alternatives would affect jobs, recreation, and public service and social interaction between communities and logging camps.

Jobs--Alternatives 1 and 4 would have almost no impact on current jobs. Timber jobs can be expected to remain the same under either alternative. Higher construction standards under Alternative 4 compared with increased road mileage under Alternative 1 would balance the number of construction jobs.

Alternatives 3 and 5 would reduce the number of timber and support jobs during the 5-year period.

Alternative 2 would nearly eliminate the timber industry from the Ketchikan Area, except for logging of private lands and perhaps a cant mill. Considering that induced employment is proportional to primary employment, the Ketchikan Area would lose about 50 percent of its employment level, or about 3,400 jobs. This alternative could result in a multimillion dollar damage settlement the public would have to pay to LPK for breach of contract.

Recreation--Implementation of any alternative would change the recreation type and pattern on Prince of Wales Island (see recreation impacts). The effects on the road-oriented recreation would vary by alternative. To the extent that an alternative would enhance completion of the arterial system, it would benefit road-oriented recreation and therefore the economic benefits from this recreation. Fishing and hunting are primary pursuits of local camp or community residents, and driving for pleasure combined with fishing and camping are the main attractions of ferryship travelers.

Alternative 2 could result in about an 80-percent decrease in road-oriented recreation because of the demise of the logging communities and the lack of road maintenance. This would result in most roads being closed.

Alternatives 3 and 4 would have a similar effect on road-oriented recreation during the life of this plan. Both alternatives would tie Coffman Cove, Whale Pass, and Labouchere Bay to the public road system and the ferry. Alternatives 1 and 5 would provide for public travel between Coffman Cove and the ferry.

Public service and social interaction--Since Thorne Bay and Naukati have been connected to the public road system, Craig has become a shopping center. The people are forming intercommunity social ties, and the communities have began cooperating to achieve mutually beneficial projects, such as State highways, power facilities, and community fairs. Similar development is expected as the logging communities of Whale Pass, Coffman Cove, and Labouchere Bay are connected in the future.

H. Minerals

The proposed timber harvesting plan would have no adverse effect on minerals and mining. Prospecting would continue, and roads could enhance opportunities for this activity.

I. Recreation

Impact on Existing Recreation Use--Most of the existing recreation use is associated with saltwater shorelines, accessible lakes, rivers, and streams. Hunting often occurs within a mile or so of the beach or other points of access and along some of the Prince of Wales Island road system in recently clearcut areas. Roads eminating from communities generally receive high day use with some overnight camping in certain locations.

In Alternative 1, large units proposed on the shores of Sweetwater Lake, Sarkar Lake, Staney Creek, and Salmon Bay would bring logging activities into close proximity to people recreating in these areas and would affect existing use patterns by introducing roads and discordant effects. The units proposed on Sarker Lake are directly located on an identified potential campground site and on an old trail connecting Sarkar Cove to Sarkar Lake.

Units proposed in Barnes Lake, Red Bay, Salmon Bay Lake, Salmon Lake, and along the ferry route will introduce roading and discordant effects. But, they would not be in so close a proximity to the recreation use areas.

In Alternative 1, the only sections of the mainline road system that would be tied together are Coffman Cove to Naukati and Coffman Cove to Ratz Harbor. This would eventually result in increased public access to recreation use areas in the Sweetwater-Hatchery-Logjam Creek-Coffman Cove area. Recreation areas, such as Red Bay and Whale Pass in the northern portion of Prince of Wales Island, would not be accessible by road in this 5-year operating period.

In Alternative 2, some road closures and population decreases would result in changed recreation use patterns. No further links in the Prince of Wales Island road system would be made under this alternative. No more recreation use areas would be reached by roads than at present.

In Alternative 3, units and roads are proposed in the Red Bay and Barnes Lake-Sweetwater Lake area, but they are not to the scale proposed in Alternative 1. The degree of discordant effects would be much less than in Alternative 1. Units planned along much of the main road system are generally small and in many cases designed to enhance visual variety and provide views.

Under Alternative 3, all logging camps on Prince of Wales Island are linked to the main road system. Hence, existing recreation use areas on the northern half of the island as well as in the Coffman Cove-Sweetwater area would be made accessible by road. Coffman Cove will also be tied to Ratz Harbor, but the connection would be by a more inland route behind Baird Peak.

In Alternative 4, the impacts on recreation use would be similar to those in Alternative 3. But, the heavier cutting along the main road system would produce a high level of discordant effects along several sections of the road.

Links in the main road system would be constructed to tie Naukati to Coffman and Naukati to Whale Pass and El Cap through Sarkar Lake. Hence, recreation areas in these locations will be made accessible by road. Red Bay and Labouchere Bay, however, would not be linked to the main road system, and Coffman Cove would be tied to Ratz Harbor by the same route as in Alternative 3.

In Alternative 5, the recreation impacts are in the Barnes-Sweetwater area and would be the same as in Alternative 4. The only link added to the main road system would be between Coffman Cove and Naukati.

Impact on Recreation Opportunity--When areas scheduled for development are entered, recreation opportunities will be altered. Some activities, such as wilderness or wildland experiences, may be eliminated in the areas developed, depending on the type and extent of that development. Other activities may be enhanced if they are aided by roads and other modifications.

Each drainage area included in this analysis is a somewhat isolated entity, and activities in one drainage area would not normally affect potential recreation opportunities in adjacent drainage areas. Most impacts on recreation are long term, but they could be reversed in the future if the roads were closed and timber harvest stopped.

Timber harvest in a roadless drainage can have a profound effect on the recreation opportunities both during the operation itself and for many years afterward. Activities associated with camplife, roadbuilding, logging, hauling, and rafting of logs all tend to displace recreation users requiring solitude and natural environment.

For areas considered in this analysis, increased human activity and the potential conflict with established wildland use patterns would spread beyond the camps and logging locations to nearby bays and islands under some of the alternatives. After completion of harvesting, solitude would return to the area as the people leave and facilities are removed. Those recreation activities aided by the remaining roads and vegetation changes would then be available in a relatively isolated environment. More of the semiprimitive recreation qualities would return as revegetation of cutting units and spur roads occur and the physical logging effects are masked. With crown closure of the cutover areas occurring some 15 to 30 years after harvest, the area would once again begin to provide a pleasing appearance, except for the main gravel roads. However, if the drainage area is managed on a multiple-entry concept, the second entry could be scheduled at about that time, and the sequence would repeat itself.

Impacts on opportunities for dispersed primitive recreation would be greater in roadless drainages scheduled for initial entry than in those previously entered (table 14). The introduction of roading noise and discordant visual effects would alter the opportunity for recreation in an isolated environment. In either case, opportunity for dispersed primitive recreation would be lower, with the magnitude depending on the type and standard of roads built and the number and size of harvest units and closeness to attractions.

TABLE 14--Locations which have high values for dispersed primitive recreation and are proposed for entry by alternative 1/

High-value area for dispersed primi-recreation	Entry proposed by Alternative--				
	1	2	3	4	5
Red Bay	Yes	No	Yes	Yes	Yes
Salmon Bay Lake	Yes	No	No	No	No
Whale Pass	No	No	Yes	No	No
Barnes-Sweetwater	Yes	No	Yes	Yes	Yes
Karta	Yes	No	No	No	No

Opportunity for dispersed semiprimitive recreation would also change in roadless areas scheduled for entry (see table 15). Entry would result in a slight lowering of opportunity, because access and discordant effects only slightly detract from semiprimitive recreation. This would depend on the number, type, and standard of roads built and the number and size of harvest units, nearness to attractions, and so forth.

TABLE 15--Locations which have high values for dispersed semiprimitive recreation and are proposed for entry by alternative 1/

High-value area for dispersed semi-primitive recrea-tion	Entry proposed by Alternative				
	1	2	3	4	5
Salmon Bay Lake	Yes	No	No	No	No
Red Bay	Yes	No	Yes	Yes	Yes
Whale Pass	No	No	Yes	No	No
Barnes-Sweetwater	Yes	No	Yes	Yes	Yes
Shaken Bay	Yes	No	Yes	Yes	No
Port Protection	Yes	No	No	Yes	Yes
Ratz Harbor	Yes	No	Yes	Yes	Yes
Tuxekan Pass	Yes	No	Yes	Yes	Yes
Salt Chuck	Nes	No	Yes	Yes	Yes
Karta	Yes	No	No	No	No

1/ Recreation types are defined in section II-C.

The opportunity for concentrated recreation would improve in entered areas. Timber harvesting would introduce discordant elements and visual effects which may detract from this type of recreation. The introduction of roads and road-orientated facilities, such as campgrounds, would increase the supply of concentrated recreation opportunities.

The "Recreation and Visual Resource Specialists Report" can be obtained on request for more details on recreation impacts.

J. Wilderness

Areas which are entered for timber harvesting or that have less than 5,000 acres of roadless area remaining would not normally be considered for Wilderness classification by the Forest Service until roads and harvested areas are no longer evident. (See alternative maps for roadless areas being entered.) Roadless areas which would be affected, by alternative, are:

Alternative 1--The total roadless area over 5,000 acres in size would be reduced by about 120,000 acres. Recognized potential Wilderness areas at Karta, Salmon Bay, Honker Divide, and Sarkar would be entered.

Alternative 2--No roadless areas would be affected.

Alternative 3--This alternative would reduce roadless areas over 5,000 acres in size by about 105,000 acres on the sale area. Wilderness options would be preserved at Karta, Salmon Bay Lake, Sarkar and Honker Divide.

Alternative 4--This alternative would reduce roadless areas over 5,000 acres in size by about 105,000 acres on the sale area. The Wilderness option would be preserved in Karta, Salmon Bay Lake, Sarkar, and Honker divide.

Alternative 5--No roadless areas would be affected.

K. Visual

An evaluation of the impacts of these five alternatives on the visual resource is based on an analysis of how the proposed activities meet the inventoried visual quality objectives (VQOs). These are derived from an inventory of the inherent scenic quality and the user sensitivity of that area. These visual quality objectives describe five degrees of acceptable

alteration of the natural landscape, ranging from preservation to maximum modification. Refer to the "Glossary" for a brief description or to "National Forest Landscape Management," Vol. 2, Chapter 1, "The Visual Management System," for a more detailed explanation of these different objectives and how they are derived.

The following paragraphs summarize the general visual impacts of each alternative. For a more specific account of the impacts of each alternative, refer to the "Recreation and Visual Resource Specialists Report." Visual impacts would be short term. However, future management activities could extend the impacts for prolonged periods of time.

Alternative 1 would not meet the "Southeast Alaska Area Guide" policy of "recognizing and protecting lands having special values, such as boat anchorages, small boat routes, ferry and tourship routes, recreation beaches..." It proposes very extensive cutting along several saltwater shorelines, such as Tuxekan Passage, West Behm Canal, Traitors Cove, and along part of the ferry route along Clarence Strait. It also proposes extensive cutting around lakes having Forest Service cabins near them and having recognized recreation and/or wilderness values. The resulting visual quality effect in most areas would be maximum modification compared to inventoried VQOs of partial retention in the foreground viewing position and modification in the middleground. Some units in the Salmon Bay and Tuxekan Passage areas would result in unacceptable modification. Visual quality objectives would be met only in the Sumner Strait and Port Protection areas.

Alternative 2 would result in no additional change in visual quality.

Alternative 3 would generally meet the VQOs with minor exceptions. The resulting visual quality in the middleground viewing areas of Exchange Cove and Shakan Bay would be maximum modification rather than the inventoried VQO of modification. The resulting visual quality in the middleground areas of Hatchery Lake and Port Protection would be modification instead of the inventoried VQO of partial retention.

Through lack of cutting, a higher visual quality (generally preservation) than the inventoried VQO of retention or partial retention would be achieved in the Karta, Salmon Bay Lake, and Honker areas. Smaller units and lack of cutting in the foreground would result in a higher visual quality than the inventoried objective of partial retention for the Klu Bay and the

inventoried objective of maximum modification along the Prince of Wales Island road system near Red Bay and Coffman Cove.

Alternative 4 effects would be the same as Alternative 3, except that lower visual quality would result along the Prince of Wales Island road system. It would result in maximum modification in the Coffman Cove area and in modification rather than the inventoried VQO of maximum modification near Red Bay. It would also result in maximum modification rather than the inventoried VQO of partial retention between Naukati and Control Lake. Also in this alternative, a unit proposed on the lower parts of a middleground slope would not meet the inventoried VQO of partial retention from some viewing points on the lake.

Alternative 5 meets the VQO's to the same degree as Alternative 4 in the roaded areas and proposes no harvesting in the roadless areas. This would result in a visual quality closer to partial retention rather than the inventoried VQO of modification along some stretches of the West Behm Canal. Through Shakan Bay, this alternative would meet the inventoried VQO of modification in the middleground. Along the West Coast Waterway just north of Sarkar Cove, this alternative would result in a visual quality of partial retention rather than modification as in Alternative 4. From Sumner Straits, the resulting visual quality will be slightly higher than in Alternative 4, but it would still meet the VQO of partial retention. Other roadless areas not entered with Alternative 5 are not viewed from any sensitive locations, so there would be no change in the visual impact from Alternative 4.

Alternatives 2 to 5 for the most part would recognize and protect the most critical recreation use areas, such as the Forest Service cabins and their associated water bodies, and the visual quality of views from the ferry and cruiseship routes and the more important small boat water routes. Trade-offs were through the IDT process. Therefore, these alternatives meet the Area Guide policies and the 1979-84 operating guidelines for management of the visual resource.

L. Cultural Resources

Impacts on cultural resources come from two sources, direct and indirect. Direct impacts occur when a site is disturbed by a proposed activity. Indirect impacts are such things as disturbance and vandalism resulting from increased human access.

Archeological sites are more likely to be found in some areas than others. Those areas with highest probability are the coastlines. Medium probability areas are the forested island interiors, particularly on old beachlines, lakeshores, and along low reaches of main streams. Low probability areas are alpine and subalpine zones. Certain alpine and subalpine areas have higher probabilities for historical sites, primarily from past mining activities.

The following is a description of each alternative, divided into key areas in relation to known sites. The probabilities for locating sites and direct and indirect impacts on cultural resources are qualitatively described:

Alternative 1--Of all the alternatives, Alternative 1 would have the greatest impact on cultural resources on Prince of Wales Island, because many cutting units are located along the shore. Cultural resource sensitivity areas that would be affected include sale areas adjacent to Kasherof Passage, Clarence Strait, Barnes Lake, Exchange Cove, Coffman Cove, Thorne Bay, Tolstoi Bay, and Twelve-Mile Arm on the east coast and Naukati Bay, Dry Passage, and Tuxekan Passage on the west coast. A traditional Native trail ran between Karta Bay and Klawock (Petroff 1884), and cultural resources associated with this could be affected. Other aboriginal sites, some of which are unverified, could be affected at Dry Passage, Staney Creek, Shaheen, Naukati, Sarkar, Red Bay, Sweetwater Lake, Whale Pass, Thorne Bay, Tolstoi Bay, Karta drainage, and Twelve-Mile Arm (Rabich 1978; Sealaska 1975). Historic sites associated with salteries and canneries could be affected near Red Bay, Salmon Bay Lake, Whale Pass, Coffman Cove, Thorne Bay, Shakan, and Tuxekan (Moser 1902). Historic sites associated with mining could be affected between Karta and Tolstoi Bay, west of Salmon Lake at Twelve-Mile Arm, Dry Passage, and Marble Island (Wright and Wright 1908). On Revillagigedo Island, most of the activities are located inland, but some cultural resources adjacent to Gedney Pass, Behm Canal, and at Indian Point could be affected.

Alternative 2--The decision to take no action would have no impact on cultural resources resulting from timber sale activities.

Alternatives 3 and 4--Impacts from Alternatives 3 and 4 are similar, except, that Alternative 4 would include cutting on a portion of the Kasaan Peninsula. On Prince of Wales Island, both alternatives place most cutting units inland, thus decreasing the potential for direct impacts on cultural resources.

However, cutting units are situated on Marble Island west of Prince of Wales Island. Marble Island has never been thoroughly surveyed for cultural resources, and opening the island to development could increase impacts on any existing cultural resources. Additionally, indirect impacts could occur to all the cultural resources listed in Alternative 1, except for those located near Karta, Sarkar, and Salmon Bay Lake. Cultural resources associated with historic mining activities could be affected on Kasaan Peninsula. On Revillagigedo Island cultural resources could suffer indirect impacts adjacent to Traitors Cove, Neets Bay, Gedney Pass, and at Indian Point.

Alternative 5--Alternative 5, which restricts the sale area to existing roaded areas, would decrease part of the effects on Prince of Wales Island, because some cutting units near Kasaan, Sarkar Lake, and Ratz Harbor are eliminated. Alternative 5 disallows including some of the interior and mountainous terrain in the sale area, but these are probably moderate or low areas of cultural resource sensitivity. Consequently, indirect impacts would generally be the same as in Alternative 4. On Revillagigedo Island, areas of concern include land near Gedney Pass, Neets Bay, and at Indian Point.

Further details on the impacts on cultural resources may be obtained in the "Specialists Report on Cultural Resources."

M. Atmosphere

No slash burning is planned. Operating machinery and logging camps in the area would put some smoke in the air, and during dry weather, some dust would occur along gravel roads. Neither would lead to concentrations great enough to produce any serious air pollution problems. Some noise pollution would be generated by trucks, yarders, and other machinery during timber harvesting and road construction.

I. EVALUATION OF ALTERNATIVES

LPK has requested that the full 960 MM bf be made available for the 1979-84 operating period. Alternatives 1 and 4 meet this level. Alternatives 3 and 5 provide approximately 75 percent of this amount and would require going into contingency areas to meet the contract commitment. The Forest Service is not ready to accept this option until the Wilderness issue in southeast Alaska has been finalized. Alternative 2 does not provide any harvest.

The need to harvest damaged timber in a timely manner to protect forest resources is addressed in the contract. Harvest of dead or damaged timber is less economically viable than operations harvesting green timber. The short-term economic loss is justified to protect the long-term value of soil, fish, wildlife, cultural, timber, and recreation resources. Since Alternative 2 would preclude timber harvesting, it completely fails to address the salvage issue. Alternatives 4 and 5 would provide for as much harvest of damaged timber as is practical in the areas entered. Because of visual problems, one major blowdown area (Baird Peak) was not entered in Alternative 3 or 4. Alternative 3 would get almost as much damaged timber as Alternative 4, but it would compromise some of the units for recreation values. Alternative 1 did not emphasize damaged timber as a selection criteria because of short-term economics. Consequently, only a minor amount of the damaged timber was proposed for harvest.

The economic viability of an alternative cannot be precisely stated until after an appraisal is done. Based on past experience, a good indicator is the amount of timber scheduled for harvest per mile of road constructed. A harvest of 2 MM bf per mile of system road will generally result in a positive dollar return, except for permanent bridges. With no timber harvest, Alternative 2 has no economic return. To harvest the 960 MM bf, Alternative 4 requires the least number of new roads and would appear to return the most value. However, Alternative 1, with 10 percent more new road mileage, could be competitive or slightly more economical because of lower logging costs as a result of operating in only the best stands and emphasizing relatively short yarding distances using a mostly hi-lead method. The short-term economics of Alternative 1 would result in later economic and management problems. Alternatives 3 and 5 would probably provide marginal dollar returns.

Wilderness is a national issue. So, it is appropriate that undeveloped areas of national interest be managed according to a broad allocation plan. In this case, the appropriate plan would be TLMP as part of RARE II. Alternatives with units in the Karta, Salmon Bay Lake, Sarkar Lakes, or Honker Divide areas would limit the potential for classified wilderness in these areas. Alternatives 2 and 5 would not have units in these roadless areas or any others. Alternatives 3 and 4 have no units in these areas of national interest, but they would develop other inventoried roadless areas. Alternative 1 would have roads and harvest units in these four areas and in most other inventoried roadless areas.

The design of harvest units to optimize future management would be handled best with Alternatives 4 and 5 in that emphasis would be placed on logical units and windfirm boundaries within the capabilities of present LPK equipment. Alternative 3 would do a slightly poorer job of designing harvest units for future management because of tradeoffs of timber value to protect amenity values. Alternative 1 would place no emphasis on providing for future management. Consequently, future problems with blowdown, accessability, economics, other resources, and operability would result. Since Alternative 2 would provide for no timber harvest, no future management problems would be created.

Alternative 4 does the best job of taking the complete first-entry harvest when operations are in an area. Alternatives 3 and 5 would fail to do this, and in many cases they would increase costs through future re-opening of roads. In some cases, camp moves would also be needed to come back for small first-entry volumes.

An annual harvest of about 250 to 300 MM bf is needed to maintain economic stability on the Ketchikan Area. The 5-year volume of 960 MM bm represents about two-thirds of that amount. Alternative 1 would best maintain the social and economic stability of the Ketchikan Area for the 5-year period. This is because the type of operation follows the pattern of operations for the past 10 years. Alternative 4 would maintain economic stability for the 5-year period and beyond then.

Extention of the public road system to Whale Pass, and Coffman Cove would enhance the social interaction of Prince of Wales Island communities (See "Socioeconomic Effects"). Alternatives 3 and 4 would equally affect the social interaction on Prince of Wales Island. Alternatives 1, 3, and 4 would complete most of the Prince of Wales Island road system. Alternative maps 1, 3, and 4 show which road sections would be completed.

Loss of some jobs in the timber industry with Alternative 3 for 5 years could result in disruption of the economic stability of the Ketchikan Area. Alternative 5 would fail to maintain economic stability more than Alternative 3. Alternative 2 would fail completely to maintain social and economic stability. The resultant loss of 50 percent of the Ketchikan Area jobs would cause complete upheaval in the social pattern and would destroy the timber industry on the Ketchikan Area for an indefinite period.

Alternatives 3, 4, and 5 were prepared in conformance with the policies in the "Southeast Alaska Area Guide." The degree of consideration of each resource varies somewhat and is depicted in relative terms in table 16.

TABLE 16--Relationship of alternatives to evaluation criteria 1/

Evaluation criterion	Rating of Alternative-- 1	2	3	4	5
1. 960 MM bf from primary area	10	0	7	10	7
2. Timber salvage	2	0	7	8	8
3. Economic viability	10	0	6	10	7
4. Wilderness	0	10	9	9	10
5. Harvest unit design	3	10	7	8	8
6. Intraisland road system	4	0	8	8	4
7. Social and economic stability	9	0	7	10	5
8&9. Conforms to policy and guidelines					
a. Recreation and visual	3	8	9	7	7
b. Soils and water	4	10	8	8	8
c. Fish	3	10	9	7	8
d. Wildlife	3	10	9	7	8
e. Cultural	4	10	7	6	7

1/ The degree to which an alternative satisfies a criterion is shown by 10 for the best and 0 for the least.

VII. IDENTIFICATION OF FOREST SERVICE PREFERRED ALTERNATIVE

Alternative 4 is the preferred alternative. It would adequately meet most criteria. The departures from the primary sale area would be minor, involving three units straddling the sale boundary to facilitate logging system layout design and the addition of the Clam Chance adjacent to El Capitan Passage to integrate the north Prince of Wales Island transportation system.

Alternatives 3 and 5 would not in many cases take the entire first-entry harvest when roads were open and operations were in an area. This would create higher overall costs by requiring a future reopening of roads and in some cases camps. These alternatives would also cause a loss of 900 to 3,000 jobs depending on the alternative and the degree to which induced employment was affected.

Unless mutual cancellation of the contract could be arranged, Alternative 2 would breach the contract and result in costly litigation. In either case, economic and social costs would be high to most of the communities. It would probably close the pulp mill as wood in transit was used. It is possible that existing independent sales and Canadian imports could keep the pulp mill operating for a short period. The spruce mill in Ketchikan and the Annette hemlock mill would also close or operate intermittently under this alternative for lack of supply. In a community, such as Ketchikan, where alternate employment is not available within commuting distance, the economic effect of this alternative would be severe.

Alternative 1 would meet important criteria from the industry point of view, because harvests of the contract commitment of 960 MM bf could be made in an economically sound manner. Its greatest deficiency is its failure to recognize other important Tongass National Forest interests.

Alternative 4 is the preferred alternative, because it would meet the evaluation criteria more completely than would the other alternatives. Alternative 4 meets industrial needs under the contract and protects Tongass National Forest values.

VIII. MANAGEMENT REQUIREMENTS

Most of the management requirements necessary for implementing this plan are in the LPK contract. Others are in the operating guidelines. Both of these documents are in the Appendix.

Following are some additional requirements not previously included:

*Conduct reconnaissance archeological surveys in units where they have not already been done and intensive surveys on areas that appear to yield significant data concerning cultural resources.

*In the event that a cultural resource is discovered or damaged during ground-disturbing activities, that cultural resource will be protected or salvaged as deemed appropriate through the consultation process outlined in 36 CFR 800 (Federal Register 1976).

*No sewage discharge into freshwater systems will be permitted. Under the Water Quality Improvement Act (P.L. 91-244) and the Federal Water Pollution Control Act of 1972 (P.L. 92-500), as amended, all domestic sewage waste from logging camps must

meet the standards in effect at the time the camp is established. Effluent must meet minimum standards for biochemical oxygen demand, suspended solids, fecal coliform (bacteria), and pH. The discharge facility owner shall apply to the Environmental Protection Agency for a National Pollutant Discharge Elimination System permit (Forest Service Manual 7410.3).

*A sale area improvement plan will be developed to provide for reforestation and timber stand improvement measures made necessary by the harvest of timber. Actions needed for the rehabilitation and management of other forest resources, such as fisheries or wildlife, will be included in the plan. Funds to implement these activities will be collected as part of stumpage receipts and congressional appropriations as provided in the National Forest Management Act.

*Conduct IDT review of harvest units or roads before release.

IX. CONSULTATION WITH OTHERS

The Alaska Department of Fish and Game provided one and at times two Ad Hoc advisors to the interdisciplinary team. These advisors worked closely with their Forest Service counterparts to provide recommendations which resulted in the formation of various alternatives.

The U.S. Fish and Wildlife Service and the National Marine Fisheries Service also provided personnel and information, particularly regarding location of log transfer sites.

LPK company personnel were consulted in accordance with the provisions of the Long-Term Sale Agreement.

Also, informal discussions were held with members of Tongass Conservation Society and Southeast Alaska Conservation Council.

Additionally, in June 1978, a four-page advertisement was placed in the "New Alaskan," a monthly newspaper widely distributed throughout southeast Alaska. An additional 500 copies were mailed or given to individuals who had previously expressed an interest in national forest management. The purpose of the advertisement was to inform the public of the scope of the environmental analysis and to solicit public opinion on the subject. Forty-two responses were received reflecting a broad spectrum of opinion. The majority favored Alternatives 1, 3, or 4. Although each respondent had a preference for one of the alternatives, they often expressed their analysis of the strengths or weaknesses of each alternative. These are summarized as follows:

Alternative 1--This alternative was viewed as having a low regard for environmental protection and reflecting a single-use concept of national forest management instead of multipleuse. It was also seen as being economically viable, protecting jobs, and meeting contract requirements.

Alternative 2--No one considered this a viable option.

Alternative 3--Some respondents felt this alternative adequately protects wildlife, visual, recreational, and other nontimber forest values. Others felt the protection is excessive and would result in adverse economic impacts.

Alternative 4--This alternative was seen as meeting contract requirements with a minimum of adverse environmental and economic impacts. However, the degree of adverse economic and environmental impacts is important, and the fear was expressed that this alternative would not meet "Southeast Alaska Area Guide" policy and, depending on a person's viewpoint, that it either gives too much weight to commercial values or not enough.

Alternative 5--This alternative is seen as maintaining high wilderness values and maximum environmental protection but at a cost of not meeting contract requirements or maintaining employment.

This Environmental Statement was issued as a draft in December 1978, and the following agencies and organizations were invited to comment: Advisory Council on Historic Preservation, Washington, D.C.; State of Alaska Historic Preservation Officer; U.S. Department of Housing and Urban Development; U.S. Department of the Interior; Department of the Army, Corps of Engineers; U.S. Department of Transportation, Federal Highway Administration; U.S. Environmental Protection Agency; U.S. Department of Energy, Federal Energy Administration; U.S. Department of Commerce, National Marine Fisheries Service; State of Alaska, Office of the Governor, State-Federal Coordinator; State of Alaska's Departments of Community and Regional Affairs, Transportation, Commerce and Economic Development, Environmental Conservation, Fish and Game, Natural Resources, Public Works, and Law; Alaska State Historic Preservation Officer; City of Ketchikan: City of Craig; City of Klawock; and Greater Ketchikan Gateway Borough.

Others invited to comment include the Alaska Loggers Association, Tongass Conservation Society, Western Forest Industries Association, Artic Representative of Friends of the Earth, Southeast Alaska Conservation Council, Alaska Lumbermen's Association, Ketchikan Chamber of Commerce, Alaska Miners Association, Sealaska Corporation,

Citizens for Management of Alaska Lands, The Wilderness Society, Sierra Club, South Tongass Land Review Committee, and other interested individuals. Additionally, 500 copies were sent to individuals expressing an interest in national forest management.

Twenty-eight responses on the draft were received and are displayed in this document with Forest Service comments on the substantive portions of those responses.

The major concerns raised by the respondents were:

*Intraisland road connections for Prince of Wales Island.

*Potential damage to fish habitat from roadbuilding and logging.

*The effect of the fall 1978 windstorm which extensively damaged timber stands on the sale area.

*Reduction of the total roadless area on the sale area.

*A general lack of "hard data" or quantification or facts to use in the analysis.

*Possible violations of water quality standards.

These concerns have been addressed in expanded or revised portions of this Final Environmental Statement. The "Effects" section was extensively revised, particularly those portions dealing with soils, water, timber, and fish.

The last part of this section contains copies of responses to the draft environmental statement made by the State of Alaska, other Federal Agencies, and individuals. In addition, this section displays brief comments of the Forest Service as they relate to the responses received. (Many comments are referenced by numerals placed in the margin of the respective response.)

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: M/S 443

FEB 8 19

James S. Watson, Forest Supervisor
U.S. Department of Agriculture
Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

We have completed our review of your draft environmental statement for the LPK Timber Sale Plan for 1979-84. We appreciate the deadline extension granted us to enable us to also review the six specialist's reports. We regret that we did not also receive the transportation specialist's report.

You and your staff are to be commended on a well-written statement which includes a consistent and valuable comparison between the five alternatives throughout the statement. The proposed alternative 4 implements and furthers many of the guidelines developed in the SE Alaska Area Guide and in the Tongass Land Management Plan. We found the specialist's reports to be well done, and are especially pleased with the analysis and direction in the fisheries report in regards to both water quality and fisheries habitat protection.

We have a number of comments and suggestions for the DES.

Mass Wasting

1 The fisheries special report does a good job of addressing most forms of increased sediment, and does attempt to quantify most actions that may produce sediments. However, as the ES points out, while the amount of harvest adjacent to fish streams may be directly related to the degree of impact on fisheries, unstable ground well away from the streams may be a more severe long term problem. Since soil mass movement resulting from actions on steep slopes is a major problem in many areas of SE Alaska, the discussion in the ES of mass movement should be expanded in three ways:

1) Page 32 states that alternatives 3, 4, and 5 call for more timber harvesting on steep slopes than would alternative 1. To permit a balanced comparison of alternatives, there should be some quantification on the number of steep (34^{0}-37^{0}) and oversteepened (over 37^{0}) acres, that would be affected under each alternative by both road construction and timber cutting.

2) While the proposed partial suspension or total suspension of cut logs will minimize short-term erosion, mass wasting most often occurs following root decay 3 to 5 years after logging. Therefore, there should be an expanded discussion of the long-term effects of actions on steep slopes.

3) A discussion of the proposed management plans to minimize the problems resulting from activities on steep and over-steepened slopes would round out the section.

Major Connecting Roads

2 Due to environmental effects and economic costs, reduction in road mileage is often considered advantageous. Alternatives 3 and 4 include approximately 20 miles of new roads that are not necessary to reach timber planned for harvesting during this five year plan. As these roads connecting the Hollis-Craig-Klawock-Coffman Cove road system to Whale Pass and Shaken (south connecting road in this letter) and further connections to the Red Bay and Labouchere Bay road system (north connecting road in this letter) may well have the longest and most significant long-term impact on the residents of the island,the discussions of the effects, reasons for, and placement of these roads should be expanded. For example, the Southeast Alaska Guide Transportation Goals orients the forest to develop a system of transportation modes that best meets the land and resource management goals and needs of the people. The Tongass Land Management Plan DES states that whether a community desires to be connected by road or by the Alaska Marine Highway to other communities often generates major debates within the region and within individual communities. However, there is no evidence presented in the DES that any communities desire to be connected by road, and some evidence (p. 24) that some communities do not want to be connected even though the planned roads will run to within a short distance of their site.

The reasons for the placement of these two roads are not mentioned, and, based on the available information, these roads do not appear to be placed through the best corridor. For example, the north connecting section would require much less new road if the connection ran near the west side of the island through the Shaken Bay and Labouchere logging road systems, rather than the proposed Honker Divide- Red Bay connection. The proposed alternative's south connectiong road appears to enter and cross the western Sarkar Lakes area that has been considered for inclusion in wilderness or watershed protection management under some of the alternatives in the Tongass Land Management Plan DEIS. To commit this land now for a road may foreclose other, more desirable, long-term management options. Alternative 3, which was designed to minimize impacts on wildlife and visual resources, proposes the south connecting road along the east side of the island near Whale Pass. The alternative 3 alignment appears to be much more desirable than the alternative 4 alignment on environmental grounds, and only slightly more costly in terms of road construction mileage.

Other Comments

3 An additional map of the sale area including the major geographic and topological features would have clarified many of the discussions in the DES.

4 As a sale area improvement plan will be developed to provide for reforestation, a discussion of the present reforestation plan, methods, problems, and proposed remedies would be useful.

5 Many of the mitigation measures to minimize the effects of the harvest on many of the forest values involve IDT review prior to release of any unit for timber harvesting or roading. It would be informative for there to be a fuller discussion of what this team actually does and can do during this review. Also, the proposed water quality monitoring should be more specific on what parameters will be measured, including a measure such as a percentage of intragravel fines similar to the sediment standard now used by the Alaska Department of Environmental Conservation, and the frequency, duration and location of

6 sampling. Specificity on the monitoring program would allow readers of the ES to see how your agency intends to implement the requirements of section 2(a) of Executive Order 11514.

7 The Louisiana-Pacific Corporation proposal, Alternative 1, would negatively impact many non-timber harvesting values of the national forest. Harvest in inventoried roadless areas of national interest, such as the Karta River-Salmon Lake drainage and in the Salmon Bay Lake area, would prevent wilderness classification for those areas. Destruction of large areas of key winter habitat for Sitka Black-tailed Deer would greatly reduce the Forest's carrying capacity for the deer and other valuable wildlife. Increased stream temperatures and decreased water quality due to logging and yarding practices would affect commercially and recreationally valuable fish. For these and other reasons, the selection and implementation of Alternative 1 would be considered Environmentally Unsatisfactory.

Based on the assumption that the selected alternative will be Alternative 4, we are rating this statement LO-2 (LO - Lack of Objections; 2 - Insufficient Information) from the standpoint of the Environmental Protection Agency's areas of concern and expertise. This rating will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act, as amended.

We appreciate the opportunity to review this draft environmental impact statement. Please do not hesitate to contact me or Judi Schwarz, of my staff, should you have questions or desire further information regarding our comments. We can be reached at (206) 442-1285 or (FTS) 399-1285.

Sincerely,

Alexandra B. Smith

Alexandra B. Smith, Chief
Environmental Evaluation Branch

FOREST SERVICE COMMENTS ON THE
RESPONSE OF THE ENVIRONMENTAL PROTECTION AGENCY LETTER

1. The Forest Service agrees that the problem of mass wasting needs more attention (Top of p. 2.). The discussion on soils has been expanded in the FES in the sections "Affected Environment" and "Effects" in response to this concern.

2. The section on transportation has been rewritten in the FES to clarify the type of road to be constructed and the purposes for connecting existing road links (see also our comments on the State of Alaska and SEACC responses on this subject). The north connecting road follows the gentlest terrain available between Whale Pass and Labouchere Bay. It also provides the shortest north-south link between Hollis and Labouchere Bay, considering the road system already in place. Both connecting roads access as much or more commercial timber land as alternative routes.

3. Seventeen USDI Geological Survey topographic map sheets (1 inch = 1 mile) cover the million plus acres of the timber sale, and they are available for review in most large libraries. The bulk and cost of these documents precluded our including them with each DES. Terrain features at a smaller scale blur together with the types of reproduction processes available, unless we use expensive coated paper stocks.

4. As suggested, a discussion of reforestation is included in the final statement. Included also are descriptions of other post-cutting silvicultural practices.

5. The IDT process continues after the completion of the ES throughout the implementation of the 5-year project. The process is less formal in that team membership and leadership are ad hoc, varying with the location and nature of the resource concern. Resource Management Assistants (RMA) or Project Engineers (PE) have the responsibility to call upon Resource Specialists for advice and assistance in laying out cutting units and locating and designing roads. RMA's and PE's are required to be knowledgeable enough of the Area Guide policies to recognize extra-ordinary situations and to call for specialized assistance where necessary. Resource Specialists have also "red tagged" some units and roads in which they feel they should be actively involved in the design and implementation stages.

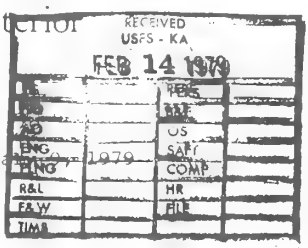
6. A discussion of water quality monitoring, planned and underway, is included in the FES.

7. The selected alternative as shown in the FES is Alternative 4. Hence, no harvest is planned in Salmon Bay Lake. The Karta drainage has been recommended through the RARE II decision for Wilderness classification.

United States Department of the Interior

OFFICE OF THE SECRETARY

P. O. Box 120
Anchorage, Alaska 99510



ER-79/34

February 9, 1979

Mr. James Watson
Forest Supervisor
USDA Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

In response to your December 19, 1978 request, we have reviewed the Draft Environmental Impact Statement for the LPK Timber Sale Plan for 1979-1984, Tongass National Forest, Prince of Wales Division, Alaska and we offer the following comments for your consideration.

GENERAL COMMENTS

Native communities that would be directly impacted include Hydaburg, Craig, Klawock, Kasaan and Metlakatla. Since the economics of Metlakatla and Klawock are very dependent on timber harvest activities, these communities would be impacted more than the others.

Alternative 4 appears to be in the best interests of the concerned Native communities since it will provide the timber necessary to support economic growth. However, we believe that Alternative 3 best suits the resource management requirements necessary for the well-being of fish and wildlife resources.

1 To better understand and evaluate impacts, we suggest the statement contain maps which show the location of seasonally important habitat areas (i.e., raptor nesting areas, shoreline deer food and cover areas, etc.) and their relationship to the proposed actions.

SPECIFIC COMMENTS

2 Page 2, paragraph 3. From a fish and wildlife standpoint, this paragraph dramatically emphasizes the need for renegotiating the long-term (50-year) timber sale contract. Although we are concerned primarily with the 5-year period which commences July 1, 1979 and ends June 30, 1984, for purposes of this statement adequate provision for potentially impacted fish and wildlife components cannot be realistically established when long-term timber commitments are set at a fixed figure. Accordingly, the need for fish and wildlife management as expressed in terms of a reduction of the overall timber harvest for the areas in question is not available. Therefore, appropriate protection of indigenous stocks is in some cases not possible.

3 Page 7, paragraph 4. Providing for and stressing the importance of tidally influenced wetland meadows in the estuarine zone is laudable. However, where logging will potentially impact highly productive fresh-water wetlands, some method of accounting for the amount and types of wetland area affected under each alternative should be included so that comprehensive comparisons between alternatives are possible.

Page 9, paragraph 5. We concur with your statement that "Estuarine areas also provide significant contributions to the fisheries resources of the sale area." Subsequently, it becomes apparent that logging
4 activities occurring in terrestrial areas can affect the stability of estuarine systems due to increased runoff, etc. Moreover, estuaries are not static systems as evidenced by the fluctuation of the various vertebrate, invertebrate and macrophytic components which are in dynamic equilibrium with the environment. As a result, it would be helpful if a more complete listing of estuarine plants and animals were available such that probable impacts caused by logging could be more closely defined.

5 Page 14, Cultural. It is our understanding that the Forest Archeologist has consulted the staff of the State Historic Preservation Officer regarding historic and archeological resources within the project area. However, this is not reflected in the draft statement. The final statement should contain evidence of consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer.

6 Pages 22-23, Issues. We believe the statements in this section accurately depict the situation which presently exists concerning the disposition of timber and timber-related resources and their relationship to the LPK-Forest Service 50-year contract. Particularly, the expressed concern that "This contract is a constraint on the Forest Service in applying measures to manage other resources," is well taken and is indicative of the dilemma which we face when attempting to comment on a document that withholds certain management alternatives as a result of prior commitments.

Page 24, Criterion 1. Our concern regarding this criterion have been
7 expressed in our remarks addressing the assumptions underlying the LPK-Forest Service 50-year contract.

Page 24, Criterion 5. It is our understanding that leave strips are
8 not available for harvest at any time. Perhaps this criterion should be reworded to say, "Design harvest units and logging systems so that deferred areas will be economically available in the future." Further the meaning of the first sentence in this criterion is unclear.

9 Page 24, Criterion 6. We recognize the need for consideration of improving the intra-island road system. However, we feel that it should not be used as justification in this statement for timber harvest.

10 Page 27, Effects. This chapter contains many possible mitigating actions. It should be stated whether these mitigating actions are merely possibilities or whether the U. S. Forest Service and the timber operator are committed to them. It seems likely that canopy removal also causes cooling by irradiation of calories into the atmosphere which, when coupled with the stated daytime warming aspects, would result in a surface temperature profile with greater extremes. This, potentially, could result in significant ecological change.

11 Page 30, paragraph 3. In our opinion, comments in this paragraph concerning the natural maintenance of high dissolved oxygen levels and the lack of sensitivity of Southeast Alaska streams to D.O. depletion should be documented.

12 Page 30, paragraph 4. We are concerned with the assumption that water quality reductions can be minimized and restored. The methods for doing such should be documented and supported.

13 Page 32, Table 5. We suggest that stream crossings, with their impact on water quality in streams, be included in this table.

14 Page 32, paragraph 3. In considering the comment, "Some adverse but acceptable impacts will result," what criteria are used to determine whether or not an adverse impact is acceptable?

15 Page 33, paragraph 2. It is our judgment that a "long-term" would be a span of time greater than the time the 50-year contract has been in operation. It seems unlikely that the long-term effects on fisheries could be adequately assessed since the beginning of large-scale cutting in Southeast Alaska. It is our impression, therefore, that the last sentence incorrectly implies that long-term effects on fisheries will prove to be insignificant.

16 Page 48, Recreation. The draft statement provides a comparative evaluation of the impacts to outdoor recreation resources according to the various proposed alternatives prior to the finalization of the Tongass Land Management Plan. The outdoor recreation resource impacts identified in the final environmental statement should reflect coordination and consistency with the outdoor recreation resource related policies and direction contained in the finalized Tongass Land Management Plan and the Southeast Alaska Area Guide.

17 The draft statement mentions that some of the proposed logging roads will be maintained for public access. To better understand the outdoor recreation opportunities and/or impacts associated with this action, it would be helpful if the final statement would: Identify those proposed logging roads which will be maintained for public use; and project the future increase, if any, in outdoor recreation use and/or other related impacts which might be directly associated with this action.

Page 59, Chapter VII, paragraph 2. It is apparent that combining the figures quoting the number of jobs lost does not lend itself to an adequate analysis of the impact of Alternatives 3 and 5 on the employment market. Consequently, we suggest that an estimate of loss of jobs resulting from selection of Alternatives 3 and 5 be separated and that the analysis used in arriving at the figures be presented.

Thank you for the opportunity to provide comments on the draft statement.

Sincerely,

Paul D. Gates
Regional Environmental Officer-
Alaska

FOREST SERVICE COMMENTS ON THE
RESPONSE OF THE U.S. DEPARTMENT OF INTERIOR

1. See the comments on the Environmental Protection Agency response (No. 3).

2. We believe this is a forestwide issue more appropiately addressed as it is now being done in the Tongass Land Management Plan. The long-term sale commitments are well below the 450 MM bm programmed harvest determined in the TLMP for the Tongass National Forest. Whether this average annual harvest is accomplished through a few large long-term sales or many small, short duration sales, the impacts to the fish and wildlife resources would be the same as the protection policies do not vary with the size or nature of the sale.

3. The only freshwater wetlands on the sale area are muskegs and boggy scrub timber lands. These lands are not consideréd highly productive.

4. See the pertinent referenced publications, The Forest Ecosystems of Southeast Alaska.

5. This has been done. See Section IX.

6. See reply no. 2 above.

7. See reply no. 2 above.

8. Leave strips are an appropriate management prescription when it has been determined by the IDT that fish habitat cannot otherwise be protected. The Tongass Land Management Plan has removed from the programmed harvest about 160 MM bm annually for protection of other resources. This does not include that volume removed by roadless area allocation or those lands on steep slopes and in isolated patches. What is meant by the first sentence is that when laying out the road system, do not isolate areas that are planned to be harvested in future entries.

9. See comments on the State of Alaska response (No. 5).

10. The Forest Service is committed to those mitigating measures.

11. The discussion on water quality has been expanded in the final statement.

12. The policies and practices are documented in the Southeast Alaska Area Guide, Tongass Land Management Plan, and their references.

13. The total number of stream crossings by alternatives is not known at this time.

14. Primarily, the Southeast Alaska Area Guide outlines this criteria. The Forest Service relies on the expert opinion of soil scientists and hydrologists to make such interpretations.

15. This is a debatable opinion that unfortunately can neither be proved nor disproved.

16. We believe this FES is completely consistent with the Tongass Land Management Plan.

17. This has been done. See II-C.5 of the FES.

18. These estimates are based on tables 3 and 4 and the volume for each alternative. See also the "Socioeconomic Overview" published by the Alaska Region, Forest Service, USDA in 1978.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

IN REPLY REFER TO:

FEB 14 1979

Mr. J. S. Watson
Forest Supervisor
USDA - Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

I am replying to your request of December 19, 1979 to the Federal Energy Regulatory Commission for comments on the Draft Environmental Impact Statement for the LPK Timber Sale Plan for 1979-84. This Draft EIS has been reviewed by appropriate FERC staff components upon whose evaluation this response is based.

The staff concentrates its review of other agencies' environmental impact statements basically on those areas of the electric power, natural gas, and oil pipeline industries for which the Commission has jurisdiction by law, or where staff has special expertise in evaluating environmental impacts involved with the proposed action. It does not appear that there would be any significant impacts in these areas of concern nor serious conflicts with this agency's responsibilities should this action be undertaken.

Thank you for the opportunity to review this statement.

Sincerely,

Jack M. Heinemann
Advisor on Environmental Quality

DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

January 29, 1979

Gentlemen:

Thank you for forwarding a copy of the draft environmental statement of "The LPK Timber Sale Plan for 1979-84". The Department has no comment on the statement.

Sincerely,

James M. Wright

Janes M. Wright
Acting Assistant Director (Environmental Programs)
Office of Administrative Programs

USDA Forest Service
Federal Building
Ketchikan, Alaska 99901

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230
(202) 377-~~3111~~ 4335

February 2, 1979

Mr. J. S. Watson
Forest Supervisor
USDA Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

This is in reference to your draft environmental impact statement entitled "The LPK Timber Sale Plan for 1979-84." The enclosed comments from the National Oceanic and Atmospheric Administration, National Marine Fisheries Service are forwarded for your consideration.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving five (5) copies of the final statement.

Sincerely,

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosure: Memo from Mr. Harry L. Rietze, NOAA/NMFS

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
P. O. BOX 1668 - JUNEAU, ALASKA 99802

DATE: January 26, 1979

TO: EC, Richard Lehman
/s/ Yates M. Barber, Jr. JAN 31 1979
THROUGH: F7, Kenneth R. Roberts

FROM: for: FAK, Harry L. Rietze
Director, Alaska Region

SUBJECT: Comments on Draft Environmental Impact Statement--The LPK Timber Sale Plan for 1979-84 (U.S. Forest Service) (DEIS 7901.10)

The draft environmental impact statement for the LPK Timber Sale Plan for 1979-84 that accompanied your memorandum of January 16, 1979 has been received by the National Marine Fisheries Service for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

GENERAL COMMENTS

Three basic issues that concern the National Marine Fisheries Service are fish stream habitat protection, estuarine habitat protection, and the evaluation of alternatives for this timber sale.

Fish stream habitat protection: It is stated that "Prescriptions were developed (see Appendix B and the 'Southeast Alaska Area Guide') to protect fish habitat" (page 33, para. 3). We strongly support the fishery management practices of the Southeast Alaska Area Guide and the operating guidelines for fish stream habitat protection. However, we are familar with the limited research base that was available to help formulate those guidelines, and we know that they have not been adequately tested. Therefore, we believe it is premature to assume that "if all forest development activities conform to accepted policies and

guidelines, completed as through site-specific prescriptions, then impacts on fish are either nonexistent or minimized to an acceptable level" (page 33, para. 3).

Estuarine habitat protection: Estuaries are important areas for the rearing of many species of fish, including the juvenile stages of
1 Pacific salmon. Other valuable resources dependent on estuaries include crabs, shrimps, herring, sablefish, and halibut. The potential destruction of estuarine habitat is inadequately described in the DES. We agree that "In the estuary, loss of habitat results from rock fills for construction of log transfer points" (page 35, para. 2); however, roads beside or through an estuary also may have a large impact. Moreover, the fact that marine bark accumulation resulting from land-sea log transferring has a smothering effect on plants and sessile animals, and the possibility that substratum required by planktonic larvae may be covered (Schultz and Berg, 1976), should be acknowledged.

Evaluation of alternatives: Considering the broad geographic and environmental ramifications of the proposed cutting of 960 MM bm of timber on Prince of Wales and Revillagigedo Islands within the next 5 years, the draft EIS is inadequate. The main deficiency is lack of sufficient details concerning logging plans and protective measures for specific streams and watersheds. For example, 30 major and numerous small salmon-producing streams (page 6) are in the proposed cutting area, but most of these streams are not specifically identified, and it is impossible to tell exactly where cutting is proposed relative to them.

Sufficient specific data are not given in the soils, water, and fish sections of this DES to permit us to make an informed judgment on the most environmentally acceptable alternative. However, it would appear that alternative 2, followed distantly by alternatives 5 and 3, would maintain fish habitat and protect fishery resources better than either alternative 1 or 4. We assume that alternative 2 is not viable. Therefore, we would prefer adoption of alternative 5, since it appears that less fish habitat would be affected under this alternative than under alternative 3. However, it is unclear how, or to what extent, the policies for protecting fishery resources articulated in the Southeast Alaska Area Guide were utilized in evaluating the alternatives. In light of this uncertainty and the recent protection given to roadless areas by the Department of Agriculture (RARE II), we recommend that a revised DES be prepared to provide reviewers a better opportunity to evaluate the merits of all reasonable alternatives.

SPECIFIC COMMENTS

II. AFFECTED ENVIRONMENT
A. Physical
4. Water

Page 7, para. 2. It is stated that "Under the selected alternative, the number of stream crossings have been minimized to the extent practical." We suggest also mentioning the degree to which stream crossings on the other alternatives would be minimized.

Page 7, para. 4. We agree in part that "The sensitive wetlands of southeast Alaska are the tide influenced meadows in the estuarine zone." However, we believe that all wetlands are very sensitive to erosion caused by logging. Freshwater wetlands produce a tremendous amount of detrital material necessary in the food chain of freshwater, anadromous, and estuarine fishes. We recommend including an estimate of the amount and the kind of wetlands that would be disturbed by each alternative.

B. Biological
2. Fauna

Page 9, para. 5 and page 10, para. 1. We agree that estuaries are very important to the fisheries resources of the sale area, and suggest including a more complete discussion of their importance to commercial and sport fish resources. Some of the more important commercial and
5 sport species that depend on estuaries and nearshore waters, but that are not mentioned here, include all salmon, cutthroat trout, Dolly Varden, steelhead, sablefish, halibut, herring, Dungeness crab, and clams.

C. Social Aspects
3. Wilderness

Page 14, para. 6. It is stated that Karta, Salmon Bay Lake, Honker Divide, and Sarkar were not considered in this timber sale so as not to constrain the RARE II and TLMP processes. We agree with this rationale, and submit that these and other roadless areas with high fisheries values should be left in their natural state. That natural, unlogged watersheds have a high fisheries value is exhibited by the large commercial salmon catches of the 1940's. In addition, the sport fishing industry in southeast Alaska--a multimillion dollar industry that is steadily growing--would benefit from such protective action.

5. Transportation

Page 16, para. 2. There seems to be confusion in the transportation objectives for the LPK timber sale. The DES states that "One objective of transportation planning has been to connect the isolated road segments radiating from Coffman Cove, Whale Pass, El Capitan, and Labouchere Bay to the other population centers and to encourage development of additional ferry terminals on Prince of Wales Island." But the Southeast Alaska Area Guide (at page 141) states that "The Forest Service plans, designs and constructs transportation systems to support various resource activities and provide access for management, use and protection
6 on National Forest lands. The State of Alaska has primary responsibility for planning, project development, design and construction of regional highways and air facilities as delegated by the Federal Highway Administration and the Federal Aviation Administration. The primary purpose of State highway systems is to provide for the movement of people and materials from one community to another, regardless of land and resource allocations along the way, while the Forest Service directs its efforts toward the development of resource-related transportation systems, proposals for developing of other major arterial highway systems may also come from other sources" (emphasis added). Finally, as stated in TLMP (at page 113) "Road construction produces, by far, the greatest opportunity for soil loss and sedimentation." Section V. C. Fish (pages 33 and 34) recognizes many of the adverse effects sedimentation has on fishery resources. We acknowledge that the Forest Service can allow roads for social purposes, but we suggest that it would be more appropriate to address these roads in a separate environmental statement.
Page 18, para. 4. Again, an apparent desire of the Forest Service to build non-resource-related roads is implied by the statement that "Future management for the Forest Development Roads will continue to emphasize connection of communities...." This objective appears to conflict with the Forest Service's role in transportation planning, as described in the Southeast Alaska Area Guide (see quotation from its page 141 above).

D. Economic Aspects

Page 19, para. 3 and page 22, para. 1. Tables 2, 3, and 4 are misnumbered, and Tables 2 and 4 (numbered 4 and 3 in the DES) do not agree regarding primary employment in commercial fishing and fish processing

in the Ketchikan area (7.9% vs. 17.1%). The source of the data used for these estimates should be indicated.

F. Issues

Page 23, para. 1 and 4. Statements such as "the other side to this issue is that if the job level is to be maintained, the same volume commitment would still be needed regardless of the kind of contract" and "The issue is whether or not the Tongass National Forest will continue to supply the timber volume needed to maintain this reliance at its present level" imply that without the total allowable cut, timber-related employment will drop within the Ketchikan area. However, in the section on "Economic Aspects" in the TLMP (page 29) it is stated that
7 "If privately owned lands are managed on the sustained yield basis, the total cut in southeast Alaska would be 600 MM bm per year (adjustments were made for round log exports displacing a portion of cant production). As a result, about 450 MM bm per year would be required from the Tongass to support the industry. Under this set of circumstances, total employment in the timber industry in southeast Alaska would remain slightly above the past 7-year average." Since the average cut from the Tongass was only 520 MM bm per year over the past seven years (TLMP, page 29), it should be possible to reduce the allowable timber volume on the Tongass, maintain or increase the number of timber-related jobs, provide wilderness areas, and protect fish habitat for future generations.

G. Management Concerns

Page 23, para. 7 and page 24, para. 1. We agree that local community needs are important management concerns. However, these other developmental needs (e.g., roads) would more appropriately be considered in a
8 separate environmental statement so that such needs could be evaluated separately. As stated in our comments on Section II. B. 5. Transportation, Forest Service roads should be resource-related. This does not seem apparent in the statement "Another management concern is that the harvest should be planned so as to allow road connections between most of the communities on Prince of Wales Island."

III. EVALUATION CRITERIA

Pages 24 and 25. Of the nine evaluation criteria used to weigh the alternatives, none specifically weighs the importance of fish or wildlife resources. This seems in conflict with the Multiple Use-Sustained Yield Act of 1960, the Wilderness Act of 1964, the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, the Forest and
9 Rangeland Renewable Resources Planning Act of 1974, the Sikes Act of 1974, and the Federal Land Policy and Management Act of 1976--all of which recognize the need for and the desirable qualities of fish and wildlife on National Forest land.

Page 24, para. 2. As stated in our comments on Section II. B. 5. Transportation, we believe criterion 6 conflicts with the management objectives of the Southeast Alaska Area Guide (page 141). Instead of
10 making this an evaluation criterion for a timber sale, we believe that a more appropriate approach would be to consider all non-resource-related roads in a separate environmental statement.

IV. ALTERNATIVES CONSIDERED

Page 25, para. 1. The maps showing each alternative do not provide enough information for an effective comparison among alternatives. Our specific suggestions for improving these maps are as follows:

1. Increase map size to give reviewers enough detail to permit them to distinguish the size differences among the various cutting units.

2. Clearly define all land-sea boundaries (e.g., by extremely dark lines).

3. Differentiate (e.g., by color) all log dumps and log storage sites specific to any one alternative.

4. Differentiate (e.g., by color) all cutting units specific to any one alternative.

5. Differentiate all roads specific to any one alternative.

Page 26, para. 5. It is stated that "In order to facilitate the completion of the intra-island road system, it is necessary to leave the primary sale area between Naukati and Whale Pass, thus including the 'Clam Chance' timber in the long-term sale." As stated above, we believe that all roads evaluated in this DES should be resource-related. Roads
12 are one of the greatest sources of sediment in streams during and after logging. Therefore, cutting plans should be designed to minimize the length and number of required roads. All non-resource-related roads should be discussed and evaluated in a separate environmental statement.

13 V. EFFECTS

A. Soils

Pages 28 and 29. For each alternative, data should be included on the types and areas of hazardous soils appearing within each fish-producing watershed. The strengths and weaknesses of each alternative should then refer to these data. Each alternative is different enough to be discussed separately. Finally, all conclusions and declaratory statements should be supported by adequate data and/or proper documentation. (Also see our comments below for sections V. B. Water and V. C. Fish.)

B. Water

Page 30, para. 1. The statement that "Although the increase in sediment is the primary impact from logging and road construction, increases are relatively low compared to other regions of the United States" should be supported by adequate data and/or proper documentation.

Page 30, para. 3. Stream turbulence should be mentioned as the primary cause of high dissolved oxygen (D.O.) levels in streams. Blockages of backwater areas by logging debris may cause D.O. depletion in streams.

Page 30, para. 4. All anticipated "temporary changes in water quality" should be described in the text of this section. We question the validity of the statement that "all anticipated changes can be reduced to acceptable levels and returned to natural levels through proper planning and enforcement of watershed protection measures during and after logging activities" (emphasis added). This statement should be (a) qualified (e.g., "could" instead of "can") to indicate the level of uncertainty and the difficulty of monitoring and enforcing any protection measures and (b) supported by adequate data and/or proper documentation.

Page 30, para. 5. It is stated that "Changes in streamflow would probably be negligible. Normally, restrictions on cutting design eliminate the potential for a measurably increased streamflow." Again, such conclusions and statements should be supported by adequate data and/or proper documentation.

Page 30, para. 6. Examples of "sensitive landforms and channel systems" should be provided, and their relationship to streams being considered "most sensitive," as described on page 29, paragraph 6, should be discussed.

Page 31, para. 1. The Alaska Department of Environmental Conservation's "best management practices" should be listed, along with the Forest Service's equivalent measures. The rationale as to when or where each practice or measure will be used should be explained.

Page 31, para. 3, 4, and 5 and page 32. In the discussion of each alternative, number and size of sensitive landforms, channel systems, and streams should be discussed. Also, the probability of these land forms causing water quality problems should be discussed in relation to adjacent timbering, roading, and road crossings.

Page 32, Table 5. The data presented in Table 5 are very informative. But to provide a more complete picture, we suggest including data on (a) the miles of roads adjacent to streams and (b) the number of stream crossings within each alternative. Streams compared in this table should be defined as "large," "small," or "intermittent." If small or intermittent streams vital to rearing salmonids are not considered, this fact should be so stated.

Page 32, para. 3. Data and/or documentation should be provided for the conclusion that "some adverse but acceptable impacts will result...."

C. Fish

Pages 33-36. The negative impacts on fisheries resources that are listed (e.g., increased sedimentation, changes in stream temperature, stream and estuary (ecotone) habitat loss, and diminished stream and estuary habitat productivity) are all regarded as short-term, local, or unimportant, and therefore not of great concern. In our opinion, however, it is possible that some impacts may be long-term (there are few or no data), and we believe that it is erroneous to assume that "guidelines" will always be appropriate, applied, and enforced. We are not certain that logging will be done in accordance with provisions in the Tongass Guide. For example, the KPC operating guidelines listed in the appendix (pages 101-112) were dated 1976 and do not appear as complete as the fisheries policies in the Area Guide, dated 1977.

Page 33, para. 2. Many research efforts have demonstrated that logging may have detrimental effects on fishery resources and their habitats. (See comment for page 33, para. 5 below for literature citations.) The revised DES should include a listing, accompanied by literature citations, of the long-term research projects conducted in southeast Alaska that were reviewed to reach the conclusion that timber harvesting does not significantly affect fishery resources on a long-term basis. [An explanation of "long-term" would be appropriate (i.e., does it mean weeks, months, decades, or centuries?).] In our opinion, adequate research on the effects of logging on fish production has never been performed in southeast Alaska.

Page 33, para. 3. The DES acknowledges that the IDT had few data to support the assumption that its prescriptions for the protection of fish habitat are acceptable. Despite this acknowledged lack of data, another very important assumption is made about the acceptability of impacts on fish. (See quotation under GENERAL COMMENTS above.) To make such a statement with a good data base is appropriate, but to make such a statement without any data base is inappropriate, since many studies have found logging to be harmful to fish habitat.

A better approach would be to acknowledge a lack of quantifiable data upon which a recommended alternative will be based. Then, a qualitative analysis of risk should be discussed for each alternative. Finally, a recommended alternative could be chosen, logically and objectively, because of its risk ranking.

Page 33, para. 5. Perhaps "Increased opportunities to conduct direct fish habitat improvement projects" could be more appropriately stated as follows: "Increased financing would be available to conduct fish habitat improvement projects." It is our understanding that the same opportunities would exist under alternative 2, but that funds from logging revenues would not be available to support such projects.

We suggest that the introduction to the effects of logging on fish habitat be revised to indicate that when old growth forests are removed by logging, rapid changes take place that set the ecosystem back to an early stage of ecological succession. Stream temperatures are raised in summer (Hall and Lantz, 1969) and possibly lowered in winter (Burton and Likens, 1973). Forest transpiration rate changes (Molchanov, 1960) and streamflows are altered (Harr, 1970). Sediment eroded from logging roads enters streams (Cederholm et al., 1978); sediment increases in streambed gravel (Koski, 1972; Koski and Walter, 1978), thereby decreasing delivery of oxygenated water to developing eggs and alevins (Koski, 1975) and reducing benthic invertebrate production (Brusven and Prather, 1974). Increased light penetration to streambeds also alters distribution, abundance, and production of benthic invertebrates; increased light production may increase growth of periphyton and algae (Hansmann and Phinney, 1973). Buffer zones of uncut timber can help protect the stream/forest ecotone from these undesirable changes, but information that provides a basis for prescribing sizes and locations of buffer zones is lacking.

Page 34, para. 1. In addition to the effects mentioned here, sedimentation may physically block alevins from leaving their redds.

Page 34, para. 4. The statement that "application of the guidelines would keep temperature changes within acceptable limits and return them to natural levels within 10-15 years after logging" should be supported by data and documentation.

Page 35, para. 2. Fill material placed within the intertidal zone for the construction of roads also may cover valuable marine habitat and create circulation problems within marine wetlands and the stream/estuary ecotone.

Long-term marine impacts may be caused by bark debris build-up from log transfer sites. Ratz Harbor, a proposed transfer site for this sale, is a good example.

Page 35, para. 3. Bark accumulation also has a smothering effect on plants and sessile animals, and it may cover substrate required by planktonic larvae (Schultz and Berg, 1976). Appropriate substrate is important ecologically because many planktonic larvae will postpone metamorphasis in the absence of a suitable substrate (Day and Wilson, 1934; Wilson, 1937; Thorson, 1946). Therefore, a bark substrate will reduce the amount of critical habitat available to these species. An improperly placed log transfer facility could severely disrupt the environment of a bay. Again, Ratz Harbor is a good example of a bay that is severely impacted by log debris.

The National Marine Fisheries Service also provided recommendations on the suitability of all log transfer sites and log storage sites.

Some of the proposed log transfer facilities are not in conformance with the Southeast Alaska Area Guide's policies. Those transfer sites that were recommended were the best locations chosen from among the alternatives available. A heavily impacted bay often was chosen because this action would tend to localize detrimental effects.

Page 35, para. 5. Roads are commonly the greatest source of siltation among all logging-related activities. It would be appropriate to compare the miles of roads adjacent to streams and the number of stream crossings within each alternative. (See comment above for page 32, Table 5.)

Earlier in the DES (page 6), it is stated that "The sale area has 30 major streams and numerous small, largely unnamed streams." To the extent possible, these streams and watersheds should be named and their fisheries values described. The disturbance of every watershed should be compared and discussed for each alternative.

Page 36, para. 2. All log transfer sites and log storage sites should be listed for each alternative (rather than merely enumerated) so as to project the fisheries impacts more clearly.

Page 36, para. 3. Instead of discussing the effects resulting from "the best possible application," we suggest discussing the effects resulting from "the most probable application."

Page 36, para. 4. A definition of "long-term" should be provided.

Page 36, para. 5. All environmental impacts should be considered to be both dynamic and cumulative.

E. Vegetation

Page 44, Table 9. The apparent discrepancy between the number of acres that would be harvested under alternative 5 (16,993 acres in Table 9 vs. 18,634 acres calculated from data given on page 26) should be corrected.

G. Socioeconomic

14 Page 46, para. 5 and 6; page 47, para. 1 and 2. Only forest-related jobs are discussed. All types of jobs should be analyzed for each alternative. The discussion should include impacts on commercial fishing, freshwater and marine sport fishing, tour-chartering, and various other non-timber-related uses.

The potential for timber harvesting on privately owned lands creating timber-related jobs should be discussed, especially in the context of providing an opportunity to reduce timber harvest on National Forest lands and affording fish and wildlife resources better protection.

15 Page 47, para. 4. The degree to which non-road-oriented recreation would be affected by adopting alternative 2 should be discussed. This discussion should include effects on marine sport fishing, primitive area sport fishing, etc., over a 100-year timber rotation time frame.

16 Page 47, para. 5. The discussion of differences between alternatives 3 and 4 should include non-road-related uses, including marine sport fishing, primitive area sport fishing, etc.

17 Page 47, para. 6. As mentioned on page 24, "Port Protection and Point Baker residents have expressed a desire to remain isolated from the road system." Therefore, the impact of logging large amounts of timber near these fishing communities, as shown for alternatives 1, 3, 4, and 5, should be throughly discussed and evaluated.

VI. EVALUATION OF ALTERNATIVES

Pages 56-58. We suggest a re-evaluation of these alternatives, since protection of fish and wildlife values was not specifically mentioned in the Section III. EVALUATION CRITERIA (pages 24 and 25). Any evaluation of alternatives should be discussed in the context of fitting into a long-term, multi-purpose plan for the Tongass National Forest (e.g., TLMP).

Page 58, para. 3 and 5. The probable effects of timber harvesting on Native lands should be discussed. These effects may include an increase
19 in logging-related jobs and an increase in the need for protective measures for fish and wildlife resources on the Tongass National Forest.

VII. IDENTIFICATION OF FOREST SERVICE PREFERRED ALTERNATIVE

Pages 59 and 60. We suggest a re-evaluation of this section because
20 fish and wildlife resource protection was not specifically addressed in the criteria used to choose an alternative.

21 Page 59, Table 12. The weight given to each criterion should be specified. (We assume all criteria were not given equal weight.)

Page 59, para. 1. The apparent desire of the Forest Service to build roads that are not resource-related is evident here. Again, any non-
22 resource-related road should be addressed in a separate environmental statement. (See our comments above.)

23 Page 59, para. 2. Again, the potential for increased jobs resulting from the logging of private lands should be evaluated and discussed.

VIII. MANAGEMENT REQUIREMENTS

Page 61, para. 1. Research is needed to provide data required for an evaluation of management goals (e.g., fish and wildlife protection).
24 Funds for such research could be collected as part of stumpage receipts, and from congressional appropriations.

We would appreciate two copies of the final environmental statement when it becomes available.

LITERATURE CITED

Brusven, M.A. and K.V. Prather. 1974. Influence of stream sediments on distribution of macrobenthos. J. Entomol. Soc. British Columbia, 71: 25-32.

Burton, T.M., and G.E. Likens. 1973. The effect of strip-cutting on stream temperatures in the Hubbard Brook Experimental Forest, New Hampshire. Bio Science, 23 (7): 433-435.

Cederholm, C.J., L.C. Lestelle, B.G. Edie, D.J. Martin, J.V. Tagart and E.O. Salo. 1978. The effects of landside siltation on the salmon and trout resources of Stequaleho Creek and the main Clearwater River, Jefferson County, Washington, 1972-1975. Univ. Washington, Fish. Res. Inst., Final Report-Part II, FRI-UW-7804, 53 pp.

Day, J.H. and D.P. Wilson. 1934. On the relationship of substratum to the metamorphasis of Scolelepis fuliginosa (Claparede). J. Mar. Biol. Assoc. U.K., 19: 655-662.

Hall, J.D. and R.L. Lantz. 1969. Effects of logging on habitat of coho salmon and cutthroat trout in coastal streams. In: T.G. Northcote (ed.), Symposium on Salmon and Trout in Streams, p. 355-375. H.R. MacMillan Lectures in Fisheries, Univ. British Columbia, Vancouver. 388 p.

Hansmann, E.W., and H.K. Phinney. 1973. Effects of logging on periphyton in coastal streams of Oregon. Ecology, 54 (1): 194-199.

Harr, R.D. 1976. Forest practices and streamflow in western Oregon. U.S. Forest Service Gen. Tech. Rep. PNW 49, 18 p.

Koski, K V. 1972. Effect of sediment on fish resources. Paper presented at Washington State Dep. Nat. Resources Mgmt. Seminar, Lake Limerick, Wash., 36 p.

Koski, K V. 1975. The survival and fitness of two stocks of chum salmon (Oncorhynchus keta) from egg deposition to emergence in a controlled stream environment at Big Beef Creek. Ph.D. thesis. Fish. Res. Inst., Univ. Washington, Seattle, 211 p.

Koski, K V. and R.A. Walter. 1978. Forest practices in relation to management of Alaska's coastal zone resources: a review with management and guideline recommendations. National Marine Fisheries Service processed report, prepared for Office of Coastal Management, State of Alaska, 222 pp.

Molchanov, A.A. 1960. The hydrological role of forests. Acad. Sci. USSR Inst. Forestry, Moscow. Transl., Israel Prog. for Scientific Translation, Jerusalem, 1963.

Schultz, R.D. and R.J. Berg. 1976. Some effects of log dumping on estuaries. Processed report--Alaska Region Environmental Assessment Division, National Marine Fisheries Service, Juneau, Alaska, 64 pp.

Thorson, G. 1946. Reproduction and larval development of Danish marine bottom invertebrates. Meddr. Kommn. Danm. Fisk.-og Havunders (Ser. Plankton), 4: 1-523.

Wilson, D.P. 1937. The influence of the substratum on the metamorphosis of Notomastus larvae. J. Mar. Biol. Assoc. U.K., 22: 227-243

FOREST SERVICE COMMENTS ON THE RESPONSE OF THE U.S. DEPARTMENT OF COMMERCE

1. Impacts on the estuary have been acknowledged. See Section IV-C.

2. Forest Service comments on the Southeast Alaska Conservation Council, Alan Stein, and the State of Alaska responses relate to these issues.

3. The number of stream crossings are minimized in each alternative.

4. The Forest Service believes this would be an impractical contribution to the assessment as there are extensive acres of muskegs and scrub timbered land that technically meet the definition of wetlands.

5. See Section IV-C.

6. See the comments on the State of Alaska response.

7. This has been done.

8. This has been assessed through the TLMP and is not within the scope of this FES.

9. Fish and wildlife protection and management are standard evaluation criteria for all national forest projects and are not specific to this project. They are therefore covered in the evaluation criteria numbers 8 and 9 on pages 25 and 59 of the DES.

10. The Forest Service believes a total FES covering all the activities is more comprehensive than one just for the road. See the comments on the State of Alaska response for further rationale for evaluation criterion G on page 24 of the DES.

11. See the comments on the Environmental Protection Agency response (No. 3).

12. See the comments on the State of Alaska response (No. 5).

13. Pages 33-45 of the "Effects" section on "Soils" of the DES has been rewritten to reasonably meet the scope and practical limits of this FES.

14. Only forest-related jobs are discussed, because it is assumed there would be essentially a neutral effect on jobs in the fishing and tourist sectors.

15. The potential for nonroad-oriented recreation would increase as roads disappear under the forest regrowth. It is difficult to quantify the actual increase in visitor days, as there already exists a large unused potential for this type of recreation in southern southeast Alaska.

16. There is no difference between Alternatives 3 and 4 regarding the effects on sport fishing for either marine or freshwater.

17. The large volume of timber is scheduled for harvest by the Labouchere Bay camp, because the timber is over mature on lands committed to the timber sale contract and not otherwise reserved from cutting. The resources of the forest are not limitless, and, if there are to be reservations from development on some areas, then other areas must be open to development. The needs of the Point Baker-Port Protection residents have been considered as thoroughly as possible. See pages 118-119 and pages 127-161 of the FES on the 1974-79 operating period.

18. See item 9. Fish and wildlife values were considered throughout the planning of harvest alternatives. The interdisciplinary team had one wildlife biologist member and, although the Forest Service fisheries biologist was never formally appointed to the team, he worked full time on the project with the other team members. Additionally, Alaska State fish and game biologists contributed many hours to field investigations, unit design, and team discussions of the alternatives. Their recommendations were given careful consideration and generally followed. Fish and wildlife habitat protection measures are major factors in the policy and guidelines which make up evaluation criteria 8 and 9. Wildlife values were also specifically included and given full weight in table 16.

19. See the response to item 14.

20. See the reply to item 18.

21. In table 16 the rating of each alternative reflects the opinion of the interdisciplinary team as to how well the alternatives meet evaluation criteria. Although subjective, the rating was made by people knowledgable of both the resources involved and the varying

effects of each alternative on those resources. All criteria were essentially equally weighed.

22. See item 6.

23. See item 14.

24. The wording of this section has been modified to include management as well as rehabilitation. Resource management in its broadest sense includes research as a problemsolving tool.

JAN 30 1979

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF EQUAL OPPORTUNITY
WASHINGTON, D.C. 20250

JAN 30 1979

8140 Supplement 8

Draft Environmental Statement of the
LPK Timber Sale Plan for 1979-84

William Williams, Associate
Deputy Chief for Administration
Forest Service

We have reviewed the draft statement for its treatment of impacts upon minority persons in the affected area. Census data shows that American Indians constitute a significant minority population in the Prince of Wales and Ketchikan Census Subdivisions.

The preferred operating plan will maintain the current volume of timber production and will impact minorities in the areas of employment and cultural resources. Since the statement does not include data on population or employment by race, it is not possible to determine the impact that the alternative will have on Indian employment in logging and timber related enterprises. We note that the contract between the Forest Service and the Louisiana-Pacific Corporation, Ketchikan Division, contains clauses encouraging the use of local labor and prohibiting discrimination on the basis of race, color or national origin. We assume that these provisions are being enforced and have been effective in affording Indians an equal opportunity for employment.

Regarding cultural resources, the preferred alternative will almost certainly have some adverse impact upon sites of early Indian habitation. This aspect is adequately described in the statement and, hopefully, the management requirements listed on page 60 will minimize damage to these sites.

Thank you for the opportunity to review the Draft Environmental Statement of the LPK Timber Sale Plan for 1979-84.

/s/

JAMES FRAZIER
Director

cc: J.S. Watson
Forest Supervisor

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
ARCADE PLAZA BUILDING, 1321 SECOND AVENUE
SEATTLE, WASHINGTON 98101

January 29, 1979

REGION X

IN REPLY REFER TO:
10 C

Mr. J.S. Watson
Forest Supervisor
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

Subject: The LPK Timber Sale Plan for 1979-84

We have reviewed the statement submitted with your December 19, 1978 letter.

Your preferred alternative no. 4 supports or is consitent with our objectives of economic progress for communities, promoting affordable housing for all citizens and to improve the quality of the human environment. Thus find no objection to your proposed action. We would not support alternative no. 2 which is to harvest no timber.

Thanks for the opportunity to comment.

Sincerely,

for Robert C. Scalia

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION TEN
Room 412 Mohawk Building
222 S.W. Morrison Street
Portland, Oregon 97204

Febraury 5, 1979
IN REPLY REFER TO
HED-010.6

Mr. J. S. Watson, Forest Supervisor
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

The Federal Highway Administration, Region 10, staff has reviewed the "LPK Timber Sale Plan for 1979" DEIS and has the following comments for your consideration:

Page 18. Main Road New Construction

Consideration should be given to the construction of turn-outs, boat launching ramps, etc.

Page 27. Section V Effects, A. Soils, first paragraph

In conjunction with the establishment of grasses to control soil erosion, other temporary and permanent erosion control measures may be needed during road construction and logging operations (reference "Manual of Erosion Control Principles and Practices", National Cooperative Highway Research Program-Project 16-3).

Page 44. Section "F" Timber

Will the clearcut area be screened from the roadways?

Sincerely yours,

Robert B. Hathaway

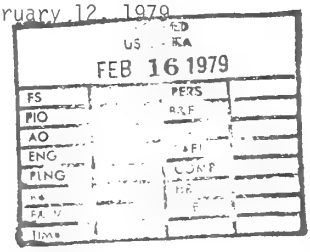
Robert B. Hathaway, Project Development Program Engineer

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

2221 E. Northern Lights Blvd., Suite 129, Anchorage, Alaska 99504

February 12, 1979



J. S. Watson
USDA - Forest Service
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901

The following are our consolidated comments on the Draft Environmental Impact Statement for the LPK Timber Sale Plan for 1979-84.

General:

1. The Draft Environmental Impact Statement lacks sufficient information to allow a reader to either evaluate the various alternatives put forth or to draw upon any conclusions as to the preferred plan. The statement has to be self sustaining and not relying on written technical reports located elsewhere for the data needed to evaluate the proposal. If a summary of the resource reports and logging plan was shown in a similar manner as the Fish and Wildlife section is presented, the report would be acceptable.

2. The information needs to be reorganized so that the little data presented follows a logical sequence. Example: The population for Prince of Wells Island is located under Transportation and not under Social Aspects.

Specific Comments:

Section II. Affected Environment

Page 11. C. Social Aspects

2 A person not familiar with the area could not tell if the writer is talking about a community or just a location. This section should be expanded to include the names, population and major industry for the permanent and temporary communities. This will help to set the stage for further evaluation of the social and recreational resources. The total population figure and number of communities for the Prince of Wells Island should be in this section and not under Transportation.

C.1. Recreation

3 Are there any other types of recreation facilities within the sale area?

Page 12. Dispersed Primitive and Semiprimitive

4 Both state several areas on the sale area that are rated high and moderate in quality. Where are these and how will they be affected by the logging development? There is nothing in the Draft that covers the impact logging will have on these areas.

Page 19. Economic Aspects

5 If possible, the type and number of employed people living in the permanent communities on Prince of Wells Island should be shown. The number on the tables (2, 3, and 4) should be changed. Table 4 comes before 2 and 3.

Page 23. Management Concerns, 2nd Paragraph

6 Do the communities want to be connected by road? From reading the statement, it is assumed that only the land manager and the logging company wants the road connection.

Section III.

Page 24. Evaluation Criteria, Item 6

7 The last sentence should be under G. Management Concerns.

Section IV.

Page 25. Alternatives Considered

8 This whole section should be expanded in order to provide the reader more descriptive information on the logging development for each alternative. Suggested information: (a) total acreage to be harvested; (b) miles of new road construction by construction standards; (c) number of harvest units involved; (d) volume and acreage for each type of logging system; (e) the percent of merchantable timber being harvested within the confines of the five year land boundary; (f) the percent of merchantable timber being left upslope of the units; (g) the number of new logging camps and log transfer sites needed; (h) number of employees involved; (i) total acreage of damaged timber found in the area and the percent that will be harvested; (j) the percent of unit acreage that lies above a 60% slope for each logging system involved.

All these items are discussed in generalities throughout the rest of the report without any figures or data attached to them for comparison.

Section V. Effects

Page 28. Alternatives 1, 2, 3, 4, and 5

Each one lacks supporting data to verify the statements made about the impact logging will have on the soil.

Page 29. Alternative 5, 2nd Paragraph, last sentence

9 Is the Soils Guideline found in Appendix B supposed to be in this report or the "Soils Specialists' Report"?

10 Page 31. Alternative 1, 1st Paragraph

Lacks any data to support the statement being made.

Page 31. Alternative 1, 2nd Paragraph

"Several sections of roads are on critical soils and slopes..."

11 What are several sections - 200 feet or 5 miles of roads? How does this compare with the other alternatives? This information is needed for comparison.

Page 35. Paragraph 6, last sentence

12 Table 5 does not show the varying extent of stream side cuts by each alternative. All the table shows is the linear miles of streams involved within or adjacent to the harvest units.

Page 36. Table 6

13 This should be shown under IV. Alternatives Considered, to help set the stage for evaluating the effects.

Page 37. D. Wildlife

It is important to know the amount of deer winter habitat being lost through harvesting the timber, but the key point for discussion is what level of deer population should be
14 maintained for the area and how will the proposed cutting units effect this level.

Page 43. E. Vegetation, Table 9

15 This table should be located under IV. Alternatives Considered, to help set the stage for evaluating the effects.

Page 44. F. Timber

This also lacks supporting data to back up the statements made on the impact logging will have on it. Example: (a) the
16 amount of blowdown in the area; (b) the amount of timber in the area; (c) the amount of upslope timber that will be harvested or left in the area.

Page 46. G. Socioeconomic

This section should come last since it refers to items discussed later in the writeup.

Page 46. G. Socioeconomic Jobs

17 The writeup talks about the increased road construction mileage between alternatives. This is fine, but what is the actual difference in mileage?

18 Page 48. I. Recreation

This whole section is weak because it does not address the impact the logging will have on recreation.

Several things that should be addressed are:

1. How many people presently use the area for recreation?

2. What percent of the recreational use comes from outside of Prince of Wells Island?

3. What percent of the local population use the area for recreation?

4. A breakdown of recreational activities and the percent of use by local and non-local users.

5. What type of people use the area, such as meat hunters, trophy hunters, subsistence fishermen, sport fishermen, etc.?

6. What is the expected recreational demand for the area over the next 10-30 years and by whom?

19 7. How will the results of the logging actually impact or benefit the recreational user for each of the recreation activities now and in the future?

Page 48. Impact on Existing Recreation Use

This whole section does not show any impacts on the existing recreation use. All it says is that road construction will allow a different type of access to the areas and the visual quality will be lowered by the roads and cutting areas.

Page 48. Alternative 1

How many people will actually be affected by the bringing of logging activities into close proximity to people recreating in these areas? Would it actually change the use patterns by introducing roads?

Page 50. 2nd Paragraph

20 The logging will also open up new areas for these people to use which were not accessable before -- a benefit.

Page 50. 3rd Paragraph, 1st sentence

21 It is assumed the writer is talking about new logging camps and logging locations and not existing ones. This should be clarified.

Page 50. 3rd Paragraph, 5th sentence

If gravel roads are properly put to bed, they will also be covered with vegetation within 15-30 years, unless the writer is talking about roads that will be maintained.

Page 50. 4th Paragraph, 1st sentence

22 This statement is not clear as to what the writer is talking about.

Page 50. 4th Paragraph, 3rd sentence.

23 The opportunity for dispersed primitive recreation would also be greater since it would allow access to more areas not now accessable to the majority of the potential users. This also applies to semiprimitive recreation.

Section VI. Evaluation of Alternatives

Page 57. Paragraph 1, 2, and 3

24 In all three items being evaluated, assumptions are being made without specific data in the text to back up the statements.

Page 58. Paragraph 1, 2, and 3

24 There is no information available in the writeup to verify the assumptions being made.

Page 59. Table 12

25 There is either lacking or nonsignificant information available in the writeup to allow the reader to make a judgement rating of the alternatives.

Section VII. Identification of Forest Service

Page 59. Preferred Alternative

1st Paragraph, 2nd sentence

This is the first time the writer has talked about unit layout and it seems out of place since the subject pertains to identification of preferred alternative. This should have been brought out earlier in the report in order to help the reader evaluate the alternatives.

2nd Paragraph, 1st sentence

The statement "...would not in many cases take the entire first entry harvest...." can only be assumed to be correct. There is nothing in the text which tells the reader what percent of the harvest is being taken by each alternative.

These comments are intended to assist you in an improved environmental statement. Please consider them as best you can.

for Sterling Powell

Weymeth E. Long
State Conservationist

cc: K. L. Williams, Director, TSC, SCS, Portland, Oregon

R. M. Davis, Administrator, SCS, USDA, Washington, D. C.

Director, Office of Federal Activities, Environmental Protection Agency, Washington, D. C.

FOREST SERVICE COMMENTS ON THE
RESPONSE OF THE USDA SOIL CONSERVATION SERVICE

1. See the comments on Alan Stein response (No. 3).

2. This information was cited in the DES under "Transportation" as an indicator of one class of road users. Other population data are appropriately cited in the DES and FES under "Economic Aspects."

3. Yes. See the referenced "Tongass Land Management Plan" for a detailed listing.

4. Page 51 of the DES has a detailed listings of the dispersed primitive and semiprimitive areas. Page 47-52 of the DES assesses the impacts.

5. The table numbers have been corrected. Employment data for Prince of Wales Island alone are not available to us, and the Forest Service is not legally permitted to collect such data on its own initiative. Perhaps, that should have been clarified.

6. See the Forest Service comments on the State of Alaska response (No. 5).

7. It is needed under "Evaluation Criteria" to clarify the sixth criterion.

8. To the extent the data are known, they are included in the FES. See "Evaluation of Alternatives," particularly Soils, Watershed, Fish, and Timber.

9. Appendix B of the DES contains the guidelines for soil protection.

10. See "Soils Specialist Report" which supports the statement.

11. The problem sections are generally only a few hundred feet in length, except in Alternative 1 where some road segments are one half mile or more.

12. In DES table 5, the "extent" of streamside cuts is measured in miles.

13. We believe it is more appropriate to leave that information where it is (see FSM 1950).

14. We agree. The Forest Service is working with the Alaska Department of Fish and Game to arrive at deer population levels, but it will be some time yet before they can be determined.

15. See comment 13.

16. See "References Cited" in the DES for supporting data.

17. Miles of road by alternative has been incorporated into a table in the section "Fish."

18. We have referenced the 1974-79 operating plan ES which has some of this information. Most of the suggested items are not available.

19. We believe this has adequately been assessed in the recreation part of the "Effects" section of the FES.

20. The Forest Service agrees and so states this on page 49 of the DES.

21. Reference is made mainly to roads, but it also includes other developments that would concentrate people in the area.

22. Logging and roadbuilding are more severe adverse impacts on dispersed recreation when they occur in a previously undeveloped portion of the forest than in an area with existing roads.

23. Agreed.

24. In some cases, one has to rely on the opinion and judgment of experts such as foresters, soil scientists, biologist, and so forth.

25. We believe the comparison table is a good way to weigh alternatives as they relate to evaluation criteria.

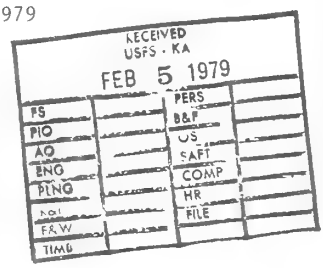
JAY S. HAMMOND, Governor

OFFICE OF THE GOVERNOR

DIVISION OF POLICY DEVELOPMENT AND PLANNING

POUCH AD
JUNEAU, ALASKA 99811
PHONE: 465-3512

February 1, 1979



Mr. James S. Watson
Forest Supervisor
U.S.D.A. Forest Service
Federal Building
Ketchikan, Alaska 99901

Subject: LPK Timber Sale
Plan for 1979-84 Draft Environmental Statement
State I.D. No. 78110301A

Dear Mr. Watson:

The State Clearinghouse has completed its review of the Louisiana Pacific Corp, Ketchikan Division (LPK) Timber Sale Plan for 1979-84 Draft Environmental Statement. Consultation and review with the Departments of Commerce and Economic Development (CED), Environmental Conservation (DEC), Fish and Game (DF&G), Natural Resources (DNR), and Transportation and Public Facilities (DOT/PF) provided us with the material presented below, which represents the response of the State of Alaska to the draft sale plan.

The draft Environmental statement (DES) states that the document "was considered necessary because some previously unroaded and undeveloped areas of the sale area must be planned for timber harvest prior to completion of the Tongass Land Management Plan (TLMP)...". We would like to reiterate our strong support for the Interdisciplinary Team approach exemplified by the TLMP. We regret that the DES was prepared, due to the ever changing nature of Federal decision-making on the Tongass Forest, in the absence of the TLMP.

We support Alternative 4, the preferred alternative, and offer technical recommendations and objections which we outline in the text of the let-

ter. But the major weakness of the DES, influencing both the content and the tenor of our specific recommendations, is lack of any context to review the plan within, other than as simply a consideration of the harvest layout for the next operating period, 1979-1984.

A major focus of the DES should be to present the 5-year plan in the context of long-range timber harvest in the Ketchikan working cycle. The 5-year plan is not an isolated action but is an increment of the 50-year contract built on the foundation of past harvests and serves to define future opportunities, both for harvest and for amenities.

The impacts considered are basically only those short-term impacts resulting from localized harvest activities. Because of this, little appreciation can be gained for the long-term significance and potential environmental impact of the 5-year plan itself, or the 50-year contract it represents.

All that is accomplished by the DES, is to indicate that Alternative 1, proposed by LPK, does not conform to the policies of the "Southeast Alaska Area Guide" and measures poorly against the evaluation criteria, while Alternative 4 meets Guide policies and evaluation criteria relatively well.

It is due to the absence of the TLMP, and perhaps even with the TLMP depending upon the Federal decisions on the Tongass through either the RARE II or D-2 process, that these weaknesses of the DES should be attributed to.

With regard to the DES itself, the introduction states: "This...statement evaluates alternatives for the harvest of 960 MM bm of timber on Tongass National Forest lands...". (page 1) Although technically correct, this statement is misleading. Five alternatives are detailed, but only one, the preferred alternative, addresses all of the criteria
2 listed in Section III (pp. 24-25). Alternatives 2,3 and 5 fail to meet the primary criterion, that the total volume be taken from the primary sale area. Alternative 1, since it enters all remaining roadless areas, fails to address the fourth criterion. Thus, the choice is limited to Alternative 4. Perhaps "alternative" is the wrong word. If the Interdisciplinary team (IDT) process consists of going from point A, LPK's unacceptable proposal, to point B, Alternative 4, then the process should be described as such, rather than giving the reader the impression that five acceptable proposals for timber harvest are presented.

In looking at specific proposals put forth in the preferred Alternative 4, we see three major technical problems to which we will now speak.

I. ROADS

One of the evaluation criteria in the DES is completion of the intra-island road system. The Forest Service proposes to extend a road to Hydaburg and to complete connections to Coffman Cove, Whale Pass and
3 Labouchere Bay on the northern end of Prince of Wales. The rationale for the intra-island road system apparently includes promoting social and economic community interties, allowing expanded recreational travel, providing an alternative to sometimes hazardous air travel and establishing new ferry terminals.

The preferred alternative, number 4, does not indicate that the extention to Hydaburg will be constructed by the Forest Service over the life of this plan. We are aware that discussions are occurring between DOT/PF, the Forest Service and the Federal Highways Administration concerning the Hydaburg road in connection with the Forest Highways Program. The State supports the completion of the Hydaburg road connection because it is one of the objectives of the Southeast Alaska Transportation Study. It is agreed that if this road is scheduled for completion in the future, the project would be subject to the review

processes appropriate for Forest Highways projects. Due to this fact, our comments here refer only to the upper island connections from Sarkar Lakes through to Red Bay.

The State of Alaska opposes the construction of the connecting road system until such time as the following factors are considered, and in light of this study, the road connections are deemed justified.

(1) We oppose any cutting in the Sarkar Lakes or Red Lake watersheds (see below). Given that this is the case, we would question both the continued economic viability of the roads and the rationale behind the particular routes chosen, if they are not to be used as access roads for logging in these areas. Though it does not appear that the Sarkar Lakes watershed proper would be entered during the next 5 years, the selection of major road extentions, arteries, or timber harvest paths will to a large extent determine the flow of the timber-harvest over the remaining life of the contract. Undue pressure may result for harvesting within areas which are environ-
4 mentally sensitive based on the prior construction of road through or near the area. This can be seen by a consideration of the placement of cuts in Alternative 1, the alternative proposed by LPK, where cuts are clustered around or near existing roadways. Any extension and completion of the upper island road system must be conceived and considered within a discussion of the future cut placement, which is lacking in the DES. We do not see adequate justification for the roads, nor a thorough enough economic cost-benefit analysis of the routes chosen in the DES, in lieu of our opposition to any cuts in the Red Lake or Sarkar Lakes Watersheds.

(2) Any road construction, expansion or extention will have social impacts upon the citizens of Alaska and perhaps ultimately upon the resources of the State of Alaska. We believe that such a major transportation development should not be undertaken without a thorough and visible public planning process. We note in particular that the Alaska Coastal Management Program, with which Forest Service activities must be consistent upon the program's adoption,
5 will require when approved that "Transportation and utility routes and facilities in the coastal area must be sited, designed and constructed so as to be compatible with local community goals and desires as expressed in district programs and local comprehensive plans." Public transportation development should not be undertaken by the Forest Service except where support for such development is expressed in district programs or local comprehensive plans.

(3) We are aware that with respect to similar type road ventures within Southeast Alaska, the discussion of maintenance and subsequent liability is occurring between the Forest Service and DOT/PF. Both
6 the type of construction and responsibility for maintenance should be determined prior to construction. The answers to these questions, however, cannot be adequately anticipated without a vigorous impact analysis which is currently lacking in the DES. Some of the potential problems which would be detrimental if unresolved or which need public involvement in order to establish their acceptability to those communities impacted by the road system are:

a. Erosion and subsequent water quality problems tend to occur from roads which are not properly maintained.

b. Access to uninhibited areas promotes solid waste problems, off-road vehicle use, damage to fish and game resources, and other environmental problems.

c. Unauthorized habitations may be constructed.

d. Demand may grow in the future for a number of costly services, from road maintenance to extension of municipal services.

e. Areas that were previously roadless will lose their undeveloped character.

II. HARVEST LEVELS

The State of Alaska recognizes and acknowledges the contractual obligation stated on page 2 of the DES: "The Forest Service SHALL make up to 960 MM bm available in each 5-year period if the purchaser requests." The only two alternatives outlined in the DES which fulfill this obligation are number 4, the preferred alternative, and number 1, the LPK alternative. Of these two, the State of Alaska supports Alternative number 4, however, we have three specific serious recommendations and objections with which we qualify this support.

(1) As mentioned above, we oppose any cutting units in either the Sarkar Lakes or Red Lake Watersheds. These are areas of high fisheries and wilderness amenities values, and great precaution should be taken not to impair these values. We do support the selection of other, less enviornmentally sensitive units, either within the primary sale area or on the remainder of the pulpwood allottments. We would appreciate that the FES indicate which cutting units, if any, are substituted for the sensitive units. 7

(2) The LPK timber sale plan proposes timber harvest on four (4) State selections and a log dump site on an additional selection. Under Alternative 4, timber would be cut on the Port Protection, Hollis, Thorne Bay, and Whale Passage selections and a log dump site established at Shrimp Bay. The total volume to be taken is unclear, but appears to be on the order of 15 MM BF. Based on the arguments outlined below for each site, the State of Alaska objects to any harvest on these selections at this time. 8

The Port Protection and Thorne Bay selections received Forest Service approval on June 6, 1978, with a "reservation" that timber in certain units might be harvested in the 1979-1984 operating period. The State has previously notified the Forest Service that it does not agree that the Forest Service has the legal right to place reservations on State selections as the planned harvest in the 1979-1984 period does not constitute a valid existing right for LPK.

The Hollis selection received conceptual approval in the June 6 letter, but has not received formal approval. The Whale Passage selection has received no action to date. The State objects to planned harvest on both selections at this time.

The Shrimp Bay selection was made both as a hatchery site and recreation site. Although this selection was denied in a January 11, 1979 letter, the State plans to file an administrative appeal. Therefore, until the appeal is resolved or the proposed action is fully discussed with appropriate State representatives and consensus reached that the activity will not impair the site with respect to the purposes for which it was selected, the State objects to the planned activity.

The appropriate resolution to these concerns would be to substitute additional volume within the sale area for the volume anticipated from State selections, or alternatively, to negotiate an agreement with the State which satisfies State concerns on its selections while not prejudging or in any way compromising the State's position that the units do not constitute valid, existing rights for LPK.

(3) The question of timber volumes necessary to protect employment opportunities, and the resultant trade off with wilderness, wildlife, and fisheries resources is one that will continue to be asked

over the life of the 5-year sale plan. We quote from the letter from Commissioner LeResche to you on August 4, 1978, on the draft Tongass Land Management Plan (TLMP): "The State of Alaska's first goal is that the...(TLMP) must provide sufficient timber volumes to maintain the present level of employment in our timber industry." (page 2) "Sufficient timber must be made available to the industry without reliance on private lands, but if private timber is available, less must be provided from the forest." (page 4) In that letter, the State of Alaska outlined ways flexibility should be built into the planning process. This would allow for necessary changes in the specific decisions of the plan, depending on the validity of the economic assumptions upon which the planned decisions were based. We would suggest a similar process here. The DES states that "an annual harvest of about 250 to 300 MM bm is needed to maintain economic stability on the Ketchikan Area. The five-year volume of 960 MM bm represents about two-thirds that amount." (page 58) 960 MM bm, however, represents "about two-thirds" of the upper limit of the "about 250-300 MM bm" per year. It appears that LPK will not cut roughly 15% of the timber allotted in the current 5-year plan. This situation may also result for the 79-84 plan. Hence there needs to be flexibility in the actions based on projections associated with economic stability. To coordinate this flexibility with the desire to minimize "jobs vs. environment" arguments, we propose that the Forest Service develop a yearly prioritization schedule of cutting units, ranging from the least environmentally sensitive to most environmentally sensitive, among the cuts selected to be logged over the life of the plan. This would indicate to the public, as well as LPK, units which would not be cut if the full allotment is not used. It would also provide the basis for meaningful public discussion of the trade-offs occurring between economic values and other amenities if the harvest levels, combining all sources of timber, are determined by economic factors beyond the maintenance of the current employment level in the Ketchikan area.

9

10 The description of the affected environment should indicate, accompanied by maps, the volume and location of all past harvest areas and the location and character of remaining timber suitable for harvest. It should illustrate the harvest units of the current 5-year plan, and indicate which of those will not be cut in the current period. It should discuss the role of timber harvested from the primary sale area in relation to timber received by LPK from other sources and to other harvests within the region. It should also discuss the market outlook for the 5-year period and the status of LPK processing and marketing activites. The environmental impacts of the 5-year plan should be presented as an increment in relation to the 50-year contract throughout the primary sale area. (Our remarks here are also pertinent with regards to the ALP sale plan scheduled for release shortly.)

The State of Alaska would welcome the opportunity to continue working with the Forest Service to prioritize the cutting units, as this would best help us meet our mandate of maintaining economic stability with the least possible damage to other forest values. If the Forest Service feels that this prioritization is not possible, we would suggest they consider the outlook for ability to meet the terms of the 50-year contract, and, indeed, to harvest through a 100-year rotation, while complying with environmental guidelines and with pollution control standards.

III. WATER QUALITY

Impacts upon water quality constitute one of the major environmental problems associated with timber harvest activities. Because of limited field staff, poorly defined programs, and lack of coordination, both within the Forest Service and within the State, viclations of water quality standards do occur and often are not properly mitigated.

As stated in the DES, the primary water quality impact is increased sedimentation due to activites associated with roadbuilding. The DES indicates that impacts are generally temporary, yet it defines temporary as one to five years in duration. There would seem to be considerable latitude for violation of the Alaska Water Quality Standards with respect to sedimentation. Revised Standards, which will go into effect shortly, allow no measurable increase in sedimentation above natural conditions. The Standards establish procedures, however, for short-term variences to allow temporary, unavoidable pollution in excess of the standard.

The DES states that, "Alternatives 3,4, and 5--these would affect water quality in similar ways." (page 32) This is a true but incomplete statement. The types of effects would be similar for all three alternatives, but the magnitude of the effects on water quality would differ considerably. Alternative 4, calling for more miles of road construction, has the highest potential for water quality damage. According to Table 5 (p. 32), Alternative 4 affects more miles of stream in every category. The environmental statement should indicate that differences exist in the potential for stream damage.

It is also stated throughout the discussion of the effects on fish, changes in water quality are referred to as temporary. Although increases in sedimentation and temperature may be temporary, impacts on fish populations may be more long-lasting. The potential longer-term effects of fish populations deserve mention.

The DES, in addition, mentions that "best management practices (BMP's)" are being developed by the Department of Environmental Conservation (along with the Department of Natural Resources) to control nonpoint pollution from timber harvest activities. The BMP's, if properly implemented, should provide the most practicable and effective control of water quality impacts. Achieving proper implementation of this program will require considerable effort and cooperation by both the Forest Service and the State. The State is available to work with the Forest Service in an attempt to achieve this proper implementation.

The DES further states that, "all anticipated (temporary changes in water quality) can be reduced to acceptable levels and returned to natural levels through proper planning and enforcement of watershed protection measures during and after logging activities." A difficult situation is created by the recognition that sedimentation will occur in violation of the Alaska Water Quality Standards. The persistent occurrence of substantial water quality violations indicates a strong need to improve both planning and enforcement efforts if the optimistic attitutde of the DES is to be realized.

In our view, the environmental statement should recognize that substantial water quality problems do occur and that any sedimentation which occurs constitutes a violation of State law through the Alaska Water Quality Standards. To judge that, "some adverse but acceptable impacts will result" is not a satisfactory approach to compliance with the Standards. We would refer to Executive Order 12088, which establishes that, "the head of each Executive Agency is responsible for compliance with applicable pollution control standards, including those established pursuant to... (the) Federal Water Pollution Control Act, as amended..." The Order also requires each Executive agency to submit an annual plan to the Office of Management and Budget for the control of environmental pollution, which must provide for compliance with all applicable pollution control standards.

OTHER COMMENTS

We have the other following specific comments on the DES.

12 Differention in magnitude of effects on water, fish, wildlife habitat and estuarine areas should be made between alternatives 3,4, and 5. Though the type of effect will be similar, greater impact in general will result from selection of alternative number 4, over alternatives 3 and 5. This should be stated.

13 On page 38 retention of fringe around the estuarine areas is given as 500-1000 feet. This should be a minimum of ¼ mile. If there is any question of windfirmness, the fringe should extend to a windfirm boundary beyond ¼ mile.

14 Reports during 1978 suggested that the Forest Service was subsidizing the timber companies in Alaska, and that the State of Alaska was subsidizing out-of-State loggers with unemployment insurance benefits. The first allegation depends on the economic scope of the reporter. The second problem relates closely to the contractual agreement. Section 23 of the Timber Sale Agreement states "...labor for the conduct of logging operations, mills and manufacturing plants conducted by the purchaser, its affiliates, subsidiaries or contractors...be recruited from residents of Southeast Alaska." In 1977, however, 44% of the unemployment insurance payments made to unemployed persons in the logging, lumber and pulp industry (SIC 24, 26) went outside of Alaska.

The State would like to see a renewed effort by industry to hire year-round Alaska residents. This effort is as critical as the availability of timber in maintaining Ketchikan area employment at its present level.

15 One major point which was not discussed in this document was the addition of 100 MM bm of blowdown. We have no argument with the salvage of blowdown timber, however, it should have been addressed in the DES. In addition, since the recommended alternative provided 960 MM bm without the blowdown, we assumed there was now a 100 MM bm surplus. Upon checking with the Forest Service, we were informed that our assumption was not accurate. Projection of the amount of timber available in the preferred alternative had fallen short of 960 MM bm by about 85 MM bm based on more recent projections. The reasons for the error in projection should be outlined in the DES.

16 The citation of Public Law 92-500, as on page 60 of the DES, should read: the Federal Water Pollution Control Act of 1972 (P.L. 92-500), as amended. On the same page, the reference is "National Pollutant Discharge Elimination System."

As was stated earlier, the State of Alaska conditionally supports Alternative 4. We would like to reiterate our desire to work with the Forest Service in implementing the specific recommendations expressed in this letter into the FES. If we can be of any further assistance in coordinating State involvement with the Forest Service in this effort, please contact us.

Attached to this letter are comments received by the Clearinghouse through the process of official A-95 review from the Point Baker Association.

Thank you for the opportunity to comment.

Sincerely,

Jerry L. Madden
State-Federal Coordinator

BR:cl

Box 535
Petersburg, Alaska 99833

Bill Ross

Office of Policy and Planning

Governor's Office

Capitol Building

Juneau, Alaska 99833

Dear Bill:

Following my conversation with Rick Reed last week, I learned that I could find out about the stage of the State clearing house response to the LPK EIS and thus expedite input of the Point Baker Association; when I stumbled into the planning meeting at DNR on Friday or Thursday, I learned that I had to get my comments in soon or the team would not consider them; that they had to be in writing. So here they are and hope the State will be responsive, as many of Hammond's ardent backers like Zieske my buddy are counting on it.

Sincerely yours,

Alan Stein

Box 535
Petersburg, Alaska 99833

January 25, 1979

Ried Stoops
Office of the Commissioner
Department of Natural Resources
State Office Building
Juneau, Alaska 99801

Dear Ried

I hope that the State's response to the LPK EIS will include the following points

I Point Baker
- a no cutting on Protection Head because of its importance as a wind break to both Baker and Protection
- b remove cuts within one mile of the State Land selectio n
- c reduce the number of cuts on Mount Calder and view area which are seen from cruise ships and by local residents as an eye sore of that majastic magnificient and malevolent monstor of a peak
- d move 10% of the volume from within three miles of Baker to other areas. The 1974 promise in the KPC EIS is broken

LL Fisheries Section

a the state must complain,as Dick Logan promised me, to demand the Forest Service improve its data base on small streams before laying out 350 clear cuts. The FS admits that its estimates on these streams is but 60% accurate. This is a clear violation of their policy guidlines in the Area Guide. It is planning based on the flip of a coin.

b the state must reactivate its guidline of the 1976 era to demand an RMA be on hand for all bridge placements, culvert placements, and when cutting adjacent to any streamd

More on Baker --remove the float in Port Protection or restrict its usage to emergency operations. this is a violation of the EIS 1974 which nowhere except in the summary of meetings section plans for this facility. The EAR for this facility was vigorously rejected by the Point Baker Association and many individuals.

Sincerely yours and hoping for a copy of your comments

Alan Stein
President Point Baker Association

cc the usual fishing groups

FOREST SERVICE COMMENTS ON THE
RESPONSE OF THE STATE OF ALASKA

1. The Forest Service believes this concern has been sufficiently addressed in the DEIS (see page 1 and evaluation criteria number 4 on page 24 of the DEIS). The Tongass Land Management Plan is basically a land allocation plan as opposed to a prescriptive plan. The Forest Service withdrew from consideration for harvest all roadless areas of public concern (including those of the State) within the primary sale area to assure that this 5-year LPK plan would not preempt the TLMP land allocations. This 5-year operating plan is consistent with the RARE II decision and the TLMP decision.

2. Until the implementation of RARE II and TLMP, April 15, 1979, the Forest Service is obligated to consider Wilderness for all roadless areas when proposed activities would change the wilderness character of land within inventoried roadless areas. We are also required by our own policy to have a "no action" alternative in all environmental assessments. Hence, Alternatives 2 and 5 were required. We believe however, that similar alternatives would have evolved anyhow, as our environmental assessment process (see Forest Service Manual 1950) requires a range of alternatives broad enough to cover issues, concerns, and opportunities. Rarely, if ever, do all alternatives meet all of the evaluation criteria. All the alternatives in the DES are feasible. Alternative 2 could be implemented through a costly settlement with LPK. Alternative 1 does not meet National Forest System policy, but it was displayed and evaluated because it represents the desires of a significant number of southeast Alaskans. Alternatives 3 and 4 are both feasible, but Alternative 4 is the most acceptable or desirable. Any additional alternatives would not be greatly different than Alternatives 3 and 4, just different dispersion patterns of the cutting units and roads within the same or similar areas.

3. Section II-C-5 has been rewritten to better explain the rationale for connecting roads.

4. No cutting units or new road construction is planned in Alternative 4 within the Red Lake watershed. In addition, this watershed is only a small part of the land mass this road would serve.

The road and the cutting units which pass by the west side of the Sarkar Lakes was authorized in the 1974-79 ES. The road is currently constructed north to a point just across the Sarkar rapids. A bridge costing more than $500,000 was constructed across the rapids last year. The planning of this bridge was coordinated through appropriate State and Federal agencies and, among other reasons, commits this road to be the main line route to north Prince of Wales Island. Completion to a point north of the lakes region is expected prior to implementation of this 5-year plan. The road and units were shown as proposed, even though previously authorized, because completion of the timber cut is not expected until after July 1, 1979. Initial-entry cutting units are shown on the FEIS map for Alternative 4 in the areas served by the road connections. The transportation section of the FEIS has been rewritten to provide a better description of the need for these road connections.

5. Public planning for an intraisland road system on Prince of Wales Island dates back to before 1970, when communities were contacted on this subject in relation to the South Tongass Land Use Plan which was replaced by the current Tongass Land Management Planning effort. The 1974-79 FEIS also discussed the need for and intent to construct the intraisland system in the transportation section beginning on page 8. Informal discussions since, with community leaders in Craig, Klawock, Hydaburg, Point Baker, and Port Protection, indicate no change in their basic position which was stated in the DES for this period. That position is that Craig, Klawock, and that part of the Hydaburg Road within the sale area are already tied to the road system and they favor continued development of the system, but Port Protection and Point Baker do not wish to be included in the system. We believe this is consistent with the State of Alaska's Southeast Alaska Transportation Study.

   Although the intraisland road system will have some characteristics of a public transportation development, it should be noted that the system is designed for national forest administration and management. Public use will be restricted, as described in the FEIS, to the extent necessary. The Forest Service agrees that the State has the primary responsibility for development of a public transportation system for the communities and will cooperate with the State in planning and constructing highways primarily for the purposes of community development.

   As part of the States comments on transportation, they quote from the recently issued DEIS for Alaska's Coastal Management Program. This program is in the draft phase and is still being reviewed. Federal lands, by directive, are not a part of the States Coastal Zone as outlined in the program. The reference to Forest Service actions as "must be consistent" is partially misleading. Federal actions must be consistent to the maximum extent practicable with District, Area, and State plans. Presently, no such plans exist so it is impossible to make a consistency determination.

6. The design, construction, and maintenance of forest development roads are managerial considerations with which the Forest Service has considerable experience and expertise. The Forest Service has adequate procedures for mitigating the type of potential problems envisioned by the State in items a-d. To reduce the need to repeat information provided in other documents and sources, the DEIS referenced the "Southeast Alaska Area Guide" and other documents rather than expound on these points in great detail. Item E is handled through the TLMP - RARE II process.

7. No roads or cutting units are planned for the Red Lake watershed in the 1979-84 period. For a discussion of the Sarkar Lakes watershed see the comments on the Southeast Alaska Conservation Council response (No. 1).

Timber harvest planned and supervised under National Forest direction protects the environment to the degree necessary in relation to the physical factors present at the site or else the units are not allowed to be cut. The decisions relative to the allocation of areas to roadless management of Wilderness is made through the RARE II or TLMP processes.

8. In response to the State's concerns about harvest in areas selected under the Statehood Act, we intend to meet with them in an attempt to resolve the issue to the satisfaction of both parties.

9. All of the areas displayed for harvest in a 5-year period will eventually have timber harvested either in the current period or a subsequent period of the sale. Considering the 50-year length of the sale, and assuming a 100-year rotation for the timber, we assume that half of the commercial forest area will be cut by the end of the sale. Actually, it may be necessary to cut somewhat more than half in order to pay for development of roads through deferred areas. Because of appraisal and logistical problems of the logging operations, it is not possible to establish priorities for units. Even if it were possible to do so, this would have little significance since all units receive environmental safeguards and will eventually be cut. The consideration of these alternatives is a prioritization and represents a consideration of these factors.

10. The map information requested by the State is too voluminous and expensive to make widespread public distribution in the FES. For example, timber-type maps of the sale at a 2-inch-to-1-mile scale cover 140 square feet of paper. The State of Alaska's Department of Fish and Game has purchased some of these timber type map sheets for project work. The timber type sheets do show the location of past harvests and the location of remaining timber stands suitable for harvest. About the only practical means of displaying this type of information on such a large area has been done in the referenced "Timber Land Type Task Force Reports" made during preparation of the TLMP.

    Discussion of the market outlook and sources of timber are not repeated in this FEIS, as they have been assessed in the referenced TLMP. LPK has legal rights under their contract (validated by the NFMA) to select and harvest up to 960 MM bm in the 1979-84 period.

11. The water quality section of the final environmental statement has been extensively rewritten to address the concerns raised by State of Alaska's response to the draft. In those instances where we anticipate temporary unavoidable pollution in excess of standards, we will follow the variance procedures established by the State.

12. The magnitude of effects does vary between alternatives, although it is very difficult to quantify because none of the alternatives has been measured in the field to determine all the various factors needed. The types of effects are generally well known and described, based on previous experience. The relative quantification can be estimated by assuming a straight-line relationship between volume harvested and the effect on the environment. Caution is needed when using this approach, as placement of cutting units and roads can have as much effect on the environment as total volume to be cut.

13. The retention area for estuarine wildlife habitat management units is consistent with TLMP and was, in fact, taken from the Wildlife Task Force Guidelines used to develop wildlife section for the Tongass Land Management Plan. Windfirmness is always a key consideration when designing cutting unit boundaries. The boundaries were determined through the IDT process.

14. We support the State's concern for employment of southeast Alaska residents. One of the basic objectives of the long-term timber sale is to provide a stable economic base for the area. It should be noted however, that the State's response failed to quote the entire Section 23 of the contract. The words "So far as it is practicable to do so..." preface the words the State quotes about hiring local labor. Not all the skills needed to operate the contract are available locally in sufficient quantity. Employment under this contract represents something less than half the total employment in Alaska logging. It is not fair to ascribe the total nonresident unemployment payment to it. We join with the State in encouraging renewed effort by all industries to hire year-round Alaska residents.

15. The draft statement was nearly completed when the windstorm of October 30 and November 1, 1978, occurred. It was not possible to assess the extent of damage and modify alternatives in time to include a discussion in the draft. Several significant changes have been made in the layout as a result of the blowdown. The final statement has been rewritten to include a discussion of the blowdown.

    The volume figures in the DEIS were estimates based on aerial photo and map analysis. A subsequent field cruise of Alternative 4 revealed the estimates to be too high by 85 MM bm. We estimate about 100 MM bm additional volume as a result of storm damage. We did delete approximately 15 MM bm in units adjacent to extensive storm damage.

16. The citation and reference have been corrected in the FEIS.

STATE OF ALASKA

JAY S. HAMMOND, Governor

OFFICE OF THE GOVERNOR

DIVISION OF POLICY DEVELOPMENT AND PLANNING

POUCH AD
JUNEAU, ALASKA 99811
PHONE: 465-3512

March 7, 1979

Mr. Jim Watson, Forest Administrator
U.S. Forest Service
Attn: Forest Supervisor
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

The State Clearinghouse would like to take this opportunity to clarify and further explain our comments to you in our letter of February 1, 1979, concerning the Draft Environmental Statement of the LPK Timber Sale Plan for 1979-84. We are doing so as the result of mutual discussions with you and Edgar Brannon concerning the language and context of our February 1, letter. Like that letter, what follows is a result of consultation with various state agencies, and represents the opinion of the State of Alaska.

First, let me say that we reaffirm our support for alternative #4, the preferred alternative, and that we welcome this opportunity to discuss further with you technical reservations we have with the document and with some of the decisions contained within it. As the state and the Forest Service continue to work together on policy making procedures and land allocation plans, working documents such as this DES sale plan should be scrutinized as to how well the technical material and actual decisions reflect established policies and allocations. We would hope that our intention to do this is not construed as an abandonment of our full support for the type of work the state has done with the Forest Service on such tasks of great difficulty and scope as the Southeast Area Guide and the Tongass Land Management Plan (TLMP). Similarly, as we enter this era of continuing technical critique, outlined within existing policy documents and land use allocation plans, we appreciate the time and effort you have given in responding to our work, so that consideration can be given to areas of possibly conflicting interpretations.

In reference to the TLMP, the state realizes that the DES was delayed as long as possible so that it could be developed as much as possible in the context of TLMP decisions regarding land use. We also appreciate, as has been outlined in our letter regarding the RARE II FEIS, the pressure for timber harvest which is placed on that part of the Tongass Forest not allocated to protective designation, due to the Carter Administration's actions in Southeast Alaska. Nonetheless, we would hope as has been continually emphasized throughout the development of the TLMP, that there remains flexibility in the on-the-ground decisions regarding the actual timber harvested. We are <u>not</u> referring to a reduction of the timber harvested, nor are we suggesting that LUD designations be changed or swapped. However, new information which may influence and improve forest management should continue to be sought, and ways developed for this information to inform, and change if necessary, management decisions.

Thus we were pleased to hear that there will be no harvest over the next five years in the Red Lake Watershed. As can be seen by reference to the attachment, Red Lake is, according to new information to be published shortly by the Department of Fish and Game, the most productive sport fishing lake among 22 lakes in S.E. Alaska. The impression that we were attempting to set precedent by opposing logging in a LUD III VCU (or even a <u>part</u> thereof) without regards for the need to pick up additional timber harvest from other LUD III, or IV, VCU's is unfortunate. Rather, we assumed, and continue to hope that this assumption is accurate, that harvest flexibility can be retained within and between VCU's, while maintaining harvest levels. The average 13 percent retention figure for a LUD IV and the 27 percent permanent retention figure for LUD III should remain what has been described to us - a rule of thumb averaged over a LUD class. The state stands willing to share with the Forest Service new information as it develops regarding other forest values, and to cooperate in advising on management decisions which protect these values while insuring an acceptable level of timber harvest through a shifting of harvest patterns.

The rationale for the upper island road system remains a point of confusion with the state. Perhaps it would be best to articulate the state's position and offer some recommendations as to how the need for forest roads could be approached. We note that in our discussion with you the responsibility of the state in developing public transportation systems for communities was mutually acknowledged. The state has recognized a need to connect Hydaburg to the other lower island communities, Klawock, Craig, and Hollis, and is in discussion with the Forest Service and the Federal Highways Administration concerning this. We do not see a transportation need on the upper end of the island which would justify the expenditure of the state's limited resources, for the purposes of community development or interties. An expanded transportation system is not necessarily a benefit to the state, and the need for logging roads should not be confused with the need for a public access system. The

discussions the state is having with you concerning the Big Salt road provides a good example of the difficulties the state faces when a road designed for forest management needs spawns increased public demand, resulting in pressure for state involvement when the road itself has not been built according to state standards. Accordingly, at this time, the state is reluctant to endorse transportation systems proposed on the upper island which would point to the need for extensive state involvement (either in maintenance or operation) in the near future, especially if the road is not built originally to secondary road standards.

It appears to us that roads within forest areas subject to timber harvest can have three justifications:

(1) those roads absolutely necessary to get at and remove the timber harvest;

(2) those roads desirable to improve the quality of forest management practices;

(3) those roads which acknowledge and satisfy the need for public transportation systems.

These three types of roads cannot be compared according to the same criteria, nor are the benefits of each type without their negative implications. We would hope that the FES will look at the entire range of ramifications and Forest Service's justification for the type of road system you would propose to build. It would then be possible for the state to discuss with you our impression of your plans and the extent to which they might coordinate with or conflict with our goals and objectives.

In regard to coastal zone consistency, our earlier remarks should be qualified. We would replace "must be consistent" on page three, line 7, under Section (2), with "must be consistent to the maximun extent practicable," pursuant to the Coastal Zone Management Act this requirement will not take effect, of course, until federal approval of the Alaska Coastal Management Program (ACMP) is received, which is anticipated during the coming spring or summer.

All pertinent Alaska Statutes governing Forest Service activities on National Forest lands, such as fish and game laws and water quality regulations, are incorporated into the ACMP. Federally owned lands, further, are exempt from the definition of the coastal zone. Hence, adoption of the ACMP should not greatly modify the current interaction between the Forest Service and the state. It should be noted however, that Forest Service activities with significant spillover on the coastal zone impacts beyond the boundaries of federal land, such as the development of road networks and community connections, must be reviewed by the state for consistency with the ACMP.

We appreciate your clarifying that all areas being considered statutorily for wilderness or roadless designation have been removed from consideration for harvest during this five year plan.

Our discussion of prioritization suffers from our choice of words. We realize that the entire planning process associated with TLMP, RARE II, the invocation of the Antiquities Act, and any subsequent acts of Congress establishes priorities for areas of high amenities values which should be protected. We are not suggesting that prioritization is not occurring. We are, as we discussed in your office on January 31, 1979, suggesting that a way to accomplish some "back-end" prioritization might also be desirable as well. By this we mean that, although all the timber identified for harvest over the five year plan may very well be harvested, a way should be developed to prioritize timber so that if the contractual volume is not all harvested, it would be the most environmentally sensitive areas that would not be cut. It is unfortunate that

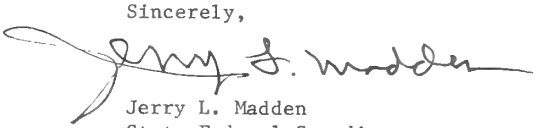
in our letter, we used the word units. Due to the economic considerations of reasonable harvest practices, it would be more appropriate to prioritize those watersheds which should be entered last in the five year period, as opposed to units. If you are amenable to such a process, the state would be glad to share information as to which watersheds this should apply to.

As you pointed out, the state did not quote in its entirety the language of the contract pertaining to employment. The words "so far as it is practicable to do so," should preface the quoted statement on page 8, paragraph 4. We would stress that we interpret practicable to be a word which implies to us a good, hard, strong effort on the part of all parties concerned to achieve the goal of hiring Alaskan residents.

We did not mean to imply that the Forest Service's timing of the DES's publication with respect to the blowdown was intended to avoid discussion of it in the DES. We realize that the schedule of blowdowns, originating from a power greater than humans, does not necessarily coincide with the printing schedule of a document! We merely would like to see a discussion in the FES of how the blowdown has influenced the harvest pattern selected, how the error in timber yield occurred and perhaps what changes might occur in Forest Service methods to prevent such errors in the future.

As this letter will reach just shortly to the printing of the FES, we do not know what impact it will have on that document. However, if we can be of any further assistance in clarifying any additional concerns, please contact us.

Sincerely,



Jerry L. Madden
State-Federal Coordinator

Enclosure
JLM:ms

FOREST SERVICE COMMENTS ON THE
SECOND RESPONSE OF THE STATE OF ALASKA

The Forest Service appreciates the State's clarification of its February letter. We believe there is agreement between the Forest Service and the State on all points discussed in this March 7 letter, but two. These include roads and prioritization of areas.

Concerning the justification of roads, we would add two additional reasons, and that is to improve the efficiency and feasibility of National Forest management, and to provide better safety for up to 200 Forest Service employees who otherwise would have to fly back and forth to work. On those parts of the national forest, such as north Prince of Wales Island that have topography suitable for an interconnected road system, we believe it is desirable, solely from a National Forest management standpoint, to construct an interconnected road system.

We understand the State's concern and recognize their role in planning and constructing a permanent transportation system for the people of Alaska. We believe that our staged approach, as outlined on pages 16 through 20 of the FEIS, provides the flexibility to meet the State's goals as well as our own. We would suggest that further explanation and resolution of this issue be resolved this spring at the scheduled meeting between the Forest Service, the State, and the Federal Highway Administration.

Prioritization of the harvest, so environmentally sensitive units can be deferred, is an attractive concept but very difficult to implement. It should be noted that the Purchaser will have to cut at or near the 960 MM bf level for the remaining periods in order to meet his obligation of 8,250 MM bf by contract termination. Thus, there may be little benefit to be gained.

We are however, prepared to enter negotiations with the State and the Purchaser to explore this concept further. The major difficulty will be to forecast the rate of cutting needed to supply a market 2 to 3 years in the future so logging road construction can proceed in a timely fashion. Scheduling of production depends upon more than gross volume projections. Species/product mix, production capacities of various camps and transfer facilities, and unforeseen natural events are variables over which the negotiating parties have very limited control.

Louisiana-Pacific Corporation

Ketchikan Division

Post Office Box 6600
Ketchikan, Alaska 99901, U S A
Telephone: 907-225-2151
Telex 099-55-251
Answer back KAYPULPCO KET

January 8, 1979

Mr. J. S. Watson
U. S. Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Jim:

This will be my first time since arriving in Alaska that I have taken part in the LPK long-term sale five-year selection process. Many changes have taken place in the last five years, and they loom very large in this draft environmental statement.

1 The fact that an agency of the U. S. Government would propose three out of five alternatives that would result in, if not a major breach of contract, a total breach on the part of the people of the United States, is appalling to me. It is further evidence of the degree our autocratic, beaurocratic federal system has sunk. This on top of recent administration high handedness in invoking the Antiquities Act in land set aside in Alaska, the Final Environmental Statement (RARE II) which is thoroughly inadequate for the timber industry in Alaska and makes a mockery of the public input process, abrogation of foreign treaties, etc., leads me to wonder if our old set of values of honesty, fairness, lawfullness, to name a few, have any meaning anymore.

The entire draft approaches the five-year selection from a completely negative viewpoint. After all, the intent is to develop a forest harvest operating plan for the designated
2 area. The fact that the timber is sold and committed to by both parties was established at the date of sale in 1951. Timber harvest certainly takes last place in the eyes of the IDT. The assumption that "the degree of impact on fisheries is directly related to the amount of harvest adjacent to fish streams" (P. 35) has no more support than a repetition of "may", "could", "perhaps" scattered through the narrative.

On page 33, may I quote, "To date, research has not shown that timber harvesting as conducted in Southeast Alaska significantly affects fisheries resource...". Some facts please before one resource must blindly pay for excesses that "may" help another.

In the area of trivia I would like to make these comments:

1. Page 7 - Please show me some "salal, a most important shrub on the forest floor."

2. Cultural resources, p. 55, the effect on...historic sites include "salteries, canneries, old mining camps and activities." How long does it take to make an old logging camp a historic site and therefore a part of our cultural resource?

In Table 12 - Evaluation Criteria:

I had the same objection in my TLMP comments. Everything is weighted 10 regardless of relative importance. I have an extremely difficult time trying to understand that the possible impact on old canneries, salteries, mines, etc., could be as important as the economic viability of S. E. Alaska.

Therefore, my choice must be Alternative 1, and I do not believe it to be single use. It is no different than the last five-year selection and to now phrase it "single use" must reflect on those, both U. S. Forest Service and LPK personnel, who have worked so hard to make it a viable forest management operation. In all cases, any plan must be economically viable, protect jobs and meet contract requirements.

Very truly yours,

Merle A. Mosar

Merle A. Mosar
General Manager

je

cc: Mr. John A. Sandor
Mr. Don L. Finney

FOREST SERVICE COMMENTS ON THE
RESPONSE OF LOUISIANA-PACIFIC CORPORATION (MERLE MOSER)

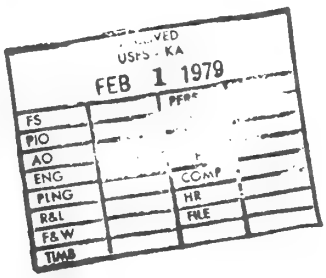
1. See comment on the State of Alaska response explaining the reason for and validity of the alternatives.

2. Many changes have taken place since the contract in 1951. The most significant are the National Environmental Policy Act and the National Forest Management Act. These are laws that require new policy and practices on the national forest. The Forest Service is committed to their contract with LPK, but it is also committed to the laws and regulations of the United States.

SOUTHEASTERN ALASKA
SEINE BOAT OWNERS & OPERATORS

728 WATER STREET
KETCHIKAN, ALASKA
99901

907-225-6618



January 31, 1979

James S. Watson
Forest Supervisor
U.S.D.A. Forest Service
Federal Building
Ketchikan, AK 99901

Dear Mr. Watson:

Our association would like to submit the following comments regarding the LPK Timber Sale Plan for 1979 - 1984.

1 We recommend the use of Alternative 3. Although the harvest of this alternative only allows for 794 mbf of timber, we are aware of the need for LPK to have an additional 166 mbf of timber for their operation. We would suggest that this additional timber be made available from timber selections in Alternative 4, for a total of 960 mbf.

This additional 166 mbf should not be from areas around Red Bay or Tolstoi Bay due to fisheries habitat values in these areas. We would encourage the usage of blow-down timber for this harvest. Also, additional timber could be harvested along existing road systems in the Tuxekan Passage area. We would urge that the additional cuttings be in areas which would require the least amount of road building.

2 We hope that the Forest Service will stay within the area guide stipulation pertaining to water quality and fish habitat, and that new road construction will be implemented for the highest protection of the fisheries resources. We would also like to emphasize the importance for the greatest possible utilization of harvested timber before its exportation from the State.

Sincerely,
SOUTHEAST ALASKA SEINE BOAT OWNERS & OPERATORS

Michele Zerbetz
Executive Director

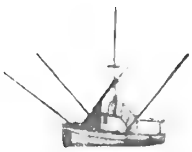
cc: Alaska Trollers Association
United Southeast Alaska Gillnetters
Commercial Fishermen's Cooperative
United Fishermen of Alaska

MZ:ln

FOREST SERVICE COMMENTS ON THE
RESPONSE OF S.E. ALASKA SEINE BOAT OWNERS AND OPERATORS

1. Alternative 3 does not meet the contract commitment. If the additional timber to make up the deficit in Alternative 3 were selected from Alternative 4, then Alternative 3 would become so similar to Alternative 4 as to be indistinguishable. Some changes, however, were made in Alternative 4 as a result of catastrophic blowdown that occurred in November. A substantial portion of this was in Red Bay. See Section V-F of the FES to see how the blowdown was incorporated into the selected alternative.

2. The Forest Service is committed to the "Southeast Alaska Area Guide" policies and will do all in its power to see that they are complied with.



ALASKA TROLLERS ASSOCIATION

P.O. BOX 5825
KETCHIKAN, ALASKA 99901
907-225-9638
January 29,1978

James S. Watson
Forest Supervisor
U.S.D.A. Forest Service
Federal Building
Ketchikan, Alaska, 99901

Dear Mr. Watson:

The Alaska Trollers Association submits the following comments on the D.E.I.S. for the LPK Timber Sale Plan for 1979-84.

1 We recommend Alternative 3, with additional timber volume to reach 960mbf, as the best alternative for both protecting the fishery resource and meeting the needs of LPK. The 960mbf can be reached by adding 100mbf of blowdown timber from the November storm and 66mbf of timber from Alternative 4 cutting units on Kasaan Peninsula, Marble Island, and Thorne Bay. These additional cutting units would not require significant road building and thus would not raise significantly the impact on fisheries habitat from the original Alternative 3 at 794mbf.

2 We also recommend that the two small cutting units at Red Lake be replaced by units from Alternative 4 that are already on the road system. According to a study by the Alaska Department of Fish and Game, Red Lake has the highest conductivity of any lake in southeast Alaska. This conductivity is directly tied to its high productivity and importance to the commercial and recreational fisheries.

3 We are very concerned about the loss of fish habitat due to culvert and bridge construction in all of the alternatives. The Forest Service Fisheries Specialist Report states that there will be an average of 17.78 square yards of altered fish habitat for the average culvert installation. If this area was all spawning gravel, then on the 245 miles of road built under Alternative 3, with the average of 7 culverts per mile, as was the case for the 1974-79 operating period, there would be 30,492.70 square yards of spawning gravel lost. If half the culverts are on fish streams and there are two spawners for each yard of gravel, then culvert installation would result in the loss of 30,492 spawners a year and 152,463 salmon lost over the five year period. This is a substantial loss to the commercial fishery when

returns from each pair of spawners is added. Even if this is not all spawning gravel, there is still a loss in rearing and holding areas. We feel the best way to cross fish streams is by bridging. In any case, we urge the Forest Service to require arched culverts on all unbridged crossings of fish streams to cut down on this habitat loss. We would like to see an analysis of fish loss and proposals for mitigation.

We are also very concerned about the Forest Service's commitment to and enforcement of Area Guide prescriptions on fish habitat and water quality. There have been slides and heavy deposits of sediments that would not have occurred if the Area Guide policies, which were to protect fish habitat in all land use plans, had been enforced. During the working seasons of 1977 and 1978, Traitors River and Shaheen River have suffered heavy increases in sediment loads due to poor road and bridge building practices and poor response by the Forest Service. On the Traitors River in 1977, A.D.F.&G. personnel observed turbidity and sediments from a slide when there were 30,000 pink salmon holding in the bay. The Forest Service was informed and took some action, but poor follow up resulted in the same slide moving again after the November '78 storm. Corrective actions will again have to be taken to stabilize the area. On the Shaheen River in 1977, poor bridge building practices also resulted in massive amounts of sediment entering the river. Again in 1978, a large slide on the North Fork of the Shaheen occurred when a road operator, after being asked by the Forest Service to shut down operations because of unstable soils, proceeded with operations on a Saturday. These situations have caused and unknown quantity of damage to fish habitat and the fishery resource.

On pages 32 and 34, when discussing effects of Alternative 3,4,and 5, on water quality and fish, the statement is made that the effects are similar. There is no indication that the magnitude of the effects differs. Alternative 4 has the highest potential for water quality damage and affects more miles of fish stream.

5 On page 34 when discussing temporary changes in stream temperature, the changes are described as acceptable with a return to natural conditions after 10-15 years. The dry summers of '77 and '78 resulted in fish losses on many logged over streams. This potential for fish loss should be described and calculated.

6 On page 33, changes described as temporary increases in sediment may have a long lasing effect on fish populations. The potential longer-term effects should be described.

To assure the healthiness of both the fishing industry and the timber industry, the Alaska Trollers Association supports Alternative 3 with additional timber volume. Thank you for the opportunity to comment.

Sincerely yours,

Sharon Newsome

Sharon Newsome
Executive Secretary

cc: Southeast Alaska Seine Boat Owners and Operators
United Southeast Alaska Gillnetters
Commercial Fishermen's Cooperative
United Fishermen of Alaska

FOREST SERVICE COMMENTS ON THE
RESPONSE OF THE ALASKA TROLLERS ASSOCIATION

1. See comment on the S.E. Alaska Seine Boat Owners and Operators response (No. 1).

2. There will be no cutting in this watershed. See comment on the State of Alaska response (No. 4).

3. We believe we have adequately protected fish habitat. In regard to this, see the rewritten "Effects" section of the FES.

4. We are strongly committed to the Area Guide Policies. The record shows that we have been very responsive to the Shaheen bridge problem and the road slump in Traitor's River. See comments on the Tongass Conservation Society and Southeast Alaska Conservation Council responses.

5. The fish losses during those dry years were not correlated with logging activity. Losses were severe in unlogged areas. Low flows were the reason for the temperature increases. Timber removal can, under some conditions, increase low flows.

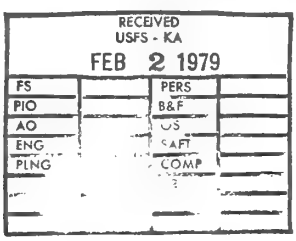
6. See redrafted "Effects" section in the FES.

SOUTHERN SOUTHEAST REGIONAL AQUACULTURE ASSOCIATION, INC.

307 Mill Street #5 **(907)225-9605** **Ketchikan, Alaska 99901**

President: Jake Jacobsen **Executive Director: J.N. Milnes**

February 1, 1979



Mr. J. S. Watson, Forest Spvsr.
Tongass National Forest
Federal Building
Ketchikan, AK 99901

RE: LPK Timber Sale Plan for 1979 through 1984

Dear Mr. Watson:

SSRAA has reviewed this plan and offers the following recommendations:

1. The sale in the Neets Bay area creates a potential conflict with SSRAA's plan releases of chum salmon in Neets Bay.
   a. Floating net pens will be used to feed the salmon prior to their release into the estuary. Log storage and net pens will be sharing the same physical space. Log traffic in their use of the storage area will have to avoid the pens. 1
   b. Future hatchery siting will require an abundance of high-quality fresh water. Logging effects on the stream's water quality must meet hatchery water quality requirements.
   c. Water quality in the estuary may be affected by log storage. The fry released in the estuary stay for a period of time to graze. Degradation of the estuary from log storage could adversely affect fry survival and diminish the economic fry ability of releases in the estuary.

2. The streams in the logging area on Prince of Wales Island are prime salmon streams. It is not financially possible for SSRAA to define stream-by-stream impacts of the effects of logging those areas. Al-

2 though SSRAA lacks the funds to be definitive, it wants to encourage careful logging practices to protect water quality and rearing habitat.

a. Adherence to State water quality guidelines
b. Adherence to Forest Service guidelines for:
   (1) water shed protection measures
   (2) stream crossing and culverting
c. Use of KV funds to improve fisheries habitat

3. Alternative Number Four is recommended. Disruption of economic stability and degradation to the salmon streams are not desired.

Realizing that SSRAA is presenting possible increases in regulatory controls for logging, SSRAA intends to approach LPK directly with these concerns and attempt to define a joint effort so that logging and salmon protection are not in conflict and do not increase regulatory control.

Sincerely,

Ronald W. Wendte
Administrative Coordinator

cc: Gillnetter's Assn.
Troller's Assn.
Seiner's Assn.
LPK
SSRAA Directors

PRIVATE NON PROFIT HATCHERIES

FOREST SERVICE COMMENTS TO THE
RESPONSE TO THE SOUTHERN-SOUTHEAST
REGIONAL AQUACULTURE ASSOCIATION

1. During the 1979-84 operating period, all log transfer and storage activities in Neets Bay will be located at Fire Cove, approximately two miles from both the hatchery and rearing pen sites. Log rafting from that point will occur periodically (once a week), and each trip will entail approximately two hours of travel time in the bay. Coordination of travel should not cause a hardship on either fishing or logging operations. No timber harvest activities are planned in either watershed proposed for fry rearing and releases. All activities will meet State and Federal Water Quality Standards therefore, optimizing water quality throughout the bay. SSRAA is correct in predicting that marine log transport may adversely effect productivity. In the vicinity of Fire Cove, there will be some bark accumulation and reduced light availability. This is not in an estuarine zone and is not appreciable in magnitude, considering the entire bay area.

2. SSRAA additionally encouraged careful logging practices for protection of water quality and fish rearing habitats on Prince of Wales Island. The preferred alternative has been developed along guidelines to protect water quality, watershed quality, and fish habitats.

South Tongass
Land Review Committee
~~P.O. Box 5515~~ [illegible]
Ketchikan, Alaska 99901
907-225-3511

Co-chairmen
Bob Pickerell
Dick Borch

January 2, 1978

J. S. Watson
Forest Supervisor
U.S. Dept. of Agriculture
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

1 After careful review of the LPK Timber Sale Plan the South Tongass Land Review Committee unanamously supports Alternative ONE.

This decision was based primarily on two factors:

1. President Carter's withdrawal in November of 1978 of millions of acres of wilderness land in the "Misty Fjiords" area adjacent to Ketchikan.

2. The most urgent priority during the next half decade is to assure steady employment for Ketchikan--Prince of Wales area residents.

Regarding factor #1: The needs of the area for Wilderness set asides have been more than satisfied with the creation of Misty Fjiords as a National Monument. Wilderness considerations on Prince of Wales Island are no longer a priority. Similiar, if not identical, eco-systems exist in thousands of acres within the Misty Fjiords area. Alternative ONE contains tens of thousands of acres that will remain essentially roadless wilderness areas without establishing a formal classification.

Factor #2: Top priority for the forseeable future is to provide job esthetics and security for Ketchikan and Prince of Wales Island residents. Alternative ONE is the only viable solution. In this era of inflation the U.S. Government should do everything possible to lower development costs thus allowing Alaskan industry to compete in world markets. All other alternatives increase production costs and jeopordize job stability. Improvements in production techniques will take care of long range harvesting of upslope stands.

Alternative ONE has little effect on fishery resources. Above average catches of salmon have occurred during the past few years in the Ketchikan area . . . This proving that proper timber harvesting has a minimal impact on this resource and the the jobs it provides.

Recreational and transportation aspects on Prince of Wales Island are improved in Alternative ONE and create additional job opportunities in these catagories.

Thank you for the opportunity to comment on the environmental statement. Our compliments to your staff for the presentation you prepared.

Sincerely,

[illegible]

Dick Borch
Bob Pickrell
Co-Chairman

pep

FOREST SERVICE COMMENTS ON THE
RESPONSE OF SOUTH TONGASS LAND REVIEW COMMITTEE

1. Alternative 1 does not meet national forest policy. See comments on the State of Alaska response (No. 2).

2509 Fourth Ave.
Ketchikan, AK 99901
January 30, 1979

J.S. Watson, Forest Supervisor
U.S.D.A. Forest Service, AK Region
Tongass National Forest, Ketchikan Area
Federal Building
Ketchikan, AK 99901

In re: LPK Timber Sale Plan for 1979-84

Dear Mr. Watson:

I have considered the five alternatives detailed in the LPK Timber Sale D.E.I.S. Thank you for inviting comment on this document.

Alternative 1 and Alternative 2 propose extremes unacceptable to me, the second one obviously included as a theoretical possibility not very practical from any point of view. Alternative 4 seems to be reasonable. I can understand the Forest Service's support of this proposal.

Given, however, apparent overproduction by LPK during the past year, as demonstrated by their willingness to let strikers stay out and families whose support has been employment at LPK actually leave the community, I'm moved to ask whether their request for 960 MM bm from the primary sale area is very real. Maybe this is a good year to give the fish, the wildlife, and our resources for future generations a chance to multiply. Maybe this is not only the "year of the goat" but also the "year of the environmentalist." At the moment they aren't very eager to employ anybody, and they seem to be saying they want to reduce inventories. Perhaps it is not unreasonable to ask whether 794 MM bm as proposed in Alternative 3, or 685 MM bm as proposed in Alternative 5 wouldn't be sufficient to keep those who still remain in Ketchikan employed, LPK's customers satisfied, and enhance other equally valuable resource alternatives, such as fish, wildlife, and recreation and tourism.

Because Alternative 5 includes areas identified in the RARE II planning process, which I believe will be proven wiser upon future consideration than it appears to many at the present, that is my first choice. I'd go with Alternative 3 if compromise were necessary.

I speak as an individual and not as a representative of any organization with which I might be affiliated. Again, thank you for the opportunity to respond.

Sincerely yours,

Constance F. Griffith

Constance F. Griffith

CFG:s

FOREST SERVICE COMMENTS ON THE
RESPONSE OF CONSTANCE GRIFFITH

1. The Forest Service, by contract obligation must provide up to 960 MM bm per 5-year operating period. This amounts to 192 MM bm per year, well below the 220 MM bm program harvest established in the TLMP for the Ketchikan Area.

DRS. WILSON AND WILSON, P.C.
ARTHUR N. WILSON, M.D.
JAMES A. WILSON, M.D., F.A.C.S.
ARTHUR N. WILSON, JR., M.D.
P.O. BOX 319
KETCHIKAN, ALASKA 99901

December 29, 1978

U.S.D.A. Forest Service
Federal Building
Ketchikan, Alaska 99901
Mr. J.S. Watson, Forest Supervisor

Dear Mr. Watson:

I have reviewed the draft and environmental statement published by the Dept. of Agriculture for the L.P.K. timber sale for 79-84. I urge the Forest Service to hold to the 960 million board feet of timber necessary for the pulp mill to continue at present level of logging activity.

The continuous on-going logging effort is terribly necessary to this area for all those of us who are employed in the forest product area as well as those of us in supportive roles in the community.

If this logging program gets cut back further, I think that even further disasterous impacts will impinge on Ketchikan as well as all of Southeastern Alaska.

Sincerely,

James A. Wilson MD

James A. Wilson, M.D.

JAW:cw

cc: Don Finney L.P.K.

P.O. Box 6832
Ketchikan, Alaska 99901

29 January 1979

USDA Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Sirs/Madams:

We have recently reviewed the LPK Timber Sale Plan for 1979-1984 and wish to take this opportunity to express some thoughts on it.

1 We wholeheartedly support Alternative 5 of the Plan and urge you to do likewise. We feel that this plan best protects against environmental degradation while at the same time allowing a reasonable level of timber harvest. In the final EIS released we urge you, the Forest Service folks, to provide as much information as possible on the following: 1) historical use of timber, particularly over the last 5 year plan, 2) current inventory of logs, 3) importation of chips from Canada, 4) export of logs to other states, and 5) timber blown down during the November storm of Prince of Wales which may be available for use in the mills.

2 We strongly urge you to refrain from any cutting of timber at all in the Salmon Bay and Sarkar Lakes areas. As the only two areas on northern Prince of Wales still uncut, we feel strongly that they should be spared the ax and saw so that they may remain in their wild state.

We ask that the magnitude of the effects on water quality, soil, fish and wildlife habitat for each alternative be clearly stated in the final EIS.

3 We oppose the consideration of the inter-island road system as a Forest Service evaluation criteria. We are most concerned about the adverse effect these roads and their accompanying culverts will have on spawning gravel in fish-producing streams in the areas of the roads. The fishing industry is of prime importance to the residents of Southeastern and this vital resource should be more than adequately protected.

4 It has been brought to our attention, though a little publicized fact, that detrimental road slides have occurred in the areas of Traitors River and Shaheen Creek. Please see to it that Area Guide presciptions are followed carefully during the next 5 year plan.

Thank you for your attention to our concerns. We appreciate your consideration.

Very sincerely yours,

Alan R. Deubner DDS.

Alan R. Deubner, DDS.

Linda Elliott Deubner

Linda Elliott Deubner

FOREST SERVICE COMMENTS ON THE
RESPONSE OF ALLAN AND LINDA DEUBNER

1. See comments on the Tongass Conservation Society response.

2. See comments on Southeast Alaska Conservation Council response (No. 1).

3. See comments on the State of Alaska response (No. 5).

James L Watson
Forest Supervisor
U.S.D.A. Forest Service
Federal Building
Ketchikan Alaska 99901

This is my comment on
T.P.R. timber sale plan for
1979-1984 After much study
and comparing I am in favor
1 of Alternative #5

This will give L.P.K. all the timber required for full production and also plenty of timber for export, much on the round log if L.P.K. had their way.

Alternative #5 states no road-less areas would be affected. This would protect Ike Karta, Salmon Bay Lake, Sarkar and the rest of Honker Divide. There are areas long on my list for wilderness.

There is a great stress on man-hours which I agree on, but with the import of chips from Canada and the export of round logs to the lower states, to me, this shows the true color of L.P.K. The community is totally forgotten.

2 Another grip is the connecting inter-island road system, which seems your goal. This I don't feel is important because when the timber is gone, camps close, the roads will be of little use. Culverts will plug up and wash-outs will

occur. Money to maintain these extended roads, could not be found.

I know much work went into this Timber Sale Plan, but don't forget that you the Forest Service are the protector of our forests. Thank You for letting me state my view

Sincerely Yours
Orvel Holum
Carmen Holum

FOREST SERVICE COMMENTS ON THE
RESPONSE OF ORVEL AND CARMEN HOLUM

1. Alternative 5 does not meet the contract obligation of the U.S. Government.

2. See comments on the State of Alaska response (No. 5).

The Point Baker Association consists of fishermen living or having residences in the villages of Point Baker and Port Protection on the North end of the sale area for LPK on Prince of Wales Island. The PBA will comment on the fisheries section, the consultation with others, and the impact of the LPK Draft Environmental Statement on the two communities.

Fisheries

Zieske vs Butz challanged the previous EIS for K[illegible] in the preceeding five year operating period. Water quality violations were a major thrust of the suit which sought improved management of fish stream habitat in the Tongass. The National Forest Manag ement Act in 1976 set up provisional regulations resulting in the Tongass Area Guide published in the spring of 1977. The AG set forth goals and

policies for protecting habitat. The Tongass Land Management Plan of 1978 inits draft form elaborated on the AG's direction. A brief review of these documents will provide the perspective for evaluating the adequacy of the DES for LPK. Four yearw and millions of dollars of planning effort have seperated us from the state of the art of fish habitat protection that existed in 1974 when the PBA began efforts that resulted in Zieske vs Butz.

Under Allocation issues, the TLMP indicates only one resource value that that the FS through negotiation will not compromise-- the biological
2 productivity of fish streams. p49 In TLMP, protecting fish means to protect the biological productivity of every fish stream in the Tongass, of which there are 2,506.p91 Since no adequate research exists to determine the effects of timber harvest on productivity, at least more is cited in the DES, the FS takes the appoach that the goal of fish habitat management can be met through two approaches: 1) reserving enough land through allocation to protect streamside areas or 2) developing a management policy restricting activities. (FS) RegardIess of option, the FS gaurentees, "streams will be protected in all alocation and management decisions."

The first option requires allocating a percentage of operable timber to streamside strips of varying quantities of volume. The TLMP states that 18% of operable timber would have to be reserved to protect fish, wildlife, and recreation. p91 The regional forester in t e fall of 1978 placed the figure at 13%. But the TLMP Task Force Report on Fish indicates 11% operable timber would be placed in reserve to protect fish habitat while 68% would be harvested by methods not currently employed such as skyline logging. Despite descrepencies in timber volume to be reserved, TLPM indicates th at the first figure quated above will"provide the latitude necessary to develop specific prescriptions at the project planning level." How much volume the DES requires to meet this option is not stated.

Whether the DES meets the policy guidelines laid down in the AG to meet the second option is the cause of concern for the PBA. The AG requires that decisions be made based on sufficient knowledge, information, and data. Further, the AG requires sufficient information to permit allocation decisions recognizing the cabability and sensitivity of major

fish habitats. At the presciptive stage,the IDT must develop protective prescriptions based on the characteristics and sensitivity of the area and will utilize, evaluate and present and potential spawning and rearing habitat for fish in main streams and all tributaries. Water Quality standards will be maintained and a continuous program of detailed research monitoring and assessment of land use impact on habitat will be completed; results will modify practices to meet goals. Finally, mitigation plans will be developed to prevent reoccurance of damage and plans will be developed to deal with damage to habitat.

Does the DES present sufficient data, knowledge, and information

3 for allocating 359 clearcuts averaging 70 acres and building 235 miles of road?

Unlike the 1974 DES, the 1979 DES fails to provide the reader with maps locating streams in relationship to land development activities in the Point Baker Area. Mpas for the entire sales area would be useful. The statemnt that the main method of identifying [redacted] streams, especially smaller streams,was mapd and aerial photographs and this this method has an error factor of 40% calls into question whether Area Guide goals or policy was met; how can allocations be made to protect streams if the existence and location of them is unknown? Does map identification allow for accurate designation of temperature sensitive streams; does it meet latest state of the art methods available to anyone reviewing the literature? From talking to FS biologists,it it our understanding that this method was employed to carry out the guidelines for temperature sensitive streams in the 1974 EIS which are essentially unchanged in the 1979 DES. It should be noted that 40% accuracy figure applies to smaller streams and tributaries but of the 205 cataloged fish streams in the sale area, Fish and Game evaluated only 42. The total number of miles of stremas in the sale area should also be made available. The reader should know if only the 42 streams were considered inthe DES. What information did the IDT collect on these streams and on smaller ones? Why wasn't this data made available to the reader?

The fisheries report for the DES states that typical fish habitat management units will be given prescriptive protection measures and that these generalized, concepts of a fhmu will be applied before units are relesed for cutting. It is our understanding then that surveyors of stremas will be doing their work to keep ahead of road building crews and we question whether adequate time will be available to meet AG policy; further, does the AG require knowledge or information on specific streams so that allocation protection can be planned for the entire sale area? How can palns to implement policies restricting activities be carried out, if data on the productivity or carrying capacity of a stream has not been collected at the DES stage, since knowing the volume that must be reserved to protect producitivty is a key factor in setting the up the clearcut locations. Is aerial map methodsdology sufficient to predict the impact that development can have on stream characteristics? The DES only tells us approxiamtely 3.37 acres of spawning gravel will be permanently taken out of production because of culvert and bridge construction (p20 Peases report our extrapolation). We know from readily available published reports that the value of this area that will be taken out of production is worth $1,853,500. Is this loss within the ragge allowable under the Area Guide goal for fish?

4

We are concerned that the DES recognizes that primarily lower mainstream and intertidal areas consistitute the bulk of fish habitat.p9 The implicit implication in that discussion is that headwaters are less important aspects of habitat. We would like to see the reasoning behind this conclusion supported with data or citation of literature. Does the forest service consider in other literature the importance of headwater sources of water to fish population? The further assumption on the bottom of page 9 that habitat protective measures will be incorporated into the final unit release appears as an excuse for having not collected sufficient data and the fact that the supervisor approved the guidelines for ppotective measures in 1976 indicates that subsequent literature and research may have provided grounds for modification according to AG policy.

5

We are concerned that the review of the literature starting on page ten of Peases report does not always acurately or fairly describe

conclusions of reports and in some instances fail to cite state of the art reports which could alter operating procedures or policies. In some cases we feel feel descriptions of reports are misleading. For instance, the point about the Myren report is that because of variabilities in the stream and ocean, it is impossible to predict the impact of logging on fish populations except at a several fold change level. In light of the failure to predict changes to populations, he recommends examining qualitative factors such as stream characteristics. The implication of his report is that hard data on stream characteristics must be collected. The summary of the Meehan report 1969, which reaches a contrary conclusion to the Myren report, should mention the statistical errors that Myren has documented and because it has come under severe review, mention its shortcomings. This report should no longer be cited by the Forest Service in EIS reports as a justification for cutting near streams. If it is prevailing information should be provided that presents contrary information.

We are concerned that State of Alaska Water Quality Standards will not be met, a goal of the AG. The Pease report states that"professional judgement had to ~~substitute~~ sufficefor hard data when making judgements about temperature sensitive streams." We wonder how on p8 topographic features can provide shading at critical points in the sun's position directly overhead at noon. We wonder if the consideration of marginal habitat on p8 bottom was made based on hard data. We would like to know how many of the 160 streams that Fish and Game did not evaluate were examined on the ground. How many tributaries were examined? How will the State Water Quality Standards be enforced? We are not encouraged by the statement that "throgu proper streamside management practices, th potential reduction in fish productivity will be minimized to an acceptable level and aprroach normal fifteen years after harvest." p21 Pease

The discussion of blowdown in Pease is an attempt to discredit the leave strip idea. The failure to present literature, reports, and statements favorable to buffer strips, ~~should~~ that will present views contrary to the blowdown argument is a rather blatant misleading discussion.

On estuary impacts, we would like to see reports or studies on fry migration and feeding routes in areas that have or will have log storage or dumping. Effects of fry migration and feed availablity
7 in estuaries is an important phase of aquaculture site identification. and important TO the fishery as a whole.

The discussion of the habitat improvents leaves us ajar. Catch-22 thinking is evident here. In order to improve the stream we must impact it is the reasoning behind the funding arangement and adverse impacts of development should be weigh ed against benefits before reaching out for pork barrel projects such as this.

Beacause of the inadequacies of the DES to meet AG policy, we recommend that allocation reservations be made along all fish habitat and be windfirm. We feel state of the art studies justify this recommendation. We choose alternative 5 because it does most to protect headwater reaches. However, we would like to see certain modifications. We wonder if timber from road removal is included in the amount taken from clear cuts. If it is not, the allocation goal to LPK could probably be met.

Consultation with other section

While every publication has bias, the New Alaskan which was used to distribute public involvemnet information is rabid in its denounciation of conservation orientated programs and therefore the forest service in our opinion relied on an outlet that its most concientious critics frequently did not read. The timing of notification during the fishing season was also most inappropriate.

Protection of Point Baker

We are outraged about the alternative 4 plan for the Pt. Baker area. At the hearing for an injunction for Zieske v Butz, we pleaded for omition of clearcuts tht would expose out communities to wind damage. The judge saw no legal basis for our arguments. Nevertheless, the year after cutting began a severe storm brought down over 150 tress around the
8 community of Port Protection. Trees came down in the clearing around my home completely demolishing the shack I lived in during construction of my cabin and breaking the roof on the cabin. Two members of the community were almost killed when trees came down in front of their

stairs and and only Jack Daniels got them through the terrifying night. Trees came down in protected locations not adjacent to clearings. Yet the preferred alternative proposes more cuts that will open the area up to winds; the cut on Protection Head, at eh head of Protection and those S of Protection should be eliminated or reduced considerably in size. No more cutting should be allowed within one mile of the State Land selection and the cut that is in the State Land selection should be eliminated, As allowed in the AC.

9 Under no circumstances should there be any more cutting on Protection Head.

The float in Port Protection was not mentioned in the DES 1974 and only mentioned at one mut of two public meetings. Yet the FS claimed then that there was no objection to a facility whcih has been used widely by

10 a camp population of over two hundred people. Fishing, claming, crabbing, and hunting continue in Port Protection as people who have gaurenteed incomes compete with many people in the communities that are living subsistence lifestyles. Similar resources exist at the camp in Labouchere Bay. We want to know what FS monitoring of illegal hunting activites

11 takes place on government roads. We want usage of the float restricted to emergency medical evacuation and a smaller float put in. The EAR had many objections from the people of the communities. We want the Forest Service to give the State of Alaska its selections.

The 1974 EIS said that activity in the Point Baker area would decline after the first five year plan; but now we see a drastic increae in the amount of timber that will come out of the area. From this

12 we conclude that wildlife populations will be exterminated by camp residents and land development. Already, trapping animals have just about been wiped out, as we predicted. This contrasts sharply with the sustained yield practices which three or four trappers in our community practiced.

13 We would like to see a ten percent reduction in the amount of timber taken within three milesof Point Baker in order to maintain the enviornment for the creatures which create the values which we hold high. Also there

14 are very few black bears left. We recommend thtat an enforcement officer be stationed in the camp or at least make suprize inspection patrols.

We do not want to see the road connection between the rest of the island and Red Lake or Calder Bay-Hole in the Wall, as we feel resources
15 in the Red Bay area, particullY Red Salmon and Swans will be subjected to undue pressure and as the 1974 EIS states the North end is part of the Forest Service's plan for the ferry connection to an island hoping road system. We do not want to see the North end have a ferrry connection.

Sincerely yours,

Alan Stein President Point Baker Association

16 We are also concerned that archeological resources in Labouchere Bay have been wipped out. Also what is the mitigation plan for taking care of such violations as a cat in Pat's Creek 1978 and haavy siltation in Traitor's Creek 1977 as required in the Area G ide policy? Please cite stream monitorig on Prince of Wales for Water Quality according to AG research prescriptions.

FOREST SERVICE COMMENTS ON THE
RESPONSE OF ALAN STEIN

1. The Zieske suit against the Forest Service and former Secretary of Agriculture Butz was based on alleged violations of Water Quality Acts, the Multiple Use Sustained Yield Act, Wilderness Act, National Environmental Policy Act, and violations of the Organic Act of 1897, establishing the national forests. The Zieske suit sought to have the Forest Service enjoined from harvesting timber on 89,000 acres of north Prince of Wales Island adjacent to Port Protection, Calder Bay, and Red Bay.

   Judge von der Heydt of the U.S. District Court in Alaska found in favor of the defendants, the Forest Service and USDA Secretary Butz, on all points, except for the Organic Act on which a court ruling had already been made in West Virgina. It ruled that clear-cutting of trees other than individually marked trees, which were either dead, mature, or of large growth, was illegal. This, in effect, eliminated clearcutting nationwide as a harvest system on the national forests. With this court precedent set and upheld in the Appeals Court, Judge von der Heydt enjoined the Forest Service from harvesting timber by clearcutting small or immature trees intermingled with large old-growth trees.

   Passage of the National Forest Management Act by Congress in 1976 amended the Organic Act. This removed the legal basis for the injunction from timber cutting on north Prince of Wales Island. It did not "set up provisional regulations resulting in the Tongass Area Guide," to quote Mr. Stein. The National Forest Management Act requires the Forest Service, acting in concert with a National Committee of Scientists from outside the Forest Service, to establish

regulations governing the management of national forests in all States, not just in Alaska. These regulations are still in preparation and are expected to be promulgated before the end of this calendar year.

The "Southeast Alaska Area Guide" was developed by the Tongass National Forest as a first step in implementing relatively new national forest policy governing land management planning and decisionmaking. It is meant to guide the actions of Tongass National Forest resource managers through various levels of planning and implementation including the Tongass Land Management Plan (TLMP). Compromise between demands of various user groups on the forest for limited resources are recognized as necessary in the TLMP and in the guide.

2. The allocation decisions addressed in TLMP allocate national forest land by land use designations (LUD's) ranging from a few thousand acres to as many as 2.3 million acres. These LUD's range from Wilderness (LUD I) to intensive development of resources (LUD 4). Most of the primary timber sale area is allocated to LUD 4.

   Alternatives 3, 4, and 5 of the DES for the 1979-84 operating period were developed within the framework of TLMP, recognizing that all entered areas were LUD III or IV and that compromises were made between resources and that fish stream productivity was not impaired.

3. One of the concerns Mr. Stein expresses is a lack of specificity or quantification in the DES. The reason for this lack is twofold. First, recent direction from the Council on Environmental Quality is to reduce the size and scope of environmental statements particularly where information is already available in other documents.

   The purpose of this direction is to make the statement more readable by concentrating on a description of the action proposed and its effect on the environment expressed in conversational English. Technical dissertations of interest to the scientific community and technical experts are included by reference.

   The second reason for the lack of specificity is that the alternatives are a "paper" layout, that is, the road locations and unit boundaries for the most part exist only on maps and photos, not as painted or blazed lines in the forest. Enough field reconnaissance has been conducted since 1976 to assure us that the alternatives could be implemented without significant environmental damage. Protection of a fish stream from damage does not depend on whether logging takes place adjacent to the stream or not, but rather the type of logging permitted and how well the logging is done.

   The skills of the sale administrator, logging engineer, and fisheries biologist in supervising the cutting and yarding of each unit is the best protection each stream can have. The goal of the interdisciplinary team in preparing the DES was to select units that would be possible to lay out and log with minimal adverse impacts.

   Maps describing each cutting unit are available for review, as stated in the DES. Temperature-sensitive streams and cataloged fish streams are also mapped and available both from aerial photographic interpretation and field reconnaissance. This data is adequate to plan the location of cutting units.

   Mr. Stein assumes that logging as such has an adverse impact on fish habitat and populations. This assumption has little basis in fact. So long as roads and cutting units are properly located and

logs, slash, and road construction debris are kept from fish streams, adverse effects to fish are unlikely to occur. The only "allocation" question occurs along temperature-sensitive streams where degree of shade removal becomes a concern. Guidelines to protect temperature-sensitive streams are a requirement in implementing any timber harvest proposal involving such streams.

4. Our calculations indicate a potential dollar cost of approximately $1,300 per year because of fish habitats affected by culverts. This annual figure would probably not quite be reached, because all culverts for the 5-year period are not installed on the first day of the period, and some culverts are removed as roads are closed before the end of the period. The rationale for our $1,300 estimate is included in table 7.

5. There is no intent in the DES to imply that headwater portions of streams are unimportant. The watershed section of the final statement has been rewritten to clarify this point.

6. The statement on research literature review on p. 33 of the DES is consistent with Mr. Stein's comment on the subject. In the FES, see section V-C.

7. The section on effects to estuarine areas has been rewritten in the FES. Also, see the Forest Service comments on the National Marine Fisheries Service response.

8. Windthrow of trees in southeast Alaska's old-growth forests is not uncommon. It is often associated with new road construction and timber cutting practices. However, it is also a natural phenomenon occurring without regard to man's activities. It should be noted that windthrown trees associated with clearcuts and roadbuilding are invariably contiguous with the manmade opening in the forest canopy. It is our opinion that the storm damage Mr. Stein describes at Port Protection is unrelated to the timber cutting on north Prince of Wales Island, in that no continuous or even intermittent "track" of blown down trees can be followed from a cutover unit to Port Protection.

   The units proposed for cutting under Alternative 4 were designed to provide windfirm boundaries to the extent that windfirm boundaries could be identified. Unit layout teams will be especially alert to windthrow hazard as they mark the boundary of each cutting unit in the field.

9. The cutting unit at the north end of Protection Head was erroneously included in Alternative 4. Cutting units on proposed State land selections are discussed in the comments on the State of Alaska response to the DES.

10. The airplane float in Port Protection was discussed at a public meeting before it was included in the FES for the 1974-79 period. The subject has also subsequently been discussed with residents of Port Protection and Point Baker. The float is needed as a human safety precaution, because wind conditions in adjacent Labouchere Bay sometimes make aircraft landings hazardous there.

11. Although the Forest Service does not specifically monitor illegal hunting activities, our employees are required to report all violations of State law they observe to the Alaska State Troopers. Because our employees are not trained police officers, they are not expected to make arrests or otherwise expose themselves to dangerous situations involving criminal activity. The Tongass National Forest, under authority of 16USC 551a, does provide funding to the State of Alaska for law enforcement on the national forest.

12. The 1974 ES does not say the level of activity would decline after the first 5-year plan. It says the level of activity would likely decline after the first entry is completed. The first entry was defined as removal of 40 to 50 percent of commercial timber and completion of the basic transportation system necessary to manage the timber resource. Logging operations were halted for over 2 years of the 5-year period because of the Zieske vs. Butz suit. Those two seasons of work are included with Alternative 4 in the current environmental statement. Even without the delay caused by the court injunction, it was not expected that the first entry could be completed in 5 years.

13. Furbearer population levels are not likely to decline as a result of the habitat alteration proposed by the preferred alternative. Increased trapping pressure will have more effect on the distribution of fur harvest among the total number of trappers than on the local population of furbearers.

14. Casual observation of black bears on Prince of Wales Island over the past 20 years indicates an increase of black bear populations where old-growth timber has been clearcut. It is generally agreed among biologists that clearcutting is beneficial to black bears so long as the cutting units are kept reasonable in size and dispersed over time.

15. This FES and the Forest Service comments on the State of Alaska's response discuss the issue of completing the intraisland road system.

16. We know of no archeologic resources in Labouchere Bay and have no record of a "Cat in Pat's Creek." Traitor's River damage was held to short-term sedimentation and mitigated of any long-term damage by resculpturing the slide area to relieve water pressure and thus any additional mass movement. Surface erosion was controlled by diversion of surface water from the site and by mulching, fertilizing, and reseeding the site. Stream monitoring on Prince of Wales Island includes:

*Bonnie Creek at Shaheen.
*Alpha Creek at Sweetwater Lake.
*Tye Creek in Staney Creek.
*3/10 Mile Creek in Staney Creek.
*Old Tom Creek at Skowl Arm
*Indian Creek near Hollis will be started again in spring 1979, for a 3 to 4 period of years.

10 Jan 79

Dear Mr Watson:

I prefer alternative 1. Most of the things suggested against it are not really valid looking at past logging.

But I think that after the recent wind storm we had that 4 or any other program that uses the blowdown as soon as it is safe to log (about 2 years), should be logged for the most benefits from the forest.

1 At any rate keep the sale production at 960 MM per year.

Wilderness over 5000 an away from the beach line are a lost cause.

It is my opinion that clear cuts do not hurt the deer. It is the people who kill them with little reguard to regulations.

2 Also I would like to know why one plan would affect marine mamals more than another. They don't have feet to my knowledge so never travel in the timber. So if one plan

affects marine mamals, so will all the other plans. This should be corrected in future specs.

Only one half of one percent of the population of the U.S.A. ever sees Alaska and not all of them see Southeast, so I don't believe this can be a consideration when the timber economy here affects

living American economically. Thanks for your taking time to really read my comments.

Yours truly
Mr Elzie Isley
2427 4th ave
Kitchikan alaska
99901

FOREST SERVICE COMMENTS ON THE
RESPONSE OF ELZIE ISLEY

1. The plan has been revised to harvest the blowdown you mention.

2. Biologists all agree that large clearcuts in the wrong places hurt the deer.

3. Alternative 1 has a higher percentage of saltwater shoreline cutting units than the other alternatives. Logging operations on some of these units would disturb nearby marine mammals. The effect while adverse would be minor and temporary.

P. O. Box 6600
Ketchikan, Alaska 99901
January 17, 1979

Department of Agriculture
U. S. Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Sirs:

Re: D.E.S. on LPK Timber Sale Plan for 1979-84

The E.I.S. has described timber harvesting as an adversary to all other resources within the National Forest System. Pressures to halt logging activity are placing the timber resource into an unmanageable situation.

1 Relief must come through more reasonable "Operating Guidelines for Timber Sale Layout." These "Guidelines" are placing restrictions and constraints on the logging activity to the point of impossible compliance. I would suggest an LPK-U.S.F.S. meeting to produce solutions to these problems instead of waiting until our mutual field personnel are confronted with impractical approaches.

If "trade-offs" and reasonable regulations are not utilized, the long-term sale will be in a deficit appraisal situation. This would be intolerable to all concerned.

The only other answer is addressed to on the top of page 61 of the E.I.S. This alludes to the use of congressional appropriations for the rehabilitation of other forest resources made necessary by timber harvesting. This is a dangerous approach as it contradicts the philosophy of the free enterprise system. The real costs are lost in the bureaucratic process and actual commodity values are distorted.

2 It is apparent that in the process of compromising resource values, timber harvesting always gives but never receives. For example, on page 33 the E.I.S. states that under past practices logging has not significantly affected the fisheries resource, but then goes on to describe how more stringent restrictions on logging practices are needed to protect fish resources.

The results of the T.L.U.M.P. and RARE II process necessitates a higher priority for timber resources on the multiple-use lands remaining. This resource is the basis of the social and economic stability of Ketchikan and therefore must maintain a higher consideration.

I will support Alternative 4 to the extent and with the understanding it will meet the appraisal standards set up under the long-term sale contract.

Sincerely,

Lloyd A. Jones

je

cc: Mr. Don Finney
Mr. George Woodbury
Mr. Merle Mosar

FOREST SERVICE COMMENTS ON THE
RESPONSE OF LLOYD JONES

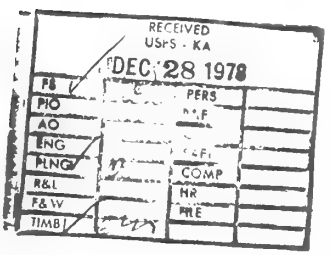
1. See page 23 of the DES "Management Concerns" and page 24 of the DES, "Evaluation Criteria." Alternative 4 comes closest to meeting these criteria and, although not the one most favored by LPK, it is deemed to be the best alternative from an overall environmental, economic, social, and legal standpoint.

2. Although research has not shown that logging has significantly affected the fishery resource, it has not shown that it has not. Until this issue can be satisfactorily resolved through reasearch, the Forest Service has no choice but to maintain a conservative approach. We also have a strong mandate from the fishing industry and the State of Alaska to do this.

Rev. Lewis K. McClendon
Alma McClendon

Director Church Extension M.S.S.
Southeast Alaska

Pouch C Coffman Cove
Ketchikan, Alaska 99901



December 23, 1978

United States Department of Agriculture
FOREST SERVICE
Federal Building
Ketchikan, Alaska 99901

Re: LPK Timber Sale plan 1979-84
Att: J.S. Watson, Forest Supervisor

Dear Mr. Watson:

As a citizen, and involved party, I would like to offer comments on the proposed LPK Timber Sale Plan for 1979-84. My involvement is with the loggers and their families living in the camps primarily on Prince of Wales Island.

I am Trustee in Trust for Trinity Baptist Church, Incorporated, of Ketchikan, under whose sponsorship we operate Island Ministries. I live in the Valentine Logging camp at Coffman Cove and operate from there. Our ministry includes the use of the boat "Circuit Rider" and we are looking toward the purchase of a float plane early in 1979.

We are perhaps the only family living in a logging camp (other than those connected with the school systems) which are not employed by the logging industry. If all logging in Southeast Alaska should close tomorrow, it would not effect my income in the least, but would only mean a transfer of operations. Therefore I can speak with less bias than those who would be more severely effected.

I wholly concur in the choice of the Forest Service, that Alternative 4 is the best possible use of the resources with the least undesireable results. We are all environmentalists, it is just a matter of degree. We are all also opportunists, and that too, is a matter of degree. As in most things, there is a middle ground of balance that is generally wisest as proven by history.

Alternative 2 is ridiculous. Even if other jobs were immediately available and no economic upset were to occur, it would still be ridiculous!! It would be as if a corn farmer decided to leave his crop in the field another year.... or forever....so that people could see a fine stand of corn. Timber as a national resource is a real issue and it is our responsibility to make the best use of it.

Alternatives 3 and 5 seem not to make the best use of the resource, and the choice of Alternative 1 would be unwise because it is based on short-term economics.

We appreciate the efforts of the Forest Service in developing and using one of our great natural resources. We have come to admire many of the men who work in our area, and believe them all to be conscientious in their efforts

to reach a balance between preserve and resource.

It is our hope that Alternative 4 will be chosen as the Sale Plan. This will lend stability to our people and to the area. The independent Loggers can plan ahead and LPK can have their timber!

Thank you very much.

Most sincerely,

Lewis K. McClendon

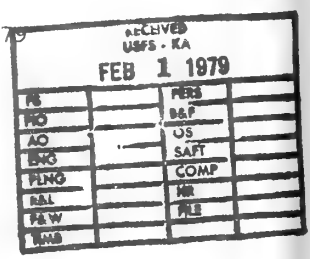
Lewis K. McClendon
Pouch L (Coffman Cove)
Ketchikan, Alaska 99901

SEACC

Southeast Alaska Conservation Council, Inc.
BOX 2778
JUNEAU, ALASKA 99803 907-586-6942

CERTIFIED MAIL--RETURN RECEIPT REQUESTED

January 30, 1979



Forest Supervisor J.S. Watson
U.S. Forest Service
Ketchikan Area
United States Department
of Agriculture
Federal Building
Ketchikan, Alaska 99901

Re: Comments on LPK 1979 - 84 Timber Sale Plan
Draft Environmental Statement

Dear Supervisor Watson:

After careful review of the LPK Five Year Plan Draft Environmental Statement (DEIS), the Southeast Alaska Conservation Council (SEACC) has identified three major areas of overriding concern. First and most important, the preferred alternative (No. 4) proposes extensive logging and roading within the boundaries of SEACC's Sarkar Lake wilderness area, which encompasses VCUs 554.1 and 554.2. (See map of SEACC's proposed conservation areas published by the U.S. Forest Service in March, 1978 as part of the TLMP planning process.) The Sarkar Lake
1 area has unusually high fish and wildlife values, as it supports substantial runs of coho salmon, steelhead and cutthroat trout, and comprises the most important trumpeter swan wintering area in Southeast Alaska. The Alaska Department of Fish and Game has identified Sarkar Lake as one of the key waterfowl habitat areas on Prince of Wales Island. The intricate network of interconnecting lakes and streams in this area provide an excellent opportunity for canoeing and sport fishing. The western portion of this area, which would be roaded and logged under Alternative 4,contains valuable estuarine habitat for fish and waterfowl. Its numerous coves, inlets and a large salt water lagoon interface with a gentle wilderness of streams and lakes to the east and a beautiful network of islands in El Capitan Passage to the west. This is the only wilderness proposal on the west coast of Prince of

Wales Island, and offers a unique opportunity for water-based primitive recreation. SEACC strongly urges the Forest Service to delete this area from its proposed logging program.

Second, the preferred alternative proposes development of approximately 105,000 acres of presently unroaded wilderness. This proposal, which would dramatically reduce the remaining unroaded acreage on Prince of Wales Island, appears to be based primarily upon inaccurate assumptions concerning the Forest Service's contractual obligation to LPK and the level of harvest necessary to maintain economic stability. At most, the 50 year contract only requires the Forest Service to make available to LPK sufficient timber to permit its Ketchikan pulp mill to produce 525 tons of pulp per day - not 960 MMBF over the five year operating period, as stated in the DEIS. Further, this obligation may be reduced by other factors including LPK's recent history of importation
2 of 25% of the chips required for its pulp mill from Canada and export of 20 MMBF of hemlock logs suitable for pulping to Washington State. The DEIS should carefully and objectively reevaluate these assumptions in light of these and other related facts. The fact that the fifty year contract does not require the entire contract volume to be harvested within the primary sale area should be disclosed, and additional roaded areas outside the primary sale area should be considered as a reasonable alternative to unroaded areas proposed for logging. The DEIS should also disclose that the Forest Service has broad discretion under Section 1(f) of the fifty year contract to "reserve from cutting strips and blocks of timber having special scenic value ... or ... which cannot be logged without causing substantial harm to salmon streams or lakes." Also, the DEIS should disclose what economic costs would be involved in the event the Forest Service made available a volume of timber sufficient for operation of LPK's pulp mill, but less than LPK's full entitlement under the fifty year contract. Since LPK has had more than twenty years to recover its investment in the pulp mill, and the profitability of its pulp operation is marginal, the damages to which the Forest Service might be exposed may be relatively insignificant.

Similarly, the DEIS fails to set forth facts in support of its assumption that 960 MMBF must be made available to LPK in order to maintain economic stability. Harvest levels in the Ketchikan Area during the last five years have averaged only 250 MMBF per year, and there presently exists a backlog of 167 MMBF of timber at LPK's pulp mill. The commencement of large scale timber operations on native lands, such as the 80 MMBF timber sale proposed for 1979 on land owned by the Cape Fox Corporation near Ketchikan, will undoubtedly substantially reduce the local timber industry's dependence upon harvest by LPK within its primary sale area.

Third, the DEIS is based on the shaky premise that 1) all timber harvest activities will conform to adopted guidelines, and 2) if these guidelines are followed then impacts on fish will be "either nonexistent or minimized to an acceptable level". (DEIS at page 33.) The numerous reasons why SEACC is unwilling to accept this assumption as valid are addressed in our detailed comments which follow.

1) The DEIS should disclose specifically what revisions in the fifty year contract will be made to achieve conformance with the requirements of the National Forest Management Act of 1976. The explanation concerning this matter at page 2

of the DEIS is not only vague, but confusing in that it states that revisions will be made but the harvest unit selection
3 process for the 1979 - 84 operating period will not be altered. Furthermore, the DEIS incorrectly states that the Forest Service must make available 8,250 MMBF timber under the fifty year contract; as indicated above, the contract requires this amount to be made available only in the event that the Forest Service fails to provide LPK with timber sufficient for full operation of its pulp mill.

2) The DEIS at page 14 states that "alternatives have
1 been developed to satisfy contractual volumes for the 1979 - 84 operating period without entering [the Sarkar Lake area, among others]." This is incorrect, as noted above.

3) Although the DEIS acknowledges that recovery of windthrow should be one of the goals of its harvesting program,
4 it fails to disclose whether, and if so, how, the large amount of blowdown from last fall's storm (which has been estimated in the press at approximately 100 MMBF in the Ketchikan Area) will be harvested during the 1979 - 84 operating period. Obviously, utilization of this source of timber would substantially reduce the need (which the DEIS claims exists) to log unroaded areas. It would also reduce the pressure to log those roaded areas with particularly sensitive visual or habitat values (e.g., along beach areas or adjacent to salmon spawning streams). Although some of the blowdown may be within unroaded areas, undoubtedly a substantial portion is located within roaded areas (although perhaps not within LPK's primary sale area) not possessing valuable scenic or habitat qualities. Unfortunately, SEACC and members of the public can only speculate concerning this matter, because the DEIS sets forth no facts concerning the location and amount of blowdown, and describing what action, if any, will be undertaken to recover this valuable timber resource which would otherwise be lost. Inexplicably, the DEIS description of the five Alternatives mentions salvage of blowdown only in connection with Alternative 4. In the absence of a factual explanation for this anomaly, it appears objectivity in designing and evaluating the Alternatives may be lacking. This conclusion is reinforced by the fact that Alternative 5 (which SEACC prefers to Alternative 4, the Forest Service selection) is defined to be identical with Alternative 4 (except it contains no roadlessareas).

4) The statement at page 29 of the DEIS that the impact of logging-induced surface erosion on streams will be "short in duration" is not supported by specific reference to studies which come to this conclusion, and is at odds with the widespread loss of natural salmon productivity in streams in California, Oregon, and British Columbia due to erosion from logging and other developments. No facts are set forth which substantiate claims made in the Fishery Specialist's Report that the State water quality requirement for turbidity (25 NTU above natural conditions for fresh water) will not be violated as required by Area Guide Policy #6. The DEIS should disclose historical data indicating logging near streams can cause turbid conditions greatly exceeding State water quality standards.

5) The statement at page 30 of the DEIS that "Southeast Alaska streams are not considered to be highly sensitive to temperature changes resulting from timber harvest" is not supported by specific reference to data or studies. The DEIS fails to disclose studies which indicate contrariwise. Similarly, the statement that "temporary changes in water quality

can be expected from timber harvesting [b]ut all anticipated changes can be reduced to acceptable levels and returned to natural levels" is not supported by the studies of the affects of logging on water quality performed to date. These vague assurances appear to be designed to allay fears and sweep the troublesome problem of long-term adverse impacts of logging on water quality, under the rug.

6) The apparent bias in favor of Alternative 4 reappears with the statement at page 32 that Alternatives 3, 4, and 5 "would affect water quality in similar ways", even though Alternative 5 would, according to the Fisheries Specialist's Report, affect substantially fewer miles of water courses adjacent to harvest units and associated culverts and bridges than would Alternatives 3 or 4.

7) The DEIS concludes at page 33 that "research has not shown that timber harvesting as conducted in Southeast Alaska significantly affects fisheries resources on a long-term basis." This is misleading in that it implies that research has shown that timber harvesting does not significantly affect fishery resources on a long-term basis (which would be incorrect), and further, is contrary to recent studies. In particular, the "review of literature" at pages 10 - 12 of the Fisheries Specialist's Report inaccurately describes the findings of several of the studies noted, including those of Meehan, Farr and Bishop (1969) and Myren (1976). In fact, these reports provide no basis for the conclusion that timber harvesting will not significantly adversely impact fisheries resources. The hazy assurance that impacts on fish will be "minimized to an acceptable level" is obviously intended to soothe and to lull the reader, rather than apprise him of the potential adverse consequences of the proposal, contrary to the purpose of the National Environmental Policy Act. Further, the DEIS implies that all forest development activities will conform to the Southeast Alaska Area Guide prescriptions concerning fish habitat. In fact, however, these prescriptions have been violated frequently in the past, and will probably continue to be violated in the future. For example, Area Guide Policy #6 requires that an interdisciplinary team (IDT) will provide "sufficient information to permit allocations which recognize the capabilities and sensitivities of major
5 fish habitat areas", yet the Fisheries Specialist's Report at pages 7, 9 and 14 admits adequate data sufficient to achieve this objection does not yet exist. Area Guide Policy #7b(5) requires identification of temperature-sensitive streams prior to timber harvest, yet the Fisheries Specialist's Report acknowledges that "with the level of information available through maps, aerial photographs, and basic ground reconnaissance, the existence of many smaller streams, especially rearing streams, is unknown. The location and quantity of streams shown on maps and aerial photographs compared with what actually exists on the ground is approximately 60% accurate." Further, the DEIS fails to disclose that temperature sensitive streams cannot be identified simply by reviewing aerial photographs and topographic maps, because depth, surface area, velocity, sources and opacity - all essential to a determination of the temperature sensitivity of any given stream - can only be measured through extensive field survey. The DEIS fails to refer the reader to studies which underscore the importance of this detailed field reconnaissance. Other recent studies not cited by the Forest Service in the DEIS or its subsidiary reports point out the importance of detailed field survey work to permit evaluation of the fishery habitat potential and vulnerability to erosion of streams before logging plans are designed.

8) The DEIS fails to acknowledge the extreme toxicity of sedimentation to anadromous fish. The DEIS should frankly disclose and discuss studies which show that sedimentation clogs and abrades gills, causes bacterial gill disease, smothers eggs and alevins, reduces dissolved oxygen, and induces behaviorial changes such as avoidance of spawning beds. Furthermore, there is no scientific basis for the DEIS's conclusion at page 34 that "application of the [operating] guidelines [will] keep temperature changes within acceptable limits and return them to natural levels within 10 - 15 years after logging." Studies indicating otherwise should be disclosed.

9) The DEIS states blandly that "in the estuary loss of habitat results from rock fills for construction of log transfer points", but fails to disclose specifically how much habitat will be lost under each of the proposed Alternatives, and fails to relate the estuarine habitat guidelines to this problem on a site-specific basis. The DEIS also neglects to discuss the results of surveys which have been conducted by the U.S. Fish and Wildlife Service in log storage areas in Southeast Alaska, which indicate among other things that the leaching of tannic acid from logs stored in salt water substantially reduces species diversity. This impact should be frankly disclosed, and reasonable alternatives to salt water storage, such as dry barging,should be addressed.

10) At page 36, the DEIS implies that there will be no long-term or cumulative impact on temperature sensitive streams if any Alternative other than Alternative 1 were chosen, but presents no data to support this conclusion. The effect of this statement is to lump Alternatives 3, 4, and 5 together in terms of their adverse impact on streams, contrary to Tables 2 - 5 in the Fisheries Specialist's Report.

11) The charts set forth at pages 40 - 41 of the DEIS do not include information for Alternative 5, apparently because the DEIS concludes Alternative 5 will have the same impact on wildlife as Alternative 4. This is not credible, in view of the fact Alternative 4 involves the logging of 105,000 acres of roadless areas which would remain untouched under Alternative 5. Table 8 at page 42, because of its grossly simplistic and limited evaluation scheme, does not reflect accurately the impact of the various Alternatives on species of wildlife. Again, it appears the authors of the DEIS contrived to lump Alternatives 3, 4, and 5 together in the reader's mind, even though we know from the differences in size and location of clearcuts that Alternative 5 must have much less adverse impact on wildlife than either 3 or 4.

12) The DEIS does not disclose how the Forest Service has determined that a 100 year rotation period insures that trees shall generally have reached the culmination of mean annual increment of growth prior to the second harvest cycle. The manner in which the Forest Service interprets and applies this requirement will significantly affect the amount of timber which can be logged annually on a sustained yield basis.

13) The DEIS concludes that Alternatives 3 and 5 would
6 reduce the number of timber and support jobs by 900 - 3,000 jobs during the five year period, at pages 47 and 59. The factual basis for this conclusion should be disclosed so that readers can draw their own conclusions based on the underlying facts. As indicated above, facts available to SEACC (e.g., average harvest levels during the last five years; LPK's importation of pulp chips from Canada in recent years;

LPK's inventory of 167 MMBF presently in water storage; substantial timber harvesting on native lands expected in the near future; and large amounts of blowdown timber presently available for harvest) indicate that neither Alternative 3 nor Alternative 5 would result in a loss of jobs in the Ketchikan Area. By jumping to the conclusion that Alternatives 3 and 5 will result in economic dislocation, the DEIS effectively eliminates these Alternatives from further consideration in many readers' minds. Through the application of its "evaluation criteria", and in combination with unsupported conclusions respecting "economic viability" and the timber volume requirement of the fifty year contract, the Forest Service's assumptions concerning economic stability predetermine which Alternative will be selected as "preferred". (DEIS at Table 12, page 59). Furthermore, implicit in the Forest Service's analysis of socio-economic impacts is its assumption that logging will have no adverse impact on the fishing industry and the recreation industry; indeed, the only discussion of recreation in this regard is to the effect that clearcutting and its associated road construction increases recreation opportunities.

14) The DEIS at page 51 states that clearcutting only "slightly" detracts from semi-primitive recreation, a conclusion devoid of any visible means of support. The two Tables on this page fail to evaluate the severity of the impacts of the various Alternatives on areas highly valued for dispursed primitive and semi-primitive recreation. The simple dichotomy between impacts and the absence of impacts which is displayed may be misleading.

15) The DEIS at page 52 incorrectly states that Alternative 4 would preserve the "wilderness option" in the Sarkar
1 Lake area. As indicated above, one of the two VCUs encompassed within SEACC's Sarkar Lake proposal is destined for logging under Alternative 4.

16) The DEIS concludes that Alternatives 2, 3, 4 and 5
7 would all meet "Area Guide policies ... for management of the visual resource". In fact, Alternative 4 does not, according to statements set forth on page 54.

17) The DEIS at page 56 understates the impact of noises associated with logging and road construction on wilderness recreation use of adjacent areas.

8 18) The DEIS at page 57 incorrectly states that Alternatives 3 and 5 would require "about 50% more mileage than Alternative 4". The discrepancy between this statement and the figures set forth at page 19 of the Fisheries Specialist's Report (indicating Alternatives 3, 4 and 5 with 245, 235 and 205 miles of road respectively) should be explained.

9 19) The DEIS at page 58 states that Alternative 5 would fail to provide for the completion of first-entry harvesting during operations within this five year period. Since Alternative 5 is identical with Alternative 4 except it does not include roadless areas, this statement assumes that these roadless areas will eventually be entered. If this is truly the plan of the Forest Service, then it may as well confess this intention now, so that the public won't be misled into wasting any more time asking the Forest Service to protect these areas .

20) Table 12 at page 59, which purports to objectively evaluate the five Alternatives based on stated criteria, has numerous defects. In addition to the erroneous assumption

concerning the harvest level necessary to maintain economic stability noted above, this Table also erroneously assumes that the fifty year contract requires the Forest Service to make available 960 MM bm from the primary sale area and that Alternative 4 is much more "economically viable" than Alternatives 3 or 5. As explained above, the contract only requires the Forest Service to make available that amount of timber necessary to keep LPK's pulp mill in full operation, and that timber outside the primary sale area may be used for this purpose. With respect to the latter assumption, it is apparent that all three of these Alternatives are economically "viable", since "2 MM bm per mile of system road will generally result in a positive dollar return", according to the DEIS at page 57. According to the road system mileages set forth in the Fisheries Specialist's Report, Alternatives 3, 4 and 5 will provide harvests of 3.24, 4.08 and 3.33 MM bm per mile, respectively. Since all are "viable", it seems inappropriate for the Forest Service to concern itself with how much profit above and beyond that necessary for maintenance of LPK's timber operation will be derived from each of the Alternatives. The direct result of this approach is to consider corporate profits distributed to shareholders on a basis equal with such public policy considerations as protection of fish and wildlife. Further, Table 12 posits as an objective, the construction of an intra-island road system. Road building for its own sake (as opposed to road building for recreational purposes, which would be included in evaluation criteria #8(a)) is not a statutorily sanctioned function of the Forest Service. Therefore, it should be dropped from Table 12. If the foregoing erroneous assumptions are eliminated from this Table, Alternative 4 loses its "preferred" status. Furthermore, Alternative 4 should not be awarded a "9" for wilderness protection because unlike Alternatives 3 and 5, it proposes logging and roading of SEACC's Sarkar Lake conservation area.

21) The DEIS inappropriately sets forth at pages 61 - 62 uninformed public opinion it received in response to a four page advertisement published in an obscure monthly newspaper in June 1978. The purpose of the environmental impact statement process is to educate the public and the decision makers, not to enshrine opinions formed prior to review of environmental impact statement documents.

22) In its discussion of the relationship between the various Alternatives and employment levels in the timber industry, the DEIS fails to explain the impact of recent Forest Service decisions to permit LPK to export raw logs to the Pacific Northwest for processing, apparently reducing employment levels in the Tongass National Forest.

23) The DEIS affords inadequate consideration to the economic value of recreation, tourism, guiding and wilderness activities. The number of people who participate in these activities within Southeast Alaska is not disclosed. For example, the DEIS fails to consider the economic value of the fishery resource to thousands of licensed commercial fishermen who are not full-time employees in that fishing industry. Moreover, the DEIS fails to disclose the possibility (or likelihood) that logging may adversely impact the commercial fishing industry.

24) The DEIS should show on a map which VCU's with high or moderate rating for wilderness, primitive recreation, or wildlife, will be roaded or logged under each Alternative to permit informed comparisons between these proposals.

25) The DEIS should consider specific revisions to the LPK fifty year timber sale contract, in order to insure compliance with the resource inventorying, land use planning and habitat protection requirements of the National Forest Mangement Act. As noted above, the DEIS implies some revisions will be made, but fails to either identify them or explain when they will be implemented. 11

26) The DEIS fails to acknowledge and explain the impact of apparent monopolistic or collusive timber sale bidding practices which have been the subject of correspondence between Dr. Matthew Berman and Regional Forester John A. Sandor. The DEIS should explain what action will be taken to obviate these practices, and the effect, if any, of such action on wasteful logging practices.

27) The DEIS fails to explain what efforts will be undertaken by the Forest Service to prevent logging and roading where soil, slope, habitat or watershed conditions would be irreversibly damaged, where the forest lands could not be adequately restocked within five years, or where protection could not be provided to nearby bodies of water. The DEIS should set forth specifically what measures will be undertaken to provide this required environmental protection in each of the Alternative proposals, and how implementation of these measures will be monitored to assure achievement of this objective. Mere reference to the Area Guide's general policy strictures is insufficient. The public is entitled to know how the Forest Service proposes to acquire the detailed knowledge respecting fish and wildlife habitat and visual sensitivity, and the impacts of the proposed Alternatives thereon, prior to implementation of the selected Alternative, in order to be assured that the Forest Service will implement such strictures. As noted above, data respecting fish habitat in particular is lacking.

28) The DEIS fails to consider whether current "sustained yield" forestry practices will result in the permanent loss of the climax forest in areas subject to logging. For example, the long-term effect of this impact on the fishery resource and habitat for mammals and birds has not yet been determined, because of insufficient data. The DEIS should forthrightly acknowledge this problem and endeavor to remedy it as soon as possible. Further, the DEIS should disclose how many acres will be logged over the entire rotation period, not just during the next five years, under alternative levels of harvest (e.g., 500, 600, 700, 800, 900 and 1,000 MM bm/5 years). This is important because the acreage cut each year will increase as logging moves into areas with less timber volume per acre. The DEIS should disclose whether this will reduce the economic feasibility of logging, and increase adverse environmental impacts as the end of the rotation period is approached.

29) The DEIS should address current wasteful scaling and transportation practices of the timber industry, and evaluate the economic and environmental benefits of changing these practices. For example, rafting rather than dry-barging logs to mills results in unnecessary loss of timber in transit, as well as adverse impacts on marine life.

30) The DEIS fails to propose and evaluate measures to restore and rehabilitate renewable resources which have been damaged by past forestry practices in the Tongass National Forest.

31) The DEIS should set forth the goals of the Tongass Land Management Plan (as proposed in its DEIS), including standards designed to maintain fish and wildlife populations and esthetic and recreational resources, and describe how well each of the proposed Alternatives will implement these objectives.

32) The Operating Guidelines set forth in Appendix B of the DEIS have not been shown to provide adequate protection of resource values harmed by logging and roading. Until adequate data is collected and studies based thereon establish a sound underpinning for logging prescriptions, only conservative logging practices should be allowed. For example, leave strips should be required along streams and lakes. We know from recent studies that the old growth forest supplies nutrients, humidity and habitat for organisms on which fish feed, moderates extreme temperatures, regulates waterflow (absorbing excess runoff during rainfall and slowly dispensing runoff during droughts) and prevents erosion and consequent siltation of streams. Even small tributary streams need the protection of the old growth forest, because they provide habitat for overwintering coho salmon and dolly varden char.

33) The Forest Service should disclose whether it has revised downward its official estimate of operable timber within the Tongass National Forest since estimates were originally made in the 1950s. If these estimates have been substantially revised, the public is entitled to know why the original estimates were inaccurate, in order to evaluate current Forest Service timber inventorying practices for similar methodological errors. If the Tongass National Forest has been "high-graded" during the last twenty years, the public is entitled to know why this has been permitted to happen and what effect these practices, if continued, will have on the methods by which the sustained yield goal will be achieved in future years when logging moves into low volume stands previously by-passed. The Forest Service should establish a monitoring system which will permit the public to determine precisely whether sustained yield policies are being followed. The DEIS should describe the visual and ecological changes which will take place in the Ketchikan Area during the proposed 100 year rotation cycle under various harvest levels, so that the public can grasp the enormity of the ultimate changes now underway incrementally, to permit informed comparison between these harvest levels.

34) The DEIS should consider all reasonable alternatives to the clearcutting method of logging, in order to minimize adverse impacts on wildlife and fishery habitat, and on visual amenities. The DEIS should evaluate these alternatives, and propose clearcutting only if the environmental, biological and esthetic impacts have been assessed and found acceptable. The DEIS should set forth specific standards to insure clearcuts, if they are to be allowed, will be shaped and blended with the natural terrain to achieve esthetic and wildlife habitat objectives.

35) The DEIS fails to disclose whether, and if so, how, the Revised Area Guide to be published in final form in March, 1979 will be implemented through the proposed 1979 - 84 LPK plan. For example, the DEIS makes no mention of the filter strip requirement set forth at Table 1, page 4 of the current Draft of the Revised Area Guide. Since SEACC has been advocating buffer strips along streams for several years, it is most concerned that this proposal be incorporated within LPK's five year operating plan. The DEIS should also disclose whether

any policies set forth in the original Area Guide will be modified in the revised edition. Deletion of the Area Guide's requirement that "sufficient information" be gathered to insure protection of fish habitat areas, for example, would undermine assurances contained in the DEIS that the fishery resource would not be adversely impacted.

36) The DEIS makes much of its announced goal of providing the inhabitants of Prince of Wales Island with an "intra-island transportation system", but neglects to disclose the construction and long-term maintenance costs associated with this proposal. Further, the DEIS fails to set forth any facts which support its assumption that residents of Prince of Wales
12 Island are in favor of this proposal; on the contrary, the only information provided in this regard is that residents of Point Baker and Point Protection are opposed to this proposal. The "communities" which would be connected by these new roads, Naukati Bay, Laboucher Bay, Whale Pass and Coffman Cove, are all just temporary logging camps; it seems illogical to propose a permanent road network to serve a transient population. In summary, if the Forest Service is going to embark upon road building as an avocation, since taxpayer dollars are involved the full, long-term costs and benefits of this endeavor should be fully disclosed and evaluated in the DEIS. Moreover, no roads should be proposed until a comprehensive transportation plan has been presented to the public for its consideration through public hearings.

37) The DEIS's use of "economic stability" as a criterion with which to evaluate the various Alternatives is, as noted above, based on erroneous assumptions. Certainly, economic stability must be considered by the Forest Service in evaluating the Alternatives, but this criterion should incorporate the following factors: 1) the need for economic diversification within Ketchikan; 2) market projections for forest products from national forest and private lands in the Ketchikan Area; 3) other industry sectors, such as tourism, fishing and the government, which may impact economic stability in Ketchikan; 4) the number of direct and indirect jobs which will be created by the harvest of timber on private and native lands during the next five years; 5) the continued importation of wood chips from Canada for use in Ketchikan's pulp mill; 6) the export of round logs from National Forest lands in the Ketchikan Area; and 7) LPK's current surplus inventory of logs. In addition, more general economic questions have been ignored. The DEIS should include an analysis of the following factors: 1) the total economic costs of the proposed five year timber sale under each Alternative, including the cost of layout and design, fish and wildlife research and management, related soils, cultural and environmental research, related land use planning and administrative costs; 2) the projected revenues of the five year sale under each Alternative including revenues to the National Forest Fund, purchaser road credits, K.V. revenues, and revenues to be paid to the State of Alaska and local communities; 3) a comparison of management costs, stumpage prices and projected revenues for alternative harvest levels within the Ketchikan Area, with other national forest and private timber lands.

38) The DEIS should indicate where cutting units in excess
13 of 160 acres are proposed to be located under each of the Alternatives.

39) The DEIS should consider the possibility that all timber made available to LPK may not be harvested within the

14 next five years, and consider whether those areas with the highest visual, wilderness and habitat values should be segregated so that all other areas are roaded and logged first.

40) The DEIS should disclose how much timber has been harvested on Prince of Wales Island since major timber operations
15 were commenced in the early 1950s and display this information on a map indicating the location of past harvesting. Based on this information, the DEIS should determine what level of annual timber harvest will insure a sustained yield of timber over the rotation cycle of the forest, providing, of course, protection of those values identified in TLMP and by Congress. The public is entitled to know now whether there is in fact insufficient timber to maintain the industry at its current level through the rotation cycle.

41) The DEIS should disclose that in the recent past Area Guide prescriptions have not been followed. For example, severe road slides occurred at Traitor River and Shaheen Creek.

42) The DEIS fails to disclose how the proposed LPK five year plan will interface with Alaska's Coastal Zone Management Program, and local plans promulgated thereunder.

43) The DEIS discussion of impacts on wildlife leaves the impression that if 50% of the timber in a particular area is harvested, for example, 100% of the wildlife in that area will continue to exist. The DEIS should frankly disclose the adverse impacts on wildlife population which historical data and studies have found result from clearcut logging.

44) The DEIS does not adequately and accurately disclose the impacts on archaeological resources which will result from the various logging Alternatives. This is principally because the Forest Service lacks an adequate data base. The DEIS should acknowledge this fact and propose measures to insure conformance with the requirements of the Historic Preservation Act of 1966.

45) The DEIS should provide a detailed description of its proposed water monitoring program so that the public can determine whether or not Alaska water quality standards will be maintained.

Thank you for providing this opportunity to comment.

Very truly yours,

Leonard Steinberg

Leonard S. Steinberg
Acting Executive Director
Southeast Alaska Conservation
Council, Inc.

LSS/ks

FOREST SERVICE COMMENTS ON THE
RESPONSE OF THE SOUTHEAST ALASKA CONSERVATION COUNCIL

1. There are no cutting units or roads proposed in Alternative 4 within value comparison unit (VCU) #554.1K. This VCU contains 23,568 acres and covers 81 percent of the Sarkar Lakes watershed.

There is in existence, now, a main haul road from Naukati north through VCU #554.2K. This road has a permanent bridge across Sarkar Rapids that was constructed last year. This road and the cutting units it serve, was authorized in the 1974-79 environmental statement. The road itself will be completed past the northern boundary of VCU #554.2K before July 1979. The cutting units were displayed on the Alternative 4 map, because, even though previously authorized, they won't be logged until after July 1979, the start of the next 5-year period. These units are located away from the view area of the lake system and only a few acres of the units are within the Sarkar watershed. None of the units impinge upon an estuary, and no roadless areas are affected.

The road connection through VCU #554.2K is an important one to the management of national forest resources, in that it ties operations on the northern and central portions of Prince of Wales Island together. It also offers good access to recreational use of the Sarkar Lake system.

2. Section 1a of the contract allows operations to move from the primary sale only if there is insufficient volume for full-scale operation of the purchaser's pulp plant at 525 tons capacity per day. Either Alternative 1 or 4 establishes the fact that sufficient volume is obtainable on the primary sale allotment. Moving from the primary sale area to avoid entering roadless areas within the primary sale allotment would mean either displacing timber sales to other purchasers or entering roadless areas in other parts of the forest. Neither of those choices is acceptable. Although 105,000 acres seems a large area, nowhere near that amount of forest land will be cut. The 105,000-acre area loses its roadless characteristic because, after logging, no portion of the 105,000 acres will remain in contiguous unroaded blocks of 5,000 acres or more. It should also be noted that the 105,000 acres is not in a single contiguous block now. An examination of the map for Alternative 4 reveals the extent of entry into roadless areas. The area of conflict is the overlap between gray shaded area (roadless) and the orange symbols. There are large areas of gray shading in which no development is planned for the 1979-84 period.

It is obvious that SEACC interprets the obligations of the United States under this contract differently than does the Forest Service's Counsel. The contract requires the purchaser to build and operate a pulp mill of 525-ton-per-day capacity in order to meet a basic objective of this timber sale; namely, to provide a stable economic base in the Ketchikan Area.

The contract is worded in such a way that only three-fourths of the total processing capacity is required to come from the long-term sale. There is no prohibition of the import of chips from Canada. Refer to Section 3b of the contract printed in the Appendix.

The contract amount for the 50-year sale is 1,500,000,000 cubic feet (8,250,000 M boardfeet) measure. The purchaser, under provision 3c, must cut between a minimum 5,000,000 cubic feet (27,000,000 boardfeet) measure, and a maximum 35,000,000 cubic feet (192,000,000 boardfeet) measure on an annual average basis. If the purchaser is to obtain the 1,500,000,000 cubic feet measure originally contracted, the cut must be at a level near 35,000,000 cubic feet measure each year for the rest of the sale period. The mathematical average to obtain this result is slightly less than the maximum allowed in the contract.

As of January 31, 1979, 3,632,062,000 boardfeet measure (bm) had been scaled toward the 8,250,000,000 bm sold in the long-term sale. Assuming 68,000,000 bm more will be scaled before July 1, 1979,

then the purchaser will have to log an average of 910 MM bm each 5 years to the end of the sale (7/1/2004) in order to reach the sold volume.

Although the Regional Forester has authority to substitute areas selected by the company, there is no authority for that officer to deny the company less volume than they request so long as they do not request more than the maximum allowed in 3c or the total sale volume.

Pages 3-14 of the SEACC letter deal mostly with the validity of Forest Service policies, practices, research interpretations, and land allocations in general. These issues have already been addressed in the "Southeast Alaska Area Guide," "Tongass Land Management Plan," and related documents, and, as such, they are not considered within the scope of this environmental statement. The Forest Service has therefore responded only to the comments considered substantive to this environmental statement.

3. The contract provisions which will be changed have not been completed and thus, are not available in their final form. The changes will comply with the NFMA and take effect at the beginning of the 1979-84 operating period.

4. Major revisions have been made in the FES to salvage the November 1978 blowdown which occurred too late to incorporate into the draft. See "Timber" in the FES.

5. It is true that all streams cannot be identified through a photographic layout. However, prior to release of a unit for harvest, the unit is assessed on the ground by the Forest Service. Any streams missed in the initial plan are identified and protected. The Forest Service acknowledges that there have been isolated contract violations and accidental damage to fish habitats, but overall this has been minor.

6. The forest used the "Tongass Management Plan" DES as a source for determining jobs relative to timber harvest.

7. Citing a visual impact does not mean that Area Guide policy would not be met.

8. The "50 percent more mileage" displayed on page 57 in the draft was an error that has been corrected in this FES.

9. During preparation of this plan, the Forest Service objective was to leave as much roadless area as possible to allow more options in TLMP. The TLMP is scheduled for release before this FES and will display how all the land will be allocated.

10. The transportation section has been rewritten to better explain the Forest Service rationale for the roads. Also, see the comments on the State of Alaska response.

11. The revisions have not yet been finally determined.

12. See the comments on the State of Alaska response (No. 5).

13. This has been done in the FES.

14. See the comments on the State of Alaska response (No. 9).

15. See the comments on the State of Alaska response (No. 10).

Area Supervisor
U.S.F.S.
Ketchikan, Alaska

Dear Mr. Watson:

On behalf of the Tongass Conservation Society I wish to make the following comments regarding the LPK proposed 5 year plan for 1979-1984.

1 First, I would like to deal with several specific concerns. Soils have suffered under U.S.F.S. management in the past. Recently two catastrophic slides occurred at Traitors River and Shaheen Creek. Both resulted from inadequate attention being paid to the Area Guide regulations. More roads, as proposed, will further aggravate unstable conditions, contributing to more widespread erosion, siltation of rivers/streams, further decline in our progressively declining viable salmon spawning streams, and degradation of our saltwater environment, with consequent
2 decline in benthic/aquatic ecosystems. This is not acceptable. Both the Water Quality Act and Coastal Zone Management regulations must be complied with, and if not yet in effect their major thrusts are certainly public information. Both Alternative 3 and Alternative 5 mean fewer road building projects, and, therefore, less erosion and stream destruction. It is simply not acceptable to state that streams will eventually recover, that the potential long term effect will be a "temporary change in streams and estuarine habitat productivity". All Fisheries Habitat Management Units must be identified and remain undisturbed.

As you are aware, ours is an unpredictable climate, certainly one in which the salmon is especially susceptible. Variables such as temp. fluctuation, gravel beds and spawning habitat, siltation, culverts, log rafts, and physical barriers such as log obstructions, all have the potential to eliminate spawning. Should these factors exist, those streams should not be logged.

The heavy human activity impact and leaching potential of rafting facilities are proven detrimental to the estuarine population. As Alternative 5 has the least such sites(p.36), this alternative is the better of Alt. 3 & 5.

3 Page 37 would seem to indicate that all wildlife will survive, which is certainly inaccurate. Projected wildlife losses must be disclosed.

Road building cannot be a primary evaluation criterion in assessing the volume for each 5 year plan, insofar as it was not a criterion in the
4 original contract, nor does it fall under Area Guide recommendations. It appears that the proposed road from Red Bay to El Capitan is unwarranted--no cuts are planned, it is unroaded, and would appear to be very expensive. Additionally, the Point Baker Association has expressed a desire to leave Point Baker unconnected to the inter-island road system.

5 Both Salmon Bay and Sarkar Lakes remain the only unroaded areas on north Prince of Wales. Both are Tongass Conservation Society proposals for conservation units. These must remain unroaded.

6 U.S.F.S. figures for the past five years indicate a progressive decrease in the annual cut, with the exception of bumper year 1974. This, plus several other factors, demand a closer look at the realities of maintaining a 960mmbf figure for the next five year period.

We are aware of a massive blowdown on Prince of Wales sustained in the
7 November,1978 storm. Many estimate 100mmbf fo available timber. The projected cuts should reflect this volume.

8 Is it not also true that there is a large volume of residual timber from the 1974-1979 sale which should be included in the final volume figure? Please notify us what this figure totals.

9 It is felt by many that stumpage fees for the upcoming 5 year period will be even less than for the past five years, and that federal subsidies will be even further expanded. Please comment on this.

10 Is it not true that there is no contractual obligation to adhere to the 960mmbf figure, since other methods are used in computing the required volume? Is not one method of computation of this figure the maximum capacity of the mill in Ketchikan? If so, this must surely alter the volumn figure considerably.

11 There is little mention of current in-the-water inventories. How does the U.S.F.S. wish to treat this large volume of timber? And what plans are being made to salvage all of this timber before it rots should the mill not reopen in the near future?

12 Please clarify to what extent a new contract will insist upon utilizing marginal and special stands of timber, and what portion of the total these will comprise.

13 I have seen no mention of sizable chip imports from Canada. They certainly make up a sizable percentage of the LPK volume, but yet no correction is made for them in the total estimated cut.

14 Moreover, I find no reference to the anticipated volume from native and state logging activities. Please describe how you have dealt with these in arriving at the 960mmbf figure.

15 Recently the Ketchikan press has printed detailed accounts of attempts by LPK to by-pass Forest Service regulations and proceed with round log exports to mills in the Lower 48. Is this not a clear violation of your own regulations and the original 50 year contract terms? If this does in fact indicate that there is the same surplus which Mr. Mosar of LPK referred to, then why is this not reflected in yet a further reduction in the requested volume?

16 And finally, I wish to know why there is such a vlue discrepancy between the employment figures the U.S.F.S. uses for Southeast Alaska and figures obtained from other sources. Why do you regard logging jobs as "full time" jobs, but yet fisheries-related employment as only three-month positions? Surely this is not a kosher glimpse of our real employment picture.

I am therefore led to the conclusion that, for fisheries and wildlife protection, for maintenance of a realistic timber employment and economy, for protection of the environment, and for the proper stewardship of the entire forest, the 960mmbf figure is clearly excessive. I therefore urge adoption of Alternative 5, along with strict adherence to the Area Guide prescriptions.

I thank you, and hope to hear from you shortly regarding many of the questions posed herein.

Sincerely,

Peter O. Mjos, M.D.
Tongass Conservation Society

FOREST SERVICE COMMENTS ON THE
RESPONSE OF THE TONGASS CONSERVATION SOCIETY

1. To our present knowledge there are no slides in the Shaheen Creek watershed caused by timber harvest or road construction activities. The slide you refer to in Traitor's River is actually a very small slump caused by road construction. It is less than 3-tenth's of an acre in size. Even though some sediment was introduced, it is not a catastrophic event when considering the many large slides that occur under natural conditions. Compared to some of the large natural slides that have occurred in the past erosion cycle of Traitor's River, this slide is insignificant. Because of the topography and general poor stability of the area, having only one small slump definitely points to adequate attention being paid to Area Guides and forest regulations.

2, It should be noted that the Coastal Zone Management Regulations do not apply to federal land other than the consistency requirement.

3. Based on standards set by the Wildlife Task Force for TLMP, the percentage of natural covertypes should nearly maintain natural popluations of wildlife. The carrying capacity will not be reduced for the species if the harvest does not exceed the percentages, providing timing, spacing, size, and location of cutting is carried out sensitive to species needs. Certainly no wildlife species will be eliminated from the sale area.

   Information on total population numbers is not available. Estimating percent of habitat loss infers a net loss in the carrying capacity. The range is between a minimum viable population level and the natural carrying capacity.

   Habitat is rarely "lost", but it is altered, offering a new type of habitat benefitting new or different species. The alterations are within the tolerances of existing or indigenous species utilizing that habitat for a part of their life cycle.

4. See the comments on the State of Alaska response (No. 5).

5. See the comments on the Southeast Alaska Conservation Council response (No. 1).

6. The 960 MM bm is well within the program harvest established by TLMP which take into account reductions for wilderness and other roadless management plus protection policies.

7. See section V-F of the FES.

8. There is approximately 200 MM bm of residual timber all of which is included in Alternatives 4 and 5 and is displayed on the maps.

9. The stumpage rates will not decrease. We anticipate stumpage receipt plus purchaser credit for road construction to equal the past 5-year period. There have never been, nor is there any planned federal subsidies to the timber industry.

10. See the comments on the Southeast Alaska Conservation Council response (No. 2).

11. The purchaser is liable for the loss of volume which might occur during transport of logs from forest to processing plant. There is a system of log accountability to protect the interest of the United States.

12. Marginal and special components of the timber harvest are estimated to comprise the following percentages based on air photo evaluation of Alternative 4.

Unregulated	Special	Marginal
5%	21%	12%

The contract does not need to speak to the degree of harvest by timber classification as the timber appraisal makes adjustment for economic considerations which lay behind the classifications.

This has been greatly discussed in the Tongass Land Management Plan FES that will be released prior to the ES. We reference this document as a more appropriate one to address this issue.

13. Importation of Canadian chips or procurement of logs from private sources do not affect the purchaser's contractural rights to harvest 960 MM bm.

14. This is not within the scope of this ES. See the TLMP FES.

15. Primary manufacture in Alaska is required except for special value products for which there is no local market. The Regional Forester's permission is required for such export. The recent export of small hemlock sawlogs for manufacture in the Pacific Northwest was to determine feasibility of local sawmilling such logs for higher value recovery than from pulping.

16. The Forest Service referenced the sources in the DES. See page 19 of the DES.

Petersburg Conservation Society
Petersburg, Alaska
January 28, 1979

USDA Forest Service
Federal Building
Ketchikan, Alaska 99901

RE: DEIS, LPK Timber Sale Plan 1979-84

Dear Sirs:

The Petersburg Conservation Society appreciates the opportunity to comment on the Draft Environmental Impact Statement for the Louisiana Pacific Timber Sale Plan, 1979-84 operating period.

Although this timber sale is outside the Stikine district, the planned activities are of concern to the people of the Petersburg area. There are major salmon producing streams in the sale area on which the fishermen of Petersburg depend. There are shellfish areas in bays some of which have already been affected by logging related activities and other areas will be affected under this plan. There are prime recreation areas, particularly for hunting and fishing, used by Petersburg residents that are proposed for entry under this plan.

A review of the DEIS indicates that the preferred alternative, if implemented, will violate several national forest policies, Alaska's Water Quality Standards, and policies set forth in the Southeast Alaska Area Guide.

1 Limitations on Clearcut Size
The size of clearcuts proposed in this DEIS does not conform to stated national policy. A "Dear Friend" letter from Chief of the Forest Service,

John McGuire(p.3, dated November 15, 1978) has this to say on "Size limitations of clearcuts":

> "At one time larger clearcut areas were common in the West, but because of public concern, the average size of clearcuts in the West is now less than 30 acres."

In this DEIS we find(p 25-27) that the average clearcut size in the Alternatives considered is not less than 70 acres and reaches 82 acres in Alternative 1. Alternatives provide for 6 to 17 units of 160 acres or larger and the maximum size of units range from 199 to 546 acres. In the preferred alternative we find the average size of clearcuts is 77 acres. Twelve units are 160 acres or larger. The size range is from 9 to 199 acres.

While even the maximum clearcut size of 546 acres is a great improvement over the thousands of acres of continuous clearcutting of the past, these alternatives are all seriously at variance with what is stated national Forest Service policy.

The Forest Service either needs to admit that it has no policy against these large clearcuts, or it should adhere to what is stated policy.

Prohibition of Steep Slope Logging

"The Watershed Report for the LPK Timber Sale Plan for 1979-84" has this to say(p. 14):

> "Implementation of the timber harvest alternatives(1,3,4,and5) will generally result in impacts of increased soil erosion, lower soil productivity, increased water quality(error?), and increased stream sedimentation."

2 As a Federal agency, the Forest Service is required by law, PL-92-500, to comply with Alaska's Water Quality Standards. Not only will the action proposed violate the Water Quality Standards, but it is contrary to stated Forest Service policy.

Increases in stream sedimentation for a period of 1-5 years(p. 33) can scarcely be described as temporary. Likewise, temperature changes
3 above and below natural levels for periods of 10-15 years (p. 34) are not changes to be given such cursory treatment.

The map of proposed cutting areas for Alternative 4, the preferred alternative, indicates that numerous units proposed for cutting lie on steep slopes. Data should be presented to indicate just how many of the 359 units in this alternative lie on slopes in excess of 35%-
4 75% where there is increased risk of slope failure. On page 32, the statement is made that alternatives 3.4. and 5 call for more timber harvesting on steep slopes than alternative 1. Regardless of the provision for "appropriate logging systems" and "mitigating actions", experience has shown that in the 5 to 7 year period, when tree roots have deteriorated, we can expect a high incidence of mass wasting.

Recreation, Wilderness and Esthetic Values

5 Important areas regarding these values in the long-term sale area are:

- Honker Divide(incl. Barnes Lake, Sweetwater Lake and Hatchery Creek)
- Salmon Bay Lake
- Sarkar Lakes
- Red Bay
- Karta River System(incl. Salmon Lake)
- Port Protection and Point Baker

We feel that it is important that there be no further cutting in these areas. There is very little left of the northern portion of Prince of Wales Island. The map of proposed cutting under the various alternatives does not show the cutting that has taken place outside the sale area.

A once popular sport fishing area with Forest Service cabin was Luck Lake. Why is it not included in the list showing Recreation Cabin use? If it is still being maintained, what is the current usage?

6 Esthetics does not appear to be as great a consideration for recreation along the Thorne Bay-Stanley Creek road system, Hollis, Traitors Cove or the west shore of Revillagigedo Island. These areas have already been subjected to extensive clearcutting.

7 In the "Recreation and Visual Resources Specialist Report"(p. 7) Calder Mountain area, Klawak Mountains, Salmon Bay and parts of the Red Bay Lake area are rated as having the highest quality, most distinctive and diverse landscapes in the area. We find, however, that Salmon Bay, Red Bay and Calder Mountain are all areas slated for logging under the preferred alternative.

The most severe impact appears to be on Port Protection. The above report states that "this VQO has not been met because of two 74 - 79 units that dominate the view toward the head of the bay." Alternatives 3 and 4 only come close to following the 79-84 guidelines.

8 It seems strange that the importance of visual quality of the land seen from the communities of Point Baker and Port Protection should not be given more importance. The quality of landscape viewed by year-round residents should be rated at least as important as that seen by tourists along the Marine Highway route.

The volume of cutting under the preferred alternative cannot be justified if it is necessary to sacrifice the esthetic values of the Point Baker-Port Protection area, Sarkar Lakes, Salmon Bay, Red Bay and Sweetwater Lake.

Island Road System

9 The DEIS mentions that road links are proposed not for the purpose of harvest, but for the purpose of linking logging communities, for social reasons. This does not seem like a reasonable investment of federal monies during a time of budgetary cutbacks, especially when many of the camp locations are temporary. It is even more ill-advised when one considers that roading often has the greatest negative impact on fisheries of any of the forest activities.

10 Fisheries

We feel that the protection of salmon streams at cutting and roadbuilding sites and the protection of estuaries, shellfish, bottomfish and migratory species at dump locations is inadequately addressed in this DEIS.

Economics

11 The DEIS fails to justify the need to harvest 960 MMbf of timber during the 5 year operating period. Considering present market conditions for pulp, this appears in excess of current needs. The recent request by LPK for export of round logs to Pacific Northwest mills on a long-term basis indicates a surplus over and above what is needed by its pulp and cant mills. This will result in exporting primary processing jobs out of southeast Alaska.

12 Economic stability in the Ketchikan area is much more dependent on market conditions than on a large volume of available timber. High operating costs are the result of logging a virgin forest for pulp in an area of high labor costs. The LPK mill is in a poor competitive position compared to modern mills using a high percentage of waste materials and wood from tree farms with 25 year rotation periods.

13 Herein lies a tragic fallacy in management. The valuable timber in the Tongass is old growth saw logs, which are much in demand in Japan and often can't be replaced by competeing species from other parts of the world(as opposed to pulpwood, which is far more competitive elsewhere). Logic would dictate management of the forest for the most valuable and competitive comodity--old growth saw logs; but instead, we see a rapid conversion of the old growth forest to short rotation pulp timber stands, to the detriment of the future economy of this region.

14 The reference on page 57 to "positive dollar returns" needs to specify the beneficiary--LPK or the US Treasury? We need to know, in terms of dollars, what we are getting over and above the costs of administration, road construction, reforestation and other rehabilitation required on cut-over land. We need to know the current stumpage to be paid during this 5 year period of the 50 year timber sale. Is this to continue to be a deficit sale?

Conclusion

15 Alternatives 1 & 2 should not be included as valid alternatives. Number 1 violates almost every guideline for good forest practices. It also provides for entry into the Karta River drainage proposed for Wilderness Designation by USDA Secretary Bergland. Alternative 2 can not be implemented without cancellation of the 50 year timber sale contract, which seems improbable, although the sale does need to be renegotiated in order to protect other forest resouces, comply with the Southeast Area Guide and meet the standards of the National Forest Management Act.

The sale should pay for itself and yield a return to the US Treasury.

Alternatives 3, 4, and 5 will violate Alaska's Water Quality Standards, result in increased soil erosion, lower soil productivity and provide for clearcuts larger than is stated USFS policy. The preferred alternative allows for a great deal of logging on over-steep slopes.

Protection of fish streams and estuaries is inadequate or inadequately addressed.

With exception of alternative 5, all provide for entry into important roadless areas. The preferred alternative will have a catastrophic impact on Point Baker and Port Protection.

Keeping in mind the above concerns, Alternative 5 has the most potential for becoming acceptable, but details in the DEIS are lacking and the alternative must be brought into compliance with the Southeast Area Guide and the National Forest Management Act.

16 In the Final EIS we would like to see, in addition to the additional information requested above, as much information as is available on:

- the use of timber over the last 5 year plan
- current inventory of logs
- importation of chips from Canada
- the export of logs to other states
- available blow-down timber from the Nov'78 storm on Prince of Wales

We will appreciate recieving a copy of your Final EIS. It may be sent to PO Box 630, Petersburg AK 99833.

Sincerely,

Thomas H. Wood
President, Petersburg Conservation Society

FOREST SERVICE COMMENTS ON THE
RESPONSE OF PETERSBURG CONSERVATION SOCIETY

1. The Forest Service policy for clearcut size limitations on the Tongass National Forest is listed on page 110 of the "Southeast Alaska Area Guide" and states:

> "there is established a maximum size limit of 160 acres to be cut at one place and time. The established limit may be exceeded only after appropriate public notice and review by

the responsible Forest Service Officer one level above the Forest Officer who normally would approve the harvest proposal. Such limits will not apply to the size of the area cut as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm."

2. The Forest Service requires compliance with the Water Quality Standards. The section on "Watersheds" has been rewritten to clarify this point.

3. Short term is a standard term in wildland planning which means less than 5 years. We recognize that to the layman, this may seem too long. The severity and consequence of the impact is more important than the duration. The "Effects" section in the FES has been rewritten in response to many of the comments.

4. Table 5 in the FES provides this information. See also the discussion of Mass Soil Movement in the "Soils" section.

5. The decision to cut or not to cut has been made through the Tongass Land Management Plan. The LPK 5-year plan ES is concerned with how to best accomplish the cutting, roadbuilding, and related activities.

6. Esthetics are a prime consideration in these areas.

7. The Red Bay and Calder Mountain areas already have extensive cutting and roading. See Section V-F of the FES concerning salvage of blowdown. Salmon Bay and the Klawock Mountains have no proposed cutting.

8. No cutting units are visible from Point Baker or Port Protection.

9. See comments on the State of Alaska response (No. 5).

10. Section V of the FES has been rewritten to better address this concern.

11. See comment on the Tongass Conservation Society response (No. 15).

12. See comment on the Southeast Alaska Conservation Council response (No. 2).

13. About 40 percent of the old-growth timber is defective and not suitable for sawlogs. This is the component of the old growth that goes into pulp. The converted second-growth stands are planned for sawlogs, not pulp, as some people think. These second-growth stands at rotation age (about 100 years) will contain about twice the utilizable volume per acre than old growth.

14. This is in reference to the U.S. Treasury, not LPK. The sale is not now deficit, nor do we expect it to be in the future.

15. See comment on the State of Alaska response (No. 2).

16. See comments on the Tongass Conservation Society response.

FEDERATION OF WESTERN OUTDOOR CLUBS

Established for Mutual Service and for the Promotion of the Proper Use, Enjoyment and Protection of America's Scenic, Wilderness and Outdoor Recreation Resources

1978-1979

President: Karen M. Fant
5119 ½ 27th N.E. Seattle, Wa. 98105

Vice President: Helen Engle
4011 Alameda, Tacoma, Wa. 98466

Secretary: Virginia Danke
E. 1103 14th, Spokane, Wa. 99202

Treasurer: Blythe O. Edwards
[illegible] E. 53rd, Maywood, Ca. 90270

MEMBER CLUBS

Alpine Roamers
Wenatchee, Washington
Angora Hiking Club
Astoria, Oregon
Berkeley Hiking Club
Berkeley, California
Boeing Employees Alpine Society
Seattle, Washington
California Alpine Club
San Francisco, California
Cascade Wilderness Club
Bellingham, Washington
Cascadians
Yakima, Washington
Chemeketans
Salem, Oregon
Contra Costa Hills Club
Oakland, California
Crag Rats
Hood River, Oregon
Desomount Club
Los Angeles, California
Hobnailers
Spokane, Washington
Idaho Alpine Club
Idaho Falls, Idaho
Inter Mountain Alpine Club
Richland, Washington
Klahhane Club
Port Angeles, Washington
McKenzie Guardians
Blue River, Oregon
Montana Wilderness Association
Bozeman, Montana
Mountaineering Club of Alaska
Anchorage, Alaska
Mountaineers
Seattle, Washington
Mt. Baker Club
Bellingham, Washington
Mt. St. Helens Club
Longview, Washington
Obsidians, Inc.
Eugene, Oregon
Olympians, Inc.
Hoquiam, Washington
Olympic Peninsula Audubon Society
Sequim, Washington
Palouse Audubon Society
Moscow, Idaho
Ptarmigans
Vancouver, Washington
Reed College Outing Club
Portland, Oregon
Regional Parks Association
Berkeley, California
Rimrock Mountaineers
Coulee Dam, Washington
Roamer Hiking Club
Inglewood, California
Rocky Mountaineers
Missoula, Montana
Santiam Alpine Club, Inc.
Salem, Oregon
Seattle Audubon Society
Seattle, Washington
Sierra Club
San Francisco, California
Skagit Alpine Club
Mount Vernon, Washington
Snake River Audubon Society
Idaho Falls, Idaho
Southeastern Alaska
Mountaineering Association
Ketchikan, Alaska
Spokane Mountaineers, Inc.
Spokane, Washington
Summit Alpine Club
Tacoma, Washington
Tahoma Audubon Society
Tacoma, Washington
Tamalpais Conservation Club
San Francisco, California
Trails Club of [illegible]
Portland, O[illegible]
Wanderers
Ol[illegible]
W[illegible]
W[illegible]
Seattle, Washington

State Vice Presidents:
[illegible] Wood, Dixie Baade, Alaska
[illegible]y Reeves, Martin Litton, California
[illegible] M. Slansky, Idaho
[illegible]eth Baldwin, Larry Culp, Montana
[illegible]e Ralston, Oregon
Bru[illegible] Holsom, Dennis Elliot, Washington

OUTDOORS WEST
Ha[illegible]A. Wolf,
512 [illegible]ylston Ave. E. #106
Sea[illegible], Wa. 98102

Washington D.C. Representative:
Brock Evans,
330 Pennsylvania Ave. S.E.
Washington, D.C. 20003

Northwest Representative:
Douglas Scott,
4534 ½ University Way N.E.
Seattle, Wa. 98105

Ed Johnson
P. O. Box 71
Petersburg, Alaska
January 27, 1979

J. S. Watson
Forest Supervisor
Ketchikan Area Office
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

For some reason I have again been removed from the mailing list of the Ketchikan area office. I just learned two weeks ago that the Draft Environmental Impact Statement for the LPK Timber Sale 1979 - '84 operating period had been released over a month ago. It was not possible for me to obtain my own copy for review in time to comment by next week's deadline. For this reason, my comments are incorporated in those of the Petersburg Conservation Society.

Since I have again been elected a Federation of Western Outdoor Clubs vice-president, I need to be informed as to activities throughout southeast Alaska.

My comments on the Draft Environmental Statement may be briefly summarized as follows:

(1) Implementation of all alternatives with the exception of # 2 will result in increased soil erosion, lower soil productivity and increased stream sedimentation. This will violate Alaska's Water Quality Standards as well as stated Forest Service policy.

2 (2) The preferred alternative will provide for numerous cutting units on steep slopes. This is contrary to stated Forest Service Guidelines.

3 (3) All alternatives provide for average clearcut size in excess of 30 acres. According to Forest Service Chief, John McGuire, the average size of clearcuts in the west is now less than 30 acres.

If this actually is Forest Service policy, then it needs to be followed in Alaska. To do otherwise widens an already large credibility gap. One thing is written on paper. What happens in practice is something else.

(4) Specialists reports admit there will be stream sedimentation, temperature changes and alteration of stream flows all of which will have an adverse impact on the fishery. The Southeast Area Guide was very poor in its provisions for protection of fish streams as was the section on water. Unfortunately even those protective provisions in the Guide are all too often not followed in practice.

4 (5) A specialists report admits there will be a reduction in certain wildlife populations. The decision to go ahead with cutting plans in the face of this indicates a lamentable willingness to sacrifice our fish and wildlife populations to the short term interest of the timber industry.

Among wildlife populations sure to be adversely affected are the Sitka blacktail deer, marten, mink, otter and timber wolves.

Forest bird populations have been virtually ignored. Among those adversely impacted are the hole nesting, insectivores. Their activities will no doubt be replaced by the need for pesticides.

5 (6) No data is presented to justify the need for a 5 year harvest of 960 MM bm. Economic stability in the Ketchikan area is much more dependent on market conditions than on a large volume of available timber. The LPK mill is in a poor competetive position in respect to the more modern mills using cheaper raw materials.

6 (7) No data is furnished to indicate what stumpage is to be paid or whether this is to continue to be a deficit sale.

7 (8) All viable alternatives (this excludes 1 and 2) with the exception of number 5 provide for entry into important roadless areas. Considering how little is left in a natural state on the northern part of Prince of Wales Island, it is important that these areas, recognized in the Recreation and Visual Resources Specialist Report, be protected from further logging.

I will appreciate receiving copies of the Specialists reports that accompanied the Draft E.I.S. I will also appreciate a copy of the final E.I.S. May I please be reinstated on the Ketchikan area office mailing list.

Sincerely yours,
Dixie M. Baade
Mrs. Dixie M. Baade
vice president for

FOREST SERVICE COMMENTS ON THE
RESPONSE OF FEDERATION OF WESTERN OUTDOOR CLUBS

1. See comment on the Petersburg Conservation Society response (No. 2).

2. See comment on the Petersburg Conservation Society response (No. 4).

3. See comment on the Petersburg Conservation Society response (No. 1).

4. The adverse effect on Sitka blacktail deer was shown in table 10 and figure 2. The impacts on furbearers will be as a result of increased demand and utilization of the resource rather than habitat modification.

   Perhaps forest bird populations were not emphasized as they could have been. Table 10 does show an adverse impact on old growth obligate birds for all cutting alternatives. Table 9 recognizes six brood Categories of avian wildlife and the corresponding needs of the WHMA to maintain near natural levels.

5. See comment on the Southeast Alaska Conservation Council response (No. 2).

6. This has never been a deficit sale. See comment on the Tongass Conservation Society response.

7. Only Alternative 1 would result in entering any individual roadless area singled out by any public group for Wilderness management. Due to decisions of TLMP and RARE II, the option remains open for entering these areas in future planning periods, should there be a need.

Louisiana-Pacific Corporation

Ketchikan Division

Post Office Box 6600
Ketchikan, Alaska 99901, U S A
Telephone 907-225-2151
Telex 099-55-251
Answer back KAYPULPCO KET

January 18, 1979

Mr. James Watson, Forest Supervisor
USDA, Forest Service
Federal Building
Ketchikan, Alaska 99901

Dear Mr. Watson:

Following are comments on your Draft Environmental Statement for the 1979-1984 period of the LPK Long Term Sale.

1 There is no mention in this draft of how advance roads are to be handled for the 1984-89 period. This is an important consideration in that without identifying advance road and units for the next period the Sale cannot proceed in a progressive manner. There must be one and one-half seasons of the next period's operating area showing roads and units so that engineering and construction of these roads can be completed at least one year ahead of logging.

2 It must be recognized by the Forest Service that there are limitations to full suspension yarding. In order to fully suspend logs while yarding, the ground must lay in a manner that will allow for cables, choker and suspended log clearance. It is essential that the Forest Service, prior to committing to full suspension, examine the ground to make sure there is adequate deflection so that it is physically possible to fully suspend.

3 In comparing the roads described in the text with those shown on the maps there appears to be some inconsistency. This should be clarified in the final EIS.

4 A determination as to the exportability of cedar during the 1979-84 period must be made before finalization of the EIS. There are units containing a large percent of cedar that will not be acceptable to LPK if cedar export is restricted. There should also be a section explaining the benefits of flexible log marketing restrictions so that logs surplus to the pulp operation can be marketed to a higher use.

It is imperative that all IDT reviews of harvest units be completed in a timely manner. Releases for roads and cutting units to be logged to those roads must be presented to LPK at least sixty days prior to construction of these roads. Anything less than the above will result in delay of LPK operations.

The following comments are addressed to the "Operating
5 Guide Lines for Timber Sale Layout".

There should be an Item (7) added to the Timber Section:

(7) Logging systems must be economical and within the state of the art presently in use in the South Tongass.

Fish stream habitat.

Modify Item 2 to read:

Where necessary to yard across a designated fish stream, stream banks must be protected by full suspension, bridging, or other means agreed to by the purchaser and Forest Service.

The comments on culvert installations in Item 5 should be referenced in the typical drawings. Provision in these drawings should recognize known methods of protecting stream beds and reference made to innovations that are acceptable to Forest Service and purchaser and will accomplish stream bed protection.

Item 8b is not clear in that it can be read to mean that there must be a twenty chain leave strip on the N, NE, E, and SE side and a ten chain leave strip on the S, SW, W and NW side. It should be changed to make clear that the objective is to not open areas of any greater length along the stream of twenty and ten chains respectively.

Log Transfer Sites and Raft Storage Areas.

There should be an Item A4 and 5 that states the following:

A4 The site must have adequate water to float bundles at all stages of tide.

A5 The site must be protected from prevailing winds and ocean swells.

Add to last sentence of Item B6....or modify standing boom to enhance the above uses.

Add an Item B7:

B7 There must be a rock source adjacent to the site and the length of haul to the site from the timber should be minimized.

Add the following to Item C1....as long as the site is protected from prevailing winds and ocean swells.

Add the following to the final paragraph of Log Transfer Section.

But the safety of the people involved in the log transfer operation overrides the protection of the fishing resource.

6 In reference to your maps of the alternative 1, there is no log transfer site shown for Hassler Island.

Alternative IV shows no site for Hassler or Roaring Hole.

The log transfer site for Marble Island is located too far from the timber and will require the construction of one mile of road that could be eliminated if the site were located in Marble Passage.

Thank you for the opportunity to comment. I hope the above will be given consideration in the Final EIS.

Very truly yours,

George Woodbury
Logging Manager

hr

FOREST SERVICE COMMENTS ON THE
RESPONSE OF LOUISIANA-PACIFIC CORPORATION (GEORGE WOODBURY)

1. With the implementation of the RARE II and TLMP decisions, future advanced roads will be handled through the EAR process as there will be no roadless areas other than those allocated to Wilderness or roadless management (LUD 2).

2. The Forest Service recognizes the limitations to full suspension yarding and plans to coordinate unit layout with logging engineers as well as soil scientists on critical areas.

3. The maps have been corrected.

4. The exportability of cedar will continue to be governed by Section 1(g) of the contract. We will continue to evaluate the local market conditions and if changes in the current situation develop, we will hold public hearings before changing our present policy on redcedar exports. As to the benefits of flexibility in log marketing for materials surplus to the needs of the pulp operation; this was recognized at the time of drafting the contract. Section 22 of the contract is explicit in its provision for the purchasers commitment to the development of facilities for processing materials excess to the needs of the pulp enterprise.

5. The operating guides were given to the purchaser in September 1976 for comment and use in selecting cutting units. The guidelines are not all inclusive or governing in every aspect of timber sale layout. To the extent, LPK's suggestions are not in conflict with the "Southeast Alaska Area Guides," they are accepted.

6. The maps have been corrected to show the log transfer sites at Hassler and Roaring Hole. The final location for the transfer site on Marble Island has not been resolved due to the heavy snow cover at the various sites. National Marine Fisheries and U.S. Fish and Wildlife have recommended a site at the northeast corner of the island.

X. REFERENCES

Gregory, R. A.
1956. The effect of clearcutting and soil disturbance on temperatures near the soil surface in southeast Alaska. U.S. Dep. Agric., For. Serv., Alaska Reg., For. Res. Cent. Stat. Paper No. 7, 22 pp., illus.

Miller, John F.
1963. Probable maximum precipitation and rainfall frequency data for Alaska, for areas to 400 square miles, durations to 24 hours, and return periods from 1 to 100 years. U.S. Dept. Com., Weather Bur. Tech. Paper No. 47,. 69 pp., illus.

Federal Register
1976. 36 CFR 800 Vol. 41., No. 28., February 10. U.S. Govt. Print. Ofc., Washington, D. C.

Moser, J. F.
1902. The salmon and salmon fisheries of Alaska. Vol. II,. U.S. Govt. Print. Ofc., Washington, D.C.

National Register of Historic Places
1978. Vol. 43, February 7. U.S. Govt. Print. Ofc., Washington, D.C., plus monthly updates through Vol. 43, No. 243, December 5, 1978.

Ruth, R. H., and A. S. Harris
1973. Western hemlock - Sitka spruce. In Silvicultural systems for the major forest types of the United States. U.S. Dep. Agric., For. Serv., Agric. Handb. No. 445, pp. 5-7.

Ruth, R. H., and R. A. Yoder
1953. Reducing wind damage in the forests of Oregon Coast Range. U.S. Dep. Agric., For. Serv., Pac. Northwest For. and Range Expt. Sta., Res. Paper PNW-7.

Petroff, I.
1884. Report on population, industries, and resources of Alaska. In U.S. Dep. Interior, 10th Census, 1880.

Rabich, J. C.
1978. The archeological potential of Red Bay V.C.U.'s 532 and 533. U.S. Dep. Agric., For. Serv., Alaska Reg., Tongass Natl. For., Ketchikan Area. Unpub. paper.

Sealaska Corporation
1975. Native cemetery and historic sites of southeast Alaska. Wilsey and Ham, Inc., Seattle.

Taylor, R. F.
1934. Yield of second-growth sestern hemlock-Sitka spruce stands in southeastern Alaska. U.S. Dep. Agric., For. Serv., Tech. Bull. No. 412.

U.S. Department of Agriculture, Forest Service
1974. Ketchikan Pulp Company Timber Sale, 1974-79 operating period. Final Environmental Statement.

U.S. Department of Agriculture, Forest Service
National Forest Landscape Management, Vol. 2.

U. S. Department of Agriculture, Forest Service
The forest ecosystem of southeast Alaska. (It describes the setting, forest insects, fish habitats, wildlife habitats, soil mass movement, Forest diseases, Forest ecology and timber management, water, timber inventory, harvesting, marketing and trends; and outdoor recreation and scenic resources.)

U.S. Department of Agriculture, Forest Service, Alaska Region.
1963. Timber management plan for the Ketchikan-Craig working circle, Tongass National Forest.

U.S. Department of Agriculture, Forest Service, Alaska Region.
1978. Tongass land management plan task force working reports. TLMP-1 through 8. (These reports cover such topics as landtype/-timber, fisheries, wildlife, minerals, wilderness and recreation, and socioeconomic overview.

Wright, F. E., and C. W. Wright
1908. The Ketchikan and Wrangell Mining Districts, Alaska. USDI Geol. Surv. Bull. 347.

Also, specialists working on this plan wrote detailed reports on their subjects. These unpublished reports are available on the following topics by request from the Ketchikan Area Office, Forest Service, USDA, Federal Building, Ketchikan, Alaska 99901: Soils and Watershed, Fisheries, Wildlife, Cultural Resources, and Recreation and Visual Resources.

XI. GLOSSARY

Alevin

A salmoid fish fry on which the yolk sac is still apparent.

Ambient (Surrounding; on all sides; condition or situation surrounding a point or object on all sides.

Habitat

The natural environment or place of existance of a plant or animal.

Landscape Management Terminology

Character Type

An area of land that has common distinguishing visual characteristics of landform, waterforms, and vegetative patterns. Used as a frame of reference to rate physical features of an area as to their degree of scenic quality.

Visual Quality Objectives

Measureable standards for management of the natural landscape. These standards or objectives each describe a different degree of acceptable alteration of the natural landscape.

Preservation

Management activities, except for very low visual impact recreation facilities, are prohibited. Allows only ecological changes.

Retention

Management activities must not be visually evident.

Partial Retention

Management activities can be visible but must be visually subordinate to the characteristic natural landscape.

Modification

Management activities may visually dominate the original characteristic landscape. However, visual characteristics of management activity must borrow from those of natural occurrences within the surrounding area.

Maximum Modification

Management activities may dominate the natural landscape. When viewed from foreground or middleground viewing positions, they may not borrow from the natural landscape. But, when viewed from background positions, the activity must have the visual characteristics of the natural landscape.

Unacceptable Modification

Overall extent of management activity is excessive. Size of activity is poorly related to the scale of landform and vegetative patterns in a characteristic landcape.

Mean Annual Increment

The total volume of a stand of trees divided by the age of the stand.

Niche

A site or habitat supplying the factors necessary for the sucessful existence of a species.

Site Index

A numerical evaluation of the quality of the land for forest productivity, determined by the rate of growth in height of one or more species of trees.

Threshold Point

The point at which a stimulus is just strong enough to be perceived or produce a response.

V-Notch

V-shaped, steep-walled, incised drainages that cut the sideslopes of glaciated valleys along zones of geologic weakness or post glacial channeling.

Alternatives

- Considered--26
- Consultation--81
- Effects of Implementation--28-76
- Evaluation of--76
- FS Preferred Alternative--79
- Management Requirements--80

Alternative 1--27, 29, 36, 40, 52, 54, 64, 68, 72, 73, 75-78, 80, 82

Alternative 2--27, 30, 36, 40, 58, 64, 69, 72-73, 75-78, 82

Alternative 3--27, 30, 37, 40, 52, 54, 58, 64, 69, 72, 73, 75-79, 82

Alternative 4--27, 30, 37, 40, 52, 54, 58, 65, 69, 72, 74-80, 82

Alternative 5--28, 31, 37, 40, 52, 54, 58, 65, 69, 72, 74, 76-79, 82

Atmosphere--76

Economic Aspects--21

- Federal Government--21-23
- Timber--21-22, 25-27, 60-70, 77, 79-80
- Tourism--22

Effects

- Employment--66-67, 78-79, 80
- Fish--38-48, 50-52
- Human Population--70
- Lakes--73-74
- Recreation--50, 67-72
- Socioeconomic--66, 67, 68, 69
- Streams--31-37, 40-44, 48, 51
- Soil--29-30, 33, 37
- Timber--30, 60-65, 77
- Vegetation--59-61
- Visual--72-76
- Wilderness--72
- Wildlife--52-58
- Wildlife Population--54

Environment

- Climate--4
- Fauna--9
- Flora--8
- Geography--4
- Recreation--12, 13, 67, 68-70
- Roads--16-20, 78
- Soil--5, 11, 29-31
- Visual Quality--72-74, 82
- Water--6-7, 31-37
- Wildlife Habitat--52-58, 72-74, 77

Cultural Resources

Archaeological Sites--75, 80

Fish

Commercial--21-23, 45
Crab & Shrimp--48
Effects on--37-40
Habitat--38, 42-52
Salmon--43-46, 47, 48

Stream sedimentation--40-41

Prince of Wales Island--1, 2, 14, 16, 18, 19-20, 25, 33, 61, 65, 67-72, 76, 79

Revillagigedo Island--1, 2, 14, 16, 71-72, 76

Visual Management System--73

Transportation

Air--16, 17
Roads--16-19, 26-28, 31, 33, 36, 45, 68-73, 77-78
Water--16, 17, 26, 68, 73-74

XIII. APPENDIX

United States Department of Agriculture
Forest Service

AGREEMENT TO MODIFY CONTRACT
(Timber Sale)

Contract No. Alofs - 1042

1. It is mutually agreed that the above designated timber sale contract, signed by L. Turcotte, President, Ketchikan Pulp and Paper Co. of Bellingham, Washington hereinafter called the purchaser and by C. M. Granger, Acting Chief (Name), Forest Service (Title) for the United States of America as of the 15 day of December, 1977 6/as heretofore modified, be modified as follows: Add: 35(n) Advanced Transportation Facilities Construction

Purchaser is authorized to construct, during a current five-year operating period, certain transportation facilities, such as: Specified roads, bridges, and other transportation facilities that will be needed for the next ensuing five-year period; provided that the beginning point for estimating these advance facilities shall be from either (a) the terminus shown on the current five-year operating plan, or (b) the terminus of a mutually agree to alternate facility, or (c) a terminus adjusted under provisions of Section 35(b); and provided that any facility approved fro construction under terms of this section shall be added to Table A2 before construction begins.

It is provided further that no facility shall be approved for construction under (a) and (b) of this section until such time as the Five-year operating plan for the next ensuing five-year operating period has been approved by the Regional Forester. It is provided further that facilities constructed under terms of this section shall be used only for operations for the ensuing five-year operating period.

See Attachment

Draw a diagonal line with pen and ink in unused portion of form.

2. Pursuant to this mutual agreement, the purchaser hereby agrees to cut and remove timber in strict accordance with all and singular the terms and provisions of the aforesaid contract as herein modified.

IN WITNESS WHEREOF, the parties hereto have executed this modification of contract as of the 1/ _____ day of _____, 19____.

UNITED STATES OF AMERICA

By: _____ John A. Sandor, Regional Forester
(Signature of approving officer) (Title)

Two witnesses: 2/

_____ (Name of witness)

_____ (Address)

_____ (Name of witness)

_____ (Address)

_____ 3/ Purchaser

Ketchikan Pulp Co.

P. O. Box 6600

Ketchikan, Alaska 99901 Purchaser's Business Address

I, 4/ M.R. Pihl, certify that I am the ASST. SECRETARY Secretary of the corporation named as purchaser herein; that D.L. FINNEY who signed this contract on behalf of the purchaser, was then VICE PRESIDENT of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

M.R. Pihl

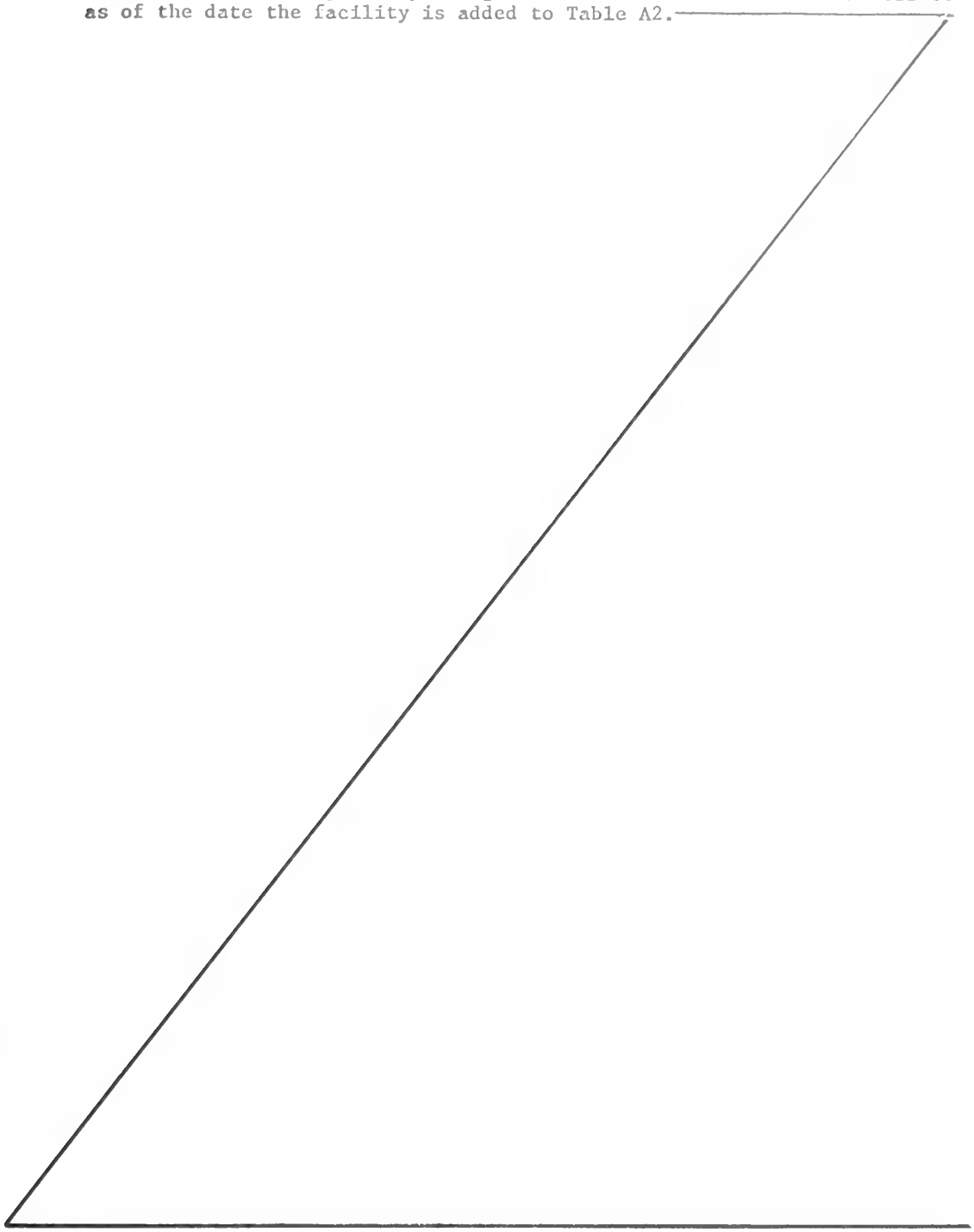
CORPORATE SEAL 5/

1/ The date approving Forest officer signs this form.
2/ The signatures and addresses of two witnesses are required if sale is to other than a corporation.
3/ If contracting party is a co partnership the signatures should be "XYZ Company by John Doe *a member of the firm*." If contracting party is a corporation, form of signature should be "XYZ Company, by John Doe, *President (or other officer or agent)*" and the seal of the corporation must be impressed or indicated.
4/ The certificate must be completed if the purchaser is a corporation.
5/ If the corporation has no corporate seal that fact shall be stated, in which case a scroll or adhesive seal shall follow the corporate name.
6/ Delete "as heretofore modified" if not applicable.

2400-9 (3/69)

CONTINUATION OF AGREEMENT TO MODIFY CONTRACT - Alofs - 1042, 15 December 1977, Section 35 (n).

Purchaser Credit Limit for facilities constructed under terms of this section shall be computed by using current unit costs that are in effect as of the date the facility is added to Table A2.



United States Department of Agriculture
Forest Service

AGREEMENT TO MODIFY CONTRACT
(Timber Sale)

Contract No. A10fs-1042

1. It is mutually agreed that the above designated timber sale contract, signed by L. Turcotte, President, Ketchikan Pulp and Paper Company of Bellingham, Washington hereinafter called the purchaser and by C.M. Granger, Acting Chief (Name), Forest Service (Title) for the United States of America as of the 26th day of July 1951 6/as heretofore modified, be modified as follows:

Modify table of unit costs by inserting the following items:

Transport Portable Bridges from Seattle to Ketchikan.	$10.69/Lin. Ft.
Installation of Portable Bridges.	$69.50/Lin. Ft.
Removal of Portable Bridges.	$59.00/Lin. Ft.
Land Haul of Portable Bridges.	$00.10/ft./mile
Water Haul of Portable Bridges	$00.19/ft./mile

Draw a diagonal line with pen and ink in unused portion of form.

2. Pursuant to this mutual agreement, the purchaser hereby agrees to cut and remove timber in strict accordance with all and singular the terms and provisions of the aforesaid contract as herein modified.

IN WITNESS WHEREOF, the parties hereto have executed this modification of contract as of the 1/ _____ day of _____, 19____.

UNITED STATES OF AMERICA

By: JOHN A. SANDOR, Regional Forester
(Signature of approving officer) (Title)

Two witnesses: 2/

_____ (Name of witness)

_____ (Address)

_____ (Name of witness)

_____ (Address)

Merle A. Mosar 3/ Purchaser

Ketchikan Pulp Company

P.O. Box 6600

Ketchikan, Alaska 99901 Purchaser's Business Address

I, 4/ M. R. PIHL, certify that I am the Asst. Secretary of the corporation named as purchaser herein; that Merle A. Mosar who signed this contract on behalf of the purchaser, was then Vice President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

M. R. Pihl

CORPORATE SEAL

1/ The date approving Forest officer signs this form.
2/ The signatures and addresses of two witnesses are required if sale is to other than a corporation
3/ If contracting party is a co-partnership, the signatures should be "XYZ Company, by John Doe, *a member of the firm.* If contracting party is a corporation, form of signature should be "XYZ Company, by John Doe, *President (or other officer or agent)* and the seal of the corporation must be impressed or indicated.
4/ The certificate must be completed if the purchaser is a corporation
5/ If the corporation has no corporate seal that fact shall be stated, in which case a scroll or adhesive seal shall follow the corporate name.
6/ Delete "as heretofore modified" if not applicable.

2400-9 (3/69)

United States Department of Agriculture
Forest Service

AGREEMENT TO MODIFY CONTRACT
(Timber Sale)

Contract No. A10fs-1042

1. It is mutually agreed that the above designated timber sale contract, signed by L. Turcotte, President, Ketchikan Pulp and Paper Company of Bellingham, Washington hereinafter called the purchaser and by C. M. Granger, Acting Chief (Name), Forest Service (Title) for the United States of America as of the 26th day of July 1951 6/ *as heretofore modified*, be modified as follows:

Modify section 2(e) by inserting 2(m) and 2(n) after 2(g) and adding new contract sections 2(m) and 2(n) after 2(l).

New contract sections 2(m) and 2(n) are attached.

Draw a diagonal line with pen and ink in unused portion of form.

2. Pursuant to this mutual agreement, the purchaser hereby agrees to cut and remove timber in strict accordance with all and singular the terms and provisions of the aforesaid contract as herein modified.

IN WITNESS WHEREOF, the parties hereto have executed this modification of contract as of the 1/ 8th day of November, 19 76

UNITED STATES OF AMERICA

By: [signature] for JOHN A. SANDOR, Regional Forester
(Signature of approving officer) (Title)

Two witnesses: 2/

(Name of witness)

(Address)

(Name of witness)

(Address)

[signature] 3/ Purchaser

Ketchikan Pulp Company

P. O. Box 1619

Ketchikan, Alaska 99901

Purchaser's Business Address

I, 4/ M. R. Pihl, certify that I am the Secretary of the corporation named as purchaser herein; that T. E. Flanagan who signed this contract on behalf of the purchaser, was then President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

[signature]

CORPORATE SEAL 5/

1/ The date approving Forest officer signs this form.
2/ The signatures and addresses of two witnesses are required if sale is to other than a corporation.
3/ If contracting party is a co-partnership the signatures should be XYZ Company, by John Doe, *a member of the firm*. If contracting party is a corporation, form of signature should be XYZ Company, by John Doe, *President (or other officer or agent)* and the seal of the corporation must be impressed or indicated
4/ The certificate must be completed if the purchaser is a corporation.
5/ If the corporation has no corporate seal that fact shall be stated, in which case a scroll or adhesive seal shall follow the corporate name.
6/ Delete "as heretofore modified" if not applicable.

2400-9 (3/69)

SAFECO INSURANCE COMPANIES

SAFECO INSURANCE COMPANY OF AMERICA
GENERAL INSURANCE COMPANY OF AMERICA
FIRST NATIONAL INSURANCE COMPANY OF AMERICA
HOME OFFICE: SAFECO PLAZA, SEATTLE, WASHINGTON 98185

CONSENT OF SURETY

We, Safeco Insurance Company of America hereby consent to the "Agreement to Modify Contract" dated July 26, 1951.

Timber Sale Contract No. A10fs-1042 is hereby modified as follows:

Modify section 2(e) by inserting 2(m) and 2(n) after 2(d) and adding new contract sections 2(m) and 2(n) after 2(l).

Signed, sealed and dated this 7th day of December, 1976.

SAFECO INSURANCE COMPANY OF AMERICA

By: Theo. W. Backmann, Attorney-in-Fact

SAFECO

POWER OF ATTORNEY

SAFECO INSURANCE COMPANY OF AMERICA
GENERAL INSURANCE COMPANY OF AMERICA
HOME OFFICE: SAFECO PLAZA
SEATTLE, WASHINGTON 98185

No. 3065

KNOW ALL MEN BY THESE PRESENTS:

That Safeco Insurance Company of America and General Insurance Company of America, each a Washington corporation, does each hereby appoint

---------- ROBERT A. LaBOW; WILLIAM H. SCHLENKER; JOHN F. SOLON; THEO W. BACKM CATHY HOFFERBER, Seattle, Washington ----------

its true and lawful attorney(s)-in-fact, with full authority to execute on its behalf fidelity and surety bonds or undertakings and other documents of a similar character issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, Safeco Insurance Company of America and General Insurance Company of America have each executed and attested these presents

this 15th day of July, 19 74.

W D HAMMERSLA SECRETARY

GORDON H SWEANY PRESIDENT

CERTIFICATE

Extract from Article VI, Section 12, of the By-Laws of SAFECO Insurance Company of America and of General Insurance Company of America:

"Article VI, Section 12, – FIDELITY AND SURETY BONDS . . the President, any Vice President, and the Secretary shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business . . . On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced, provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

Extract from a Resolution of the Board of Directors of SAFECO Insurance Company of America and of General Insurance Company of America adopted July 28, 1970:

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,
(i) The provisions of Article VI, Section 12 of the By-Laws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,
the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, Wm. Hammersla, Vice President and Secretary of SAFECO Insurance Company of America and of General Insurance Company of America, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of these corporations, and of a Power-of-Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power-of-Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of each corporation

this 7th day of December, 19 76.

SAFECO INSURANCE COMPANY OF AMERICA CORPORATE SEAL

GENERAL INSURANCE COMPANY OF AMERICA CORPORATE SEAL

W D HAMMERSLA SECRETARY

2(m) - Transfer of Purchaser Credit. Upon Forest Service approval of Purchaser's written request, unused Effective Purchaser Credit earned after December 16, 1975, shall be transferred from this contract to Purchaser's other timber sale contracts within the same National Forest (36 CFR 221.7).

Effective Purchaser Credit transferred from this contract subsequently determined to be ineffective under terms of this contract shall be replaced by cash payments, 0% of the maximum purchaser credit limit as approved on table A-2 cannot be transferred from this sale and must be applied to the timber harvested from the withdrawn areas.

Purchaser Credit transferred to this contract from other contracts may be used to meet current or subsequent charges for timber subject to 2(g). Transferred Purchaser Credit may not be used to cover payments for Base Rates, Required Deposits, charges for timber harvested on areas withdrawn under PL 92-203 and 94-204, and $1,273,950 needed to accomplish sale area betterment work. Transfer of Purchaser Credit to or from Timber Sale Account shall be made monthly, or at longer intervals, as requested by Purchaser.

Transfers of less than $500 or of amounts needed to meet unfulfilled payment obligations under 2(g)(1) will not be approved.

2(n)-Use of Deposits. Notwithstanding 2(k), deposits made under this contract may be used by Forest Service in carrying out collection rights authorized by Claims Collection Act when Purchaser Credit has been transferred to this contract. The use of such deposits shall be limited to the amount of Purchaser Credit which has been transferred and is further limited to claims arising under the contract from which the Purchaser Credit was transferred.

United States Department of Agriculture
Forest Service

AGREEMENT TO MODIFY CONTRACT
(Timber Sale)

Contract No. A10fs-1042

1. It is mutually agreed that the above designated timber sale contract, signed by L. TURCOTTE, President, Ketchikan Pulp and Paper Company of Bellingham, Washington hereinafter called the purchaser and by C. M. GRANGER (Name) Acting Chief, Forest Service (Title) for the United States of America as of the 26th day of July 1951 6/as heretofore modified, be modified as follows:

The following changed contract sections are modified to read as shown in the following attachment which is made a part of this agreement:

Section 1(c)	Section 5	Section 18	Section 35(c)	Section 35(l)
Section 1(g)	Section 5(a)	Section 19	Section 35(d)	Section 35(m)
Section 2(a)	Section 6(e)	Section 21(a)	Section 35(e)	Table A1
Section 2(f)	Section 7	Section 21(b)	Section 35(f)	Table A2
Section 2(g)	Section 8	Section 26	Section 35(g)	Table of Unit Costs
Section 2(j)	Section 9	Section 30	Section 35(h)	
Section 2(k)	Section 9(a)	Section 35	Section 35(i)	
Section 2(l)	Section 10	Section 35(a)	Section 35(j)	
Section 4	Section 15	Section 35(b)	Section 35(k)	

Draw a diagonal line with pen and ink in unused portion of form

2. Pursuant to this mutual agreement, the purchaser hereby agrees to cut and remove timber in strict accordance with all and singular the terms and provisions of the aforesaid contract as herein modified.

IN WITNESS WHEREOF, the parties hereto have executed this modification of contract as of the 1/ 1st day of October, 1975.

UNITED STATES OF AMERICA

By [signature] (Signature of approving officer) Chief (Title)

Two witnesses: 2/

(Name of witness)

(Address)

(Name of witness)

(Address)

T. E. Flanagan 3/ Purchaser

Ketchikan Pulp Company

P.O. Box 1619

Ketchikan, Alaska 99901 Purchaser's Business Address

I, 4/ D. L. Finney, certify that I am the Vice President of the corporation named as purchaser herein, that T. E. Flanagan who signed this contract on behalf of the purchaser, was then President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

[signature]

CORPORATE SEAL 5/

1/ The date approving Forest officer signs this form
2/ The signatures and addresses of two witnesses are required if sale is to other than a corporation
3/ If contracting party is a co-partnership the signatures should be "XYZ Company by John Doe *a member of the firm*. If contracting party is a corporation form of signature should be "XYZ Company by John Doe *President (or other officer or agent)* and the seal of the corporation must be impressed or indicated
4/ The certificate must be completed if the purchaser is a corporation
5/ If the corporation has no corporate seal that fact shall be stated in which case a scroll or adhesive seal shall follow the corporate name
6/ Delete "as heretofore modified" if not applicable

2400 9 (3/69)

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

TIMBER SALE AGREEMENT
(As Modified June 6, 1956, February 9, 1957, June 19, 1964 and October 1, 1975)

S
SALES, R-10 Tongass
Ketchikan Pulp & Paper Co., 7/26/51
Contract No. A10fs-1042

The parties entering into this agreement pursuant to the Act of June 4, 1897 (30 Stat. 35) as amended, and the Act of August 8, 1947 (Public 385, 80th Congress, 1st Session) are acting under the following conditions and considerations: (1) the Forest Service, acting in behalf of the United States of America, is deeply interested in encouraging and bringing about the industrial development of Alaska; (2) the purchaser proposes to establish a new enterprise for the utilization of forest products, including a pulp mill, and the development of water supply with associated facilities within the boundaries of Pulptimber Allotments E, F and G, Tongass National Forest in Southeast Alaska; (3) both parties recognize that this pioneering undertaking, involving a substantial long-term investment by the purchaser, will be accompanied by unusual risks due to many unknown conditions that may be encountered at the isolated site and during operations, great distance from markets, present day costs of establishing the necessary facilities; (4) the Chief, Forest Service, having due regard for the interests of the United States and for the protection of the natural resources of Alaska, wishes to facilitate the establishment of such new industry by the purchaser and the operation of the industry on a commercially sound and permanently economical basis; (5) it is the policy and intention of the Forest Service through sustained yield management of the Tongass National Forest, to afford an opportunity to purchase supplies of timber for permanent operation of such enterprise as is established in accordance with the terms of this agreement for the utilization of the timber embraced in this agreement.

NOW, THEREFORE, it is agreed as follows:

That the contract of July 26, 1951 is a sale of the timber located within the area shown upon the maps attached to said contract, and by reference made a part thereof, without regard to the quantity of timber thereon except that said contract provides that if the timber available for cutting within said area is insufficient for full scale operation until June 30, 2004 of the purchaser's pulp plants referred to in Section 1(h) of said contract at the capacities contemplated in Section 1(h) of said contract, additional timber will be allotted by the Forest Service from pulp timber allotments (E), (F), and (G) of the Tongass National Forest to meet such needs of such plants for the period ending June 30, 2004, provided that the Forest Service is not obligated to make available for cutting from such additional allotments more timber than a total of 1,500,000,000 cubic feet of material available for cutting from all areas, all as set forth in said contract, said contract being subject to all other conditions and reservations stated therein.

Modification as of10/01/75 in script type.

That for the purpose of determining the stumpage payments to be made under the contract, and determining if the total quantity of timber within the area shown on said maps equals at least 1,500,000,000 cubic feet, and for all other contract purposes, all reference to cubic feet in said contract shall be converted into board feet at the ratio of 5.5 board feet for each cubic foot.

Sections 2(a), 2(f), and 5(a) of the original agreement shall be modified; Section 6 of said original agreement shall be modified; Sections 6(a), 6(b), 6(c), 6(d), 6(e), 6(f), 6(g) and 6(h) shall be added thereto; and Section 7 shall be modified, all as hereinafter set forth.

Should any clause or provision of this Modification of Agreement be adjudicated void by any court of final resort, such decision shall not be deemed to affect the validity of the Timber Sale Agreement of July 26, 1951, and said agreement shall remain in full force and effect.

We further agree that if this application is approved, a certain bond executed by us as principal on the 26th day of July 1951, and approved by the Acting Chief, Forest Service, on the 20th day of August 1951, which was given to the United States of America to insure faithful compliance with the terms of the aforesaid agreement, shall bind us and our heirs, executors, administrators, successors, and assigns in the same manner as if said modification had been included in the original agreement, to insure compliance with which said bond was given.

Except as modified hereby, all other provisions of the contract of July 26, 1951, shall remain in full force and effect.

Description of Timber.--1. The Ketchikan Pulp & Paper Company, a corporation organized and existing under the laws of the State of Washington, having an office and principal place of business at Bellingham, State of Washington, hereinafter called the purchaser, hereby agrees to purchase from an area definitely designated on the attached maps which are a part of this agreement, within Pulptimber Allotments E, F and G of the Tongass National Forest, at the rate or rates and in strict conformity with all and singular the requirements and conditions hereinafter set forth, all timber marked or designated for cutting by a Forest Officer, merchantable as hereinafter defined for pulpwood, sawlogs and other primary forest products customarily produced in Alaska.

Timber upon valid claims and all timber to which there exists valid claim under contract with the Forest Service is exempted from this sale. The estimated amount to be cut under the methods of marking described in Section 4 is 1,500,000,000 cubic feet of western hemlock, Sitka spruce, western red cedar, Alaska cedar, and other species of timber, more or less.

Additional Areas

1(a). In event the quantity of timber available for cutting within the above described area is insufficient for full scale operation until June 30, 2004 of the purchaser's pulp plants hereinafter mentioned at the capacities contemplated in Section 1(h) of this agreement, the Regional Forester shall designate additional cutting areas within Pulptimber Allotments E, F and G to meet such needs of such plants for the period ending June 30, 2004, PROVIDED, that the Regional Forester is not obligated to make available for cutting more than the 1,500,000,000 cubic feet of material covered by this agreement, and PROVIDED FURTHER, that the Regional Forester may sell timber from time to time in such amounts from those portions of Pulptimber Allotments E, F and G not included in the areas hereinabove described which in his judgment are not needed to meet the terms of this agreement, and PROVIDED FURTHER, that inability of the United States to fulfill the obligations set out in this paragraph because of loss of timber within any portion of Pulptimber Allotments E, F and G by fire, windthrow, insect or disease epidemics shall not entitle the Purchaser to the right to cut timber in any areas outside of Allotments E, F and G, or to any other compensation.

5-Year Operating Periods

1(b). After an initial operating period ending June 30, 1964, operations under this agreement shall be divided into operating periods of 5 years beginning July 1, 1964 and at 5-year intervals thereafter. For each such 5-year operating period, logging units will be selected and logging boundaries will be determined, stumpage prices will be redetermined and modification of this agreement may be made, all in accordance with the terms and conditions hereinafter stated.

Selection of Logging Units for 5-Year Operating Periods

1(c). Not less than *two years* in advance of each 5-year operating period the purchaser shall select logging units for cutting in the ensuing 5-year period. Timber cover and topographic maps of the units selected shall thereupon be submitted to the Regional Forester who may require a substitution for any selected unit if he deems such action necessary to prevent loss of rapidly deteriorating timber killed or damaged by fire, insects or windthrow or to protect other important National Forest interests. The location of the unit boundaries and of the lines of any interspersed patches of log-grade or poorly accessible timber, as drawn by the purchaser to exclude material he considers economically unoperable during the ensuing 5-year period, shall be subject to review and adjustment by the Regional Forester. *Not less than one year in advance of each five-year operating period the Regional Forester will notify purchaser of tentative decision on acceptability of units selected for cutting in the ensuing five-year operating period.* Should at any time during the life of this agreement, a fire of major proportion, a serious windstorm, extremely damaging insect or disease attacks, or other catastrophe of great moment, befall the timber included in this agreement, the Regional Forester may require substitution of the logging units to be cut during the then current 5-year operating period and require the purchaser to readjust his current logging activities for the purpose of salvaging such killed or injured timber.

1(d). The Regional Forester will not require cutting of timber stands on any logging unit even though previously selected for such period nor require modifications of this agreement under the provision of Section 2(e) which will result in average delivered costs of logs to the purchaser's pulp mill, as determined by the Regional Forester which would place the purchaser in a disadvantageous position with respect to similar enterprises in the Puget Sound region: PROVIDED, that for the initial and two subsequent operating periods ending June 30, 1974 the weighted average estimated costs of pulp logs delivered at the purchaser's pulp plant, including stumpage and payments under Section 2(f), separately for each operating period, shall not be higher than a percentage to be determined as hereinafter stated of the weighted average delivered costs at manufacturing plant of hemlock logs of similar quality purchased by mills of the Puget Sound region, which percentage shall be determined by the Regional Forester as being equitable to keep the purchaser's operation in a competitive position with similar enterprises located in the Puget Sound region, but said percentage shall not be less than 50 nor more than 75; and PROVIDED FURTHER, that for the initial operating period ending June 30, 1964 said percentage is fixed at 60.

Unless changes are made by mutual consent of the Regional Forester and the purchaser, logging operations during the initial operating period ending June 30, 1964, shall be conducted on the areas shown on the attached maps and designated "Logging Units for Operation for the Operating Period ending June 30, 1964."

If the purchaser believes that any unit or part thereof laid out for logging during the initial operating period ending June 30, 1964 or during any ensuing 5-year period does not possess the characteristics necessary to fulfill the above mentioned provisions as to log costs, he shall be entitled on request to the Secretary, in connection with an appeal under Section 25 of this agreement, to have any such unit or part thereof inspected by a board of three qualified logging operators or logging engineers, of which one member shall be selected by the purchaser, one by the Secretary, and the third by the other two members. The board shall submit to the Secretary its recommendations of any substitution in the units selected for logging or any changes in the location of unit boundaries or of the lines of interspersed patches of unoperable timber which it deems necessary to bring the log costs in line as closely as possible with the intention expressed in this subsection, which recommendation will be considered by the Secretary.

Timber for Local Use

1(e). The Regional Forester may grant the use of timber from portions of the sale area to others than the purchaser for local ultimate use in Southeast Alaska to the extent of not more than two percent of the estimated total stand in any logging unit, if in the judgment of the Regional Forester, the operations of the purchaser will not be materially interfered with thereby.

Reservations for Scenic Purposes and Salmon Protection

1(f). The Regional Forester may reserve from cutting strips and blocks of timber having special scenic value in connection with water courses, recreation sites and highways, or strips or blocks which cannot be logged without causing substantial harm to salmon streams or lakes.

EXPORT RESTRICTION

1(g). Veneer logs, sawlogs, pulplogs, cordwood and other primary forest products shall not be transported for manufacture outside the *State of Alaska* without consent of the Regional Forester, but such consent will not be withheld for the export of such products having special value so long as in the opinion of the Regional Forester competitive markets for such special products do not exist within Alaska.

Plant Con Construction

1(h). Prior to July 1, 1954 the purchaser or interests with which he is affiliated, shall install at some point within the boundaries of Pulptimber Allotments E, F and G as shown on attached map, a pulp manufacturing plant with a designed capacity of not less than 300 tons per day and may be increased to 525 tons per day by not later than July 1, 1964. Prior to July 1, 1952, the purchaser shall make a satisfactory showing to the Regional Forester that the principal items of machinery and equipment for such plant have been placed on order with manufacturers. Failure of the purchaser to make the showing or to install the plant, as provided for above, shall render this agreement subject to cancellation in the discretion of the Chief, Forest Service hereinafter called the Chief; PROVIDED, however, if in the judgment of the Chief the failure to make the showing or to complete the plant has been caused by an act or acts of an agent of the United States or by other circumstances beyond the control of the purchaser, and if the purchaser has exercised due diligence in trying to meet the conditions specified, the Chief shall grant a reasonable extension of time within which to meet these conditions, but financial inability shall not be considered to be a circumstance beyond the control of the purchaser.

Pollution Control

1(i). The purchaser shall make such showing as may be required by the Chief, Forest Service, in respect to adequate measure for control of disposal of plant effluents in the design, processing methods, and operation of the pulp plant described in Section 1(h) of this agreement.

Initial Rates

2(a) Payments. The purchaser hereby agrees to pay to the Treasurer of the United States, or such other depository or officer as shall hereinafter be designated, to be placed to the credit of the United States, for the timber at the following rates for stumpage:

For all timber scaled or measured after date of this amendment and prior to July 1, 1964, at the following rates:

$1.99 per M board feet for spruce logs
$1.57 per M board feet for hemlock logs
$1.50 per M board feet for cedar logs
$2.00 per M board feet for logs of other species.

1.5 cents per linear foot for piling or poles 95 feet in length.

1.0 cents per linear foot for piling or poles 95 feet and under in length.

PROVIDED, that timber which has been assembled into completed rafts and which has not yet been scaled on the date reappraised rates go into effect, shall be marked or otherwise identified and shall be charged for when scaled at the rates in effect the day before the reappraised rates become effective.

Material unmerchantable on account of defect (net scale in percent of gross scale) as hereinafter defined may be removed without charge in the discretion of the Regional Forester. *Material unmerchantable because of size as hereinafter defined, removed at the option of the Purchaser, may be removed without charge at the discretion of the Regional Forester.*

Adjusted Rates

For all timber scaled or measured during the period beginning July 1, 1964, and ending June 30, 1969, and for all timber scaled or measured within each succeeding 5-year period thereafter, at such rates as shall be designated by the Chief in advance of the beginning of each period to apply during the period.

2(b). The Chief shall before July 1, 1964, and before July 1 of each fifth year thereafter during the time this agreement remains in force, make a reappraisal and designate the rates per unit of measures that shall be paid by the purchaser for the several classes of material scaled or measured during the 5-year period next following each such date.

The stumpage rates fixed as the result of such reappraisals shall be equitable to the purchaser in comparison with the rates on other pulpwood sales on the Tongass National Forest and shall be consistent with the provisions of Section 1(d) of this agreement.

If the purchaser believes that the stumpage rates designated by the Chief under the provisions of Sections 2(b) and 2(c) of this agreement do not conform with the purposes and intentions of said Sections, he shall be entitled on request to the Secretary, in connection with an appeal under Section 25 of this agreement, to have such rates

reviewed by a board of three qualified logging operators or logging engineers of which one member shall be selected by the purchaser, one by the Secretary, and the third by the other two members. The board shall submit to the Secretary its recommendation of any changes in the designated stumpage rates which it deems to be necessary to make said rates conform with the purposes and intentions of said Sections, which recommendations will be considered by the Secretary.

At least 60 days before each date for adjustment of stumpage rates the Regional Forester shall notify the purchaser of the reappraised rates and contract modifications which he has tentatively decided to recommend to the Chief and shall invite the purchaser to make any presentations desired. The recommendation of the Regional Forester to the Chief shall be accompanied by the purchaser's presentations on any matters on which agreement has not been reached.

Emergency Reappraisals

2(c). Upon receipt of a written application from the purchaser wherein it is shown that because of substantial changes in market or other economic conditions since the last reappraisal, current rates are unreasonably high, the Chief of the Forest Service in his discretion may redetermine and establish the stumpage rates and designate a date when the rates as redetermined shall be effective, which date shall be the earliest practicable and in any event within six (6) months of the date of application.

Any stumpage rates redetermined upon application to the Chief shall be determined in accordance with the method and under the terms above set forth, and shall apply only during the remainder of the 5-year period then current.

Minimum Adjusted Rates

2(d). In no event, however, shall the stumpage rates for products from material the utilization of which is required by this agreement as established at the beginning of any 5-year period, or upon application from the purchaser, be less than the rates named in the advertisement through which the timber covered by this agreement was offered for sale.

Contract Modifications

2(e). Subject to the provisions of Section 1(d) of this agreement, it is further agreed that at the date for any adjustment of stumpage rates the Chief may require such modification in the Sections numbered 2(f), 2(g), 4, 5(a), 6, 7, 9, 12, 13, 14, 15, 16 and 17 in this agreement as are necessary, in his judgment, to protect the interests of the United States. Such modifications shall be limited to requirements that apply or are to be made applicable to the then current pulptimber sale contracts in Southeastern Alaska. Any additional operating costs entailed by such modifications shall be taken into consideration as a factor in reappraisals.

Deposit for Stand Improvement

2(f). *Payments for required deposits for Sale Area Betterment are included in the rates established for stumpage.*

2(g). For all timber included in this contract for which stumpage payments and required deposits have not been made in full by deposit with bid, payments shall be made in accordance with (1) or (2) as follows:

(1). Payments for stumpage and for required deposits shall be made in advance of cutting as called for by the Forest Service and, unless otherwise provided herein the amount requested at any one time shall be not less than Twenty Four Thousand Dollars ($24,000), except that just before the completion of the sale or before a period when cutting operations are to be suspended for at least three (3) months, such amount may be reduced by the Forest Service. If advance payment is not received within fifteen (15) days of request therefor or if at any time the advance balance is reduced to Eight Thousand Dollars ($8,000), the Forest Service may suspend all or any part of the operations under this contract until the requested payment is received. The purchaser shall not be required to have an advance balance of more than Seventy Two Thousand Dollars ($72,000) at any time.

(2). Payment for stumpage and required deposits may be made subsequent to cutting if the purchaser furnishes an acceptable bond in *an adequate amount as determined by the Forest Service* guaranteeing payment for such stumpage and required deposits, or in lieu thereof deposits in a Federal depository through the Regional Fiscal Agent negotiable securities of the United States having a face value in like amount of dollars and accompanied by a power of attorney and agreement authorizing the bond-approving officer to sell or collect such securities if payment is not made within fifteen (15) days of request thereof, provided that the timber cut in advance of payment under this authority shall not exceed in contract price for stumpage and required deposits the amount of the bond or deposited securities. Provided, that if the rate of cutting is temporarily increased, timber in excess of the bond amount may be cut if the purchaser makes deposit of cash to cover the estimated value of such timber and required deposit. Such bond or deposited securities shall for such purpose be in lieu of the regular bond, cash deposit or negotiable securities given to guarantee performance of the contract. When such advance cutting is done, payments shall be made as called for by the Forest Service in amounts equal to the contract price of the timber scaled, and the required deposits due, subsequent to that for which the last payments were made: PROVIDED, That if at any time payment is not received within fifteen (15) days of request therefor the Forest Service may suspend all or any part of the operations under this contract until payments of the contract price of all timber cut but not paid for, and the

required deposits due, are received, and may take such action as is necessary to collect such payments from the surety under the bond or by sale or collection of the securities guaranteeing payments. In the event the purchaser fails to make payment and collection is obtained from the security or from the sale of collection of the deposited securities, the Forest Service may thereafter at its election require the purchaser to make payments in advance of cutting.

2(h). Payments for liquidated damages, pursuant to Sections 11 and 12, shall be made when requested by the Forest Service.

2(i). The Forest Service is hereby authorized by the purchaser to make transfers currently of balances on deposit between the separate accounts for stumpage, liquidated damages, and sale area betterment, whenever necessary to avoid deficits in individual accounts.

2(j). Cooperative Deposits. On a basis of cooperation or assistance (16 USC 572) and by a written agreement, Forest Service shall perform all or portions of the work which purchaser is obligated to perform under this contract, as well as furnish other services in connection with activities under this contract. When Forest Service is to perform such work, purchaser shall make one or more deposits to cover the estimated cost of said work. On request of purchaser, Forest Service shall render monthly accounts as may be specified in such agreement.

2(k). Use of Deposits. Forest Service shall receive and apply deposits made under Section 2(j) only to meet purchaser's obligations under this contract, unless otherwise authorized by purchaser.

2(l). Purchaser Credit. "Purchaser Credit" is a credit earned by purchaser's construction of Specified Roads, bridges and other transportation facilities, and is computed and recorded as provided in 35(j). "Purchaser Credit Limit" is the maximum amount of such credit which shall be recognized hereunder and shall never exceed the listed total estimated cost, based on survey and design of project segments in A2, attached hereto, which may be adjusted pursuant to 2(b), 2(c), 35(b), 35(c), 35(d), 35(f), 35(g), 35(h), and 35(i).

In addition "Purchaser Credit Limit" shall be further limited to the total value of the difference between current contract rates and minimum adjusted rates as established in accordance with Section 2(d), as applied to the remaining volume of timber to be scaled on the sale area.

"Effective Purchaser Credit" means unused Purchaser Credit which does not exceed current stumpage rate value minus minimum adjusted rate value.

"Minimum Adjusted Rate Value" is the sum of the products of minimum adjusted rates and estimated volume by species of cut but unscaled timber. Effective Purchaser Credit shall be considered equivalent to cash for advanced deposits limited to the prohibition on using Purchaser Credit for minimum adjusted rate charges.

Purchaser Credit earned but not credited in one 5-year operating period will be credited in subsequent 5-year operating periods.

3(a). Period of Contract. The purchaser may begin the cutting and removal of timber after the execution and approval of this agreement and shall begin such operations not later than the date of completion of the initial installation of the purchaser's pulp manufacturing plant, as specified in Section 1(h) hereof, and unless extension of time is granted, all timber which the purchaser is obligated hereunder to cut and remove shall be cut and removed and the requirements of this agreement satisfied on or before June 30, 2004; PROVIDED, that the purchaser's rights shall not extend to the timber on any logging unit on which operations have not been started on June 30, 2004.

Periodic Cuts

3(b) Unless such amounts are reduced in writing by the Regional Forester, at least three-fourths of the pulpwood requirements of the pulp manufacturing plant and other processing facilities operated in connection with this Sale shall be cut from the areas covered by this agreement during the period prior to July 1, 1964, and during each 5-year period subsequent to that date.

3(c). Unless such amounts are changed in writing by the Regional Forester, the annual average amount of pulptimber or its equivalent in all forms of material to be cut and removed from such areas during the period beginning July 1 of the year following completion of the said pulp mill and ending June 30, 1964, shall be a minimum of 5,000,000 cubic feet and a maximum of 35,000,000 cubic feet and for each successive 5-year operating period thereafter; PROVIDED, that if the pulp manufacturing plant mentioned in Section 1(h) hereof shall have been installed and if in the judgment of the Chief the purchaser shall have exercised due diligence in his logging operations, but, because of some act or acts of an agent of the United States or because of other circumstances beyond his control is unable to cut the minimum amount of timber from the sale area or areas required by the terms of this section, the Regional Forester shall reduce the amount to be cut from that specified heretofore in this section to the amount actually cut.

Designation of Timber

4. Marking. Timber shall be designated for cutting as follows: The exterior boundaries of each logging unit to be cut by the purchaser shall be marked on the ground by the Forest Service in advance of the start of logging operations on the unit. All single seed trees and groups of seed trees selected by the Forest Officer in charge, timber on recreation sites and strips and blocks of timber along thoroughfares,

streams, and lakes to be held intact, and interspersed patches of timber within the logging unit which are classed as unmerchantable or inaccessible shall be plainly marked for reservation from cutting and such marking shall be done sufficiently in advance so as not to interfere with or delay cutting by the purchaser. Within the areas to be thus delineated and subject to exceptions set forth in this section, all live trees merchantable as defined in Section 5, and cull live trees over 15 feet in height and 12 inches DBH, are to be cut, and the purchaser shall remove all merchantable material from the sale area. PROVIDED, that not more than ten percent (10%) of the merchantable volume on the area to be cut over may be reserved for seed trees; and PROVIDED FURTHER, that subject to the provisions of Section 1(d) of this agreement, the Regional Forester may designate areas for cutting by tree selection, or other methods, to promote growth, obtain salvage or to protect scenic areas where tractor or other methods of logging are feasible.

5. Merchantability Standards. Definition of Merchantable Tree and Product:

Definition of Merchantable Tree

MINIMUM SPECIFICATIONS - ALL SPECIES			
DBH Inches	Product Units Per Tree Number	Length Feet	Diameter inside bark at small end - Inches	Net Scale in % of Gross Sales
12	1 log	12	6	33-1/3

Definition of Merchantable Log

5(a). All logs are merchantable which are not less than 12 feet long, at least 6 inches in diameter inside bark at the small end, and after deductions for defect contain a net scale of at least 33-1/3 percent of their gross scale.

6. Scaling. Material shall be so handled by the purchaser that it can be scaled or measured economically by the methods in general use by the Forest Service in Alaska, and the Forest Service shall so direct the work of such scaling or measuring that it will hinder or delay the operations of the purchaser as little as practicable under these methods. The term "scaling" as used herein, may include scaling by log rule, measuring, linear measuring, counting, weighing, tree measuring before felling, or any other mutually satisfactory method of volume determination. Unless other methods of scaling are mutually agreed to in writing in advance, timber included in this sale will be scaled as set forth herein.

Title to all timber included in this agreement shall remain in the United States until it has been paid for, felled and scaled or measured.

6(a). All logs shall be scaled by the Scribner Decimal C Log Rule, in accordance with the Forest Service rules for scaling logs in the Pacific Northwest Region and Alaska.

6(b). Material presented for measurement as piling or poles shall be measured in linear feet.

6(c). Any pulpwood cut in the form of cordwood instead of in logs, shall be measured in cords of 128 cubic feet of stacked wood, and the number of cords converted into board feet at the ratio of one cord equaling 500 board feet unless or until as the result of actual measurements, the Regional Forester and the purchaser shall have agreed on the use of some other ratio.

6(d). By mutual agreement in writing between the purchaser and the Regional Forester the scale of logs may be determined by a designated scaling bureau, PROVIDED, that either the Company or the Forest Service reserves the right to check-scale the work of scaling bureau scalers and when such check-scales show a variance in scale in excess of plus or minus 5 percent, either party may request the designated scaling bureau to make a rescale if logs are being scaled in assembled rafts or a check-scale in all other cases; the parties agree to accept the Bureau's rescale volume as the final volume for such raft or rafts, whenever the Bureau's rescale volume shows a variance in excess of plus or minus 5 percent.

Determination of scale by the Bureau may be for all or part of timber cut and may be terminated by the Regional Forester whenever services rendered are deemed unsatisfactory, or by the purchaser at any time after thirty (30) days notice in writing to the Regional Forester.

During the period agreement to use Bureau scaling is in force, scaling shall be performed at places acceptable to the Bureau and the Forest Service. The purchaser agrees to cooperate with the Forest Service in providing conditions satisfactory for making check-scales by a Forest Service check-scaler, and to hold designated rafts containing National Forest logs for rescaling or check-scaling by the Bureau whenever a Forest Service scale of said raft indicates a variance in excess of 5 percent from the original Bureau scale. Methods customarily employed by the Scaling Bureau may be used to signify the completion of scaling in lieu of stamping by the Forest Service.

6(e). All logs cut under this agreement shall be branded with a log brand registered with the State of Alaska, or shall be otherwise plainly marked in such manner as directed by the Forest Service for easy identification and shall not be removed from the place agreed upon for scaling until scaling has been completed. Any log brand assigned to logs of this sale area will not be used on logs from any other sale area or on logs from any area in other ownership until such brand has been released in writing by the Forest Service.

6(f). Log rafts shall be identified in a manner satisfactory to the Forest Service and the purchaser or his subcontractors shall execute log raft receipt forms, or provide other records as required by the Forest Service to account for log rafts in transit or storage.

6(g). The purchaser agrees to provide the Forest Service at approximately monthly intervals, statements showing the identification, and location of log rafts in storage or in transit and log rafts which have been consumed by the mill during that period.

6(h). When scaling is performed at locations other than on the sale area, the purchaser shall be responsible for loss of logs from the time of removal from the sale area until scaled, and unless any resultant loss as determined by the Forest Service involves small amounts and is justified by existing conditions, lost logs shall be paid for at the current price including stumpage and special deposits. Determination of volume and species for any such log losses shall be made by applying the average net volume per log and percentage species distribution as determined by the Forest Service to be equitable.

Scaling Length

7. Maximum Scaling Length. The maximum scaling length of logs shall be 40 feet; greater lengths will be scaled as two or more logs. There shall be allowed for trimming not more than 12 inches for logs 40 feet and under in length and not more than 2 inches for each additional 10 feet in length.

8. Logging. As far as may be deemed necessary for the protection of National Forest interests, the plan of logging operations on each of the logging units of this sale area or areas shall be approved by the Forest Officer in charge. When operations are begun on any logging unit, the cutting on that unit shall be completed to the satisfaction of the Forest Officer in charge before the logging equipment is removed from the unit, unless a suspension of operations on and the temporary removal of logging equipment from the unit are authorized in writing; PROVIDED, that such authorization will be granted for suitable periods of time on any area and in any season having conditions which substantially impede or preclude logging operations or when necessary to permit the purchaser to obtain a suitable assortment of log sizes for efficient use of his plant facilities. After decision in writing by the Forest Officer in charge that the purchaser has complied with the contract requirements as to specified units, the purchaser shall not be required to do additional work on such units.

No cutting Before Payment

9. Except as provided in Section 2(g), no timber shall be cut until paid for, nor removed from place or places agreed upon for scaling until scaled or measured by a Forest Officer. The purchaser shall cut all designated live trees, and shall remove all merchantable material from the sale area. No undesignated live trees shall be cut except those trees unmerchantable because of small size which occur within established cutting areas not designated for tree selection may be cut and removed at the option of the purchaser. The cutting and removal of dead trees shall be optional with the purchaser except as such cutting may be required by the Forest Officer in charge for fire protection *and safety.*

9(a). The following dead timber shall be felled concurrently with logging operations: All dead trees over 15 feet in height and over 12 inches in diameter breast height inside the exterior boundaries of cutting units.

Logging Methods

10. The methods of logging used by the purchaser, including high lead and skidder logging, shall be such as will permit of leaving uninjured the seed trees and groups of seed trees provided for in Section 4 of this agreement. No unnecessary damage shall be done to young growth or to trees left standing. Undesignated trees which are badly damaged in logging shall be cut if required by the Forest Officer in charge.

Purchaser's operations shall be conducted reasonably to minimize soil erosion. Equipment shall not be operated when ground conditions are such that excessive damage will result. The kinds and intensity of erosion control work shall be kept current immediately preceding expected seasonal periods of precipitation or runoff.

11. On those portions of the sale area on which felling has been or is being done, marked or designated trees left uncut, and unmarked or undesignated teees which contain merchantable material and which are cut, injured through carelessness, or killed by fires which the purchaser, his employees, contractors, or employees of contractors caused, or the origin or spread of which he or they could have prevented unless such cutting, injury or killing involves small amounts of material and in the judgment of the Forest Officer in charge is justified by existing conditions, shall be paid for at double the current price including stumpage and special deposits except slash disposal deposits fixed by the terms of this agreement, for the class of material said trees contain: PROVIDED, that such payment shall not release the purchaser from liability for any damage to the United States other than the value of said trees. Timber wasted in tops, marked or designated timber broken by careless felling, and any other timber merchantable according to the terms of this agreement, which is cut and not removed from any portion of the cutting area when operations on such portion are completed, or before this

agreement expires or is otherwise terminated unless such wastage or nonremoval involves small amounts of material and in the judgment of the Forest Officer is justified by existing conditions, shall be paid for at the current price including stumpage and special deposits for such material. The amounts herein specified shall be regarded as liquidated damages. Unless extension of time is granted by the Forest Supervisor the right, title, and interest to any timber for which payment has been made under the provisions of this section shall revert to the United States without compensation unless it shall have been removed from any portion of the sale area accepted by the Forest Officer in charge within the six months next succeeding the date of such acceptance, or from the remainder of the sale area during the same number of months next succeeding the date of expiration or termination of this agreement.

Stump Height

12. Stumps shall be cut so as to cause the least practicable waste and not higher than twenty-four (24) inches on the side adjacent to the highest ground for all trees with a diameter of twenty-four (24) inches and under at a point 4-1/2 feet from the ground, and for larger trees the height of the stump on the side adjacent to the highest ground shall not exceed the diameter of the tree at the point of cutting, except when this requirement is impracticable in the judgment of the Forest Officer he may authorize and accept higher stumps: PROVIDED, that all stumps which are not cut in accordance herewith and which should have been so cut in the judgment of the Forest Officer, shall be paid for at the rate of $0.10 per stump for all stumps less than 24" in diameter and $0.25 per stump for all stumps 24" and larger in diameter. Such payment shall be regarded as liquidated damages in view of the difficulty of determining the actual damage to the United States through wastage of the quantity and quality of the material involved.

Top Diameters

13. All trees shall be utilized to as low a diameter in the tops as practicable and to a minimum diameter of six (6) inches when merchantable. The log lengths shall be varied so as to secure the greatest possible utilization of merchantable material.

Slash Disposal

14. Slash Disposal. The Regional Forester may require that all tops shall be lopped and all brush scattered so as to lie close to the ground and away from standing trees and clumps of reproduction, or any other methods of disposal the estimated cost of which shall not be in excess of this method.

15. Fire Precautions. During the time that this agreement remains in force, the purchaser shall both independently and in cooperation with the Forest Service do all in his power to prevent and suppress forest fires on and within the vicinity of the sale area, and shall require his employees, contractors, and employees of contractors to do likewise. Unless prevented by circumstances over which he has no control, the purchaser shall place his employees, contractors,

and employees of contractors at the disposal of any authorized Forest Officer for the purpose of fighting forest fires on or within the general vicinity of the sale areas, with the understanding that unless the fire-fighting services are rendered on the areas embraced in this agreement or on adjacent areas within one mile, payment for such services shall be made by the United States at rates to be determined by the Forest Supervisor, which rates shall not be less than the current rates of pay prevailing in the said National Forest for services of a similar character; *PROVIDED, that the maximum expenditure for fire fighting without renumeration in any calendar year will depend upon the following type of fire:*

(a) Operation fire. An operations fire is a fire originating in the sale area caused without negligence or fault in purchaser's operations. The purchaser's operations include activities or use of equipment of purchaser, his employees, agents, contractors, subcontractors, their employees or agents, acting in the course of their employment in operations hereunder (unless acting under the immediate supervision of the Forest Service, as in slash disposal). Maximum expenditures to the purchaser for this type fire will be $1[illegible],00 per operations fire.

(b) Negligently caused fires. The cost of suppressing fires caused by negligence or fault in the purchaser's operations shall be borne by purchaser. Such fires shall include but not be limited to those resulting from smoking by persons engaged in purchaser's operations hereunder during the course of their employment, or rest or lunch periods.

(c) Other fires. For services by purchaser at the request of Forest Service on any fire other than an operations fire or a fire caused by negligence or fault in purchaser's operations, Forest Service shall pay purchaser at rates for fire fighting common in the area.

And, PROVIDED FURTHER, that except in grave emergencies such employees of the purchaser who are needed to prevent unnecessary damage to the purchaser's plant from sudden shut-down will not be called for fire-fighting services.

Release of Fire Fighters

16. Except in serious emergencies as determined by the Forest Supervisor, the purchaser shall not be required to furnish more than 100 men for fighting fires outside of the area above specified and any employees furnished shall be relieved from fire fighting on such outside areas as soon as it is practicable for the Forest Supervisor to obtain other labor adequate for the protection of the National Forest.

Fire Prevention and Suppression

17. The purchaser shall abide by all such further rules and orders for the prevention and suppression of fire on sale areas and around logging camps and logging operations as may be currently required by the Regional Forester of logging operators working on the same Division of the Tongass National Forest and using comparable logging methods, facilities, and equipment.

Logging Improvements

18. Occupancy and Improvements. The purchaser is authorized to build on National Forest land plants, camps, roads, and other improvements necessary in the logging or manufacturing of the timber included in this agreement: (It is contemplated that the purchaser will obtain patent to the site for his main plant under suitable acts permitting the patenting of public lands and that permanent town-sites will be excluded from the National Forest.) PROVIDED, that all such structures and improvements as shall be located and operated subject to such regulations as may be deemed necessary by the Regional Forester for the protection of National Forest interests: PROVIDED FURTHER, that the *Forest Officer in charge* may require before construction work is undertaken for any structures intended for use *or* occupancy of labor outside of the main plant site and incorporated towns, that plans for such structures shall be submitted to him for approval in writing including such reasonable requirements as he deems necessary as to their design, adequacy and location. The continuance or operation of such improvements on National Forest land after the need for them in connection with purchaser's operations has terminated shall be subject to authorization by permit or easement under United States laws, and unless such authorization is e secured all improvements not removed shall become the property of the United States at the expiration of six months from the termination of their actual use in connection with the purchaser's operations under this agreement.

Con struction Timber

19. *Construction Timber. Purchaser is authorized to cut and use for construction, without charge, construction timber designated by agreement.*

Trees and products meeting Utilization Standards used as puncheon, corduroy, or otherwise buried in roadway fill shall not be considered construction timber without charge unless authorized in writing by Forest Service.

Sanitation

20. The purchaser shall keep all logging camps, mills, and other structures used in connection with this sale and the ground in their vicinity, in a clean sanitary condition, and rubbish shall be removed and burned or buried. When camps or other establishments are moved from one location to another or abandoned, the purchaser shall burn or otherwise effectively dispose of all debris and abandoned structures.

All camp buildings and structures used in connection with this sale shall be located and operated as may be required by the Forest Officer in charge to prevent the pollution of the water in any stream. Outhouses, toilets, and garbage pits shall be constructed and maintained so as to prevent, so far as is possible, the breeding of flies or the development of unsanitary conditions.

Other Conditions

21(a) Salmon Protection. Purchaser's operations shall not be permitted to interfere with the passage of salmon to their spawning grounds or to injure the spawning grounds in any way. Any logging debris accidentally or necessarily thrown into any stream used by salmon shall be removed therefrom as soon as practicable and in any event before the logging equipment is moved from that portion of the sale area.

21(b) *Bald Eagle Protection. In compliance with the "Bald Eagle Act" of June 8, 1940 (16 USC 668), and subject to Forest Service policy exceptions, purchaser shall not cut trees, or areas, designated by the Forest Service as containing an eagle nest, and will not willfully molest or disturb any American bald eagle, nest, or eggs thereof.*

grated Utilization

22. The purchaser agrees to exert every reasonable effort to obtain the installation of a well balanced forest products industry for utilization of the various kinds of primary forest products developed for cutting in the sale area. It is contemplated that provision will be made for such processing of primary forest products as is proven feasible and desirable in connection with other comparable pulp and paper manufacturing enterprises in Alaska, but the purchaser sha not be obligated to make any plant installation or contractural arrangement which would impair the efficient supply of pulptimber to his pulp enterprise.

Local Labor

23. So far as it is practicable to do so labor for the conduct of logging operations, mills, and manufacturing plants conducted by the purchaser, its affiliates, subsidiaries, or contractors within Pulptimber Allotments E, F, and G will be recruited from residents of Southeast Alaska.

Purchaser's Representative

24. At all times when logging operations are in progress the purchaser shall have in Alaska a representative in general charge of such operations, who shall be authorized to receive, on behalf of the purchaser, any or all notices and instructions in regard to work under this agreement given by Forest Officers, and to take such action thereon as is required by the terms of this agreement. On each logging operation, or group of operations placing logs in the water at points not more than 5 miles apart, the purchaser shall have on the ground a representative who will be authorized to receive and to take the required action on any and all notices and instructions given him, under the terms of this agreement, by the Forest Officer in charge.

Complaints by Purchaser

25. Complaints by the purchaser as to any action taken by a Forest Officer respecting this agreement shall not be considered unless made in writing within sixty (60) days of such action to the Forest Officer having jurisdiction. The decision of the Secretary of Agriculture shall be final in the interpretation of the regulations and provisions governing the sale, cutting, and removal of the timber covered by this agreement.

Suspension of Operations

26. The Regional Forester, *or his delegated representative*, shall notify the purchaser in writing of any violation of the terms of this agreement on any logging unit or units within the sale area and allow a reasonable and definite period of time to comply with such terms. If satisfactory compliance is not made within the time allowed, the Regional Forester may suspend, by notice in writing or other means of transmitting written messages, all operations, including the removal of scaled or measured timber, on such unit or units, such suspension to continue in effect until the purchaser complies with such terms in a manner satisfactory to the Regional Forester.

Inspection of Records

27. All records pertaining to the purchaser's logging operations in Alaska, including the production and sale of all primary forest products, shall be open to inspection at any time by a qualified logging engineer or accountant employed by the Forest Service and designated by the Regional Forester to make such inspection with the understanding that the information obtained shall be regarded as confidential. During the period from January 1 to July 1, 1964, and for similar periods at subsequent 5-year intervals all records of the purchaser's manufacturing activities in connection with timber from this sale may be similarly inspected to the extent necessary for redetermination of stumpage prices and determination of the percentage rate specified in Section 1(d) of this agreement.

"Officer in Charge" Defined

28. The term "Officer in Charge" whenever used in this agreement signifies the Officer of the Forest Service who shall be designated by the proper Forest Supervisor to supervise the timber operations in this sale.

Act of March 4, 1909

29. No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit. (41 U.S.C. Sec. 22, and 18 U.S.C. Sec. 199).

Anti discrimination

30. Anti-discrimination. *Purchaser will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. Purchaser will, in all solicitations or advertisements for employees placed by or on behalf of purchaser, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin. (Executive Order No. 11246, on September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967.)*

31. This agreement may be transferred to the successor in interest of the purchaser provided the transferee is acceptable to the United States as a purchaser of timber under the conditions and requirements then in effect for similar timber sales and provided the transfer is approved by the Forest Officer who approved this agreement, or by his successor, authorized deputy, or superior officer.

Preliminary Award

32. This agreement is entered into in accordance with the public sale of the timber described herein on August 2, 1948, and the preliminary award granted purchaser on said date including extensions thereof and modification as stated herein.

Authority to Modify

33. The conditions of the sale are completely set forth in this agreement, and none of its terms can be varied or modified except in writing by the Forest Officer approving the agreement, or his successor or superior officer, and in accordance with the regulations of the Secretary of Agriculture.

34. And as a further guarantee of a faithful performance of the conditions of this agreement, the purchaser delivers herewith a bond in the sum of fifty thousand dollars ($50,000) to cover the period prior to July 1, 1964, and further agrees to deliver to the Regional Forester at least ten days before June 30, 1964, the date the bond delivered herewith is to expire, and likewise at least ten days before the date of expiration of any other bond hereafter delivered in connection with the sale a new bond in such sum, and under such conditions as the Regional Forester may require, but not to exceed $50,000 in amount. The purchaser further agrees that upon failure on his part to fulfill all and singular the conditions and requirements herein set forth or made a part hereof, all moneys paid under this agreement may be retained by the United States to be applied to the satisfaction of his obligations assumed hereunder without prejudice whatever to any other rights and remedies of the United States. The purchaser further agrees that should the sureties on the bond delivered herewith or on any other bond delivered hereafter in connection with this sale become unsatisfactory to the Officer approving this agreement or his successor, the purchaser shall within thirty (30) days of receipt of demand furnish a new bond with sureties satisfactory to the approving officer.

35. *Transportation Facilities and Authorization. In accordance with Section 18, purchaser is authorized to construct and maintain roads, bridges, and other transportation facilities, as needed for harvesting timber included in this contract, on National Forest and other lands where Forest Service has such authority. As used in this contract "construct" includes "reconstruct".*

35(a). Location and construction of such Specified Roads shall be in accordance with 35(b). Unless otherwise provided herein, construction may be progressive during this contract. Maintenance shall be governed by specification 55, Road Maintenance, as established by the Regional Forester and Section 18. The location and clearing widths of all Temporary Roads or facilities shall be agreed to before construction is started. "Temporary Roads" are roads other than Specified Roads which are constructed by purchaser for the purpose of harvesting timber included in this contract.

35(b). Specified Roads. "Specified Roads" are roads, including related transportation facilities and appurtenances, shown on 5-year operating period map and listed in Table A1, attached hereto and made a part hereof for which purchaser shall be given purchaser credit when constructed. Purchaser shall construct Specified Roads used under this contract. Construction initiated by purchaser on any such Specified Road shall be completed to an agreed terminus that meets purchaser's needs and prevents unnecessary injury to National Forest resources. The construction to such terminus shall be in full accordance with plans, specifications, designs, and drawings developed under 35(c), and the regulations as established by the Regional Forester pursuant to Section 18, except for agreed adjustments needed to accommodate such terminus. The cost, as estimated by Forest Service for the portion constructed, shall be separately recorded as a segment in a revised Table A2.

A Temporary Road shall not be constructed substantially on the location for a Specified Road, except by agreement.

In event of agreed addition or deletion of those roads shown on 5-year operating period map and listed in Table A1, a revised table designated A1-1, A1-2, etc., shall supersede any prior table as A1 when it is dated and signed by purchaser and Forest Supervisor.

In event of agreed substitution or revision of construction design, specifications, or performance responsibility under contract Sections 35(c), 35(h), and 35(i), a revised table designated A2-1, A2-2, etc., shall supersede any prior table as A2 when it is dated and signed by purchaser and Forest Supervisor.

35(c). Engineering. Survey and design for Specified Roads shall be performed by the Forest Service unless otherwise specified in A1. Survey, design, and construction staking of Specified Roads to be engineered by purchaser shall be performed by purchaser in accordance with specifications supplied by the Regional Forester. Based upon the quantities developed by such design as approved by the Forest Service, the estimated costs and Purchaser Credit Limit stated in A2 shall be revised by the Forest Service.

On those roads for which the design is completed by Forest Service, the design quantities shall be used as the basis for revising estimated costs and Purchaser Credit Limit stated in A2.

The methods of computing such revised costs shall be consistent with the methods that would have been used had the engineering been performed prior to the beginning of the 5-year operating period.

On or before January 1 of each year, at the time of submission of the annual logging plan, the purchaser will furnish the Forest Service with a tentative schedule for those roads to be constructed for the following year's logging operations. If the purchaser proposes a change in the construction schedule that results in less than one year lead time for survey and design, the purchaser shall be responsible for the survey and design unless otherwise agreed.

35(d). *Estimated Costs.* Estimated costs by construction phases for specific roads to be constructed during each 5-year operating period are stated by segments in A2. Such costs are subject to revision under 2(b), 2(c), 35(b), 35(c), 35(f), 35(g), 35(g), 35(h), and 35(i).

Appropriately adjusted costs shall be made a part of a revised A2 which will be designated A2-1, A2-2, etc. The revised A2 shall supersede any prior A2 herein when it is dated and signed by purchaser and Forest Supervisor.

35(e). *Difference in Rock Costs.* If there is advance written agreement on changes in source, average haul mileage, type, or dimensions shown on drawings, affecting cost estimates for embankment rock from "designated sources", surface rock, or rock riprap, A2 will be revised to reflect these changes. Forest Service will prepare revised cost estimate which will be the sum of: (1) unit rates consistent with the Table of Unit Costs times the estimated quantities used in computation of cost estimates in the most recent A2, (2) unit rates in current use times the amounts by which the revised quantity estimates exceed estimated quantities used to compute the most recent A2, (3) the estimated cost of any development work performed at specified sources abandoned as unsatisfactory, at rates consistent with the Table of Unit Costs in effect at the time the work was done.

35(f). *Difference in Culvert Installation.* If the actual approved amount, size or type of culvert or drainage accessories installed hereunder differ from those estimated in drawings and specifications under 35(b), the Table of Unit Costs shall be revised to reflect these changes and appropriate changes made to A2. The revised cost estimate will be prepared by Forest Service and will be the sum of: (1) unit rates in the current Table of Unit Costs times the revised estimated amounts for those sizes or types listed in the Table of Unit Costs, and (2) unit rates in current use times the revised estimated amounts of sizes or types not listed in the Table of Unit Costs.

35(g). *Cost Adjustment for Physical Change.* The estimated costs in A2 shall be revised if prior to acceptance, a major physical change, caused by a single event and not due to negligence of purchaser, results in additional work by purchaser involving an additional estimated cost of more than $3,000. Such costs shall include the cumulative estimated costs of repairing damage from slides washouts, landslips, fire, etc., caused by said event. Drawings and specifications shall be revised when necessary to meet the new conditions. Such revised drawings and specifications, together with the estimated cost of work abandoned, shall be the basis for revised cost estimates.

The difference in estimated quantities for the portion of the road affected by physical change shall be determined by Forest Service by comparing the most recent previous quantity estimates with the total of quantity estimates for construction performed prior to physical change plus quantity estimates for construction to be performed following physical change. Where the quantity difference is an increase, such increase times the current unit rate shall constitute the increase in cost estimate to be added to A2. When the quantity difference is a decrease, such decrease times the rate or rates used in preparing the most recent previous cost estimate for the road portion shall constitute the decrease in cost estimate to be subtracted from A2.

35(h). Design Change. If purchaser and Forest Service agree in writing on a design change, appropriate and related changes shall be made in drawings and (uniform and/or supplemental) specifications and estimated costs shall be revised to reflect such design change. A design change is a change of other than a minor nature in location; road cross section; quantities of unsuitable or excess material to be removed; or structures, other than culverts, described in drawings and specifications. Changes of a minor nature are those such as in alinement normally considered as necessary to maintain earthwork quantities substantially as designed. The difference in estimated quantities for the portion of the road affected by each design change shall be determined by Forest Service by comparing the most recent previous quantity estimates with the total of quantity estimates for the proposed design change, plus quantity estimates for construction performed but abandoned because of design change. Where the quantity difference is an increase, such increase times the current unit rate shall consitute the increase in cost estimate to be added to A2. Where the quantity difference is a decrease, such decrease times the rate or rates used in preparing the most recent previous cost estimate for the road portion shall constitute the decrease in cost estimate to be subtracted from A2. A2 shall be revised periodically to reflect the total change in cost resulting from design changes effected during the period. If a design change required adjustments in rock costs or culvert installation such adjustments will be made in accordance with 35(e) or 35(f).

35(i). Alternate Facilities. If, during the 5-year operating period, roads needed for the removal of timber included in this contract differ substantially from surveyed and designed Specified Roads, other roads may be added to A1. The road routing, location, design, and needed easements shall be such as will make other roads acceptable as parts of the National Forest transportation system. Survey, design, and construction staking for such other roads shall be provided by purchaser.

Based on design quantities from such engineering, Forest Service shall estimate construction costs of alternate facilities using methods consistent with those used in the original computation of A2. Purchaser Credit Limit for acceptable alternate facilities shall not exceed the estimated costs of facilities based on survey and design estimates, listed in A2 which purchaser does not construct except that Purchaser Credit Limit may be adjusted as described in 35(b), 35(c), 35(d), 35(f), 35(g), and 35(h).

35(j). Purchaser Credit Computation. Forest Service shall make timely estimates of purchaser's progress in Specified Road construction. On the basis of such progress estimates and the cost estimates in A2, Forest Service shall credit purchaser's Timber Sale Account each month as such work proceeds. Materials furnished and delivered by purchaser shall be included in estimating work progress.

Such crediting of purchaser's Timber Sale Account shall be at 95 percent of the estimate of cost of work accomplished until the project segment listed in A2 is accepted as completed or is abandoned under 35(i). At such time, purchaser's timber sale account shall receive full credit up to Purchaser Credit Limit.

35(k). Control of Erosion After Logging. After logging operations have been completed on any unit of the sale area, necessary work to prevent undue erosion on all roads shall be performed by the purchaser as follows:

(1). On roads that are not to be kept on a permanent basis, obliteration shall be in accordance with Section 18 (and such regulations as established by the Regional Forester).

(2). On Specified Roads, all work necessary to restore culverts, ditches, and other drainage structures to standard agreed on for that road in accordance with Section 35(b).

(3). On cut and fill slopes, waste and spoil areas susceptible to erosion on or along roads and skid trails constructed or used by the purchaser, purchaser shall revegetate all such areas by seeding with grass. Revegetation work may include fertilization.

35(l). Use of Partially Constructed Road. Portions of Specified Roads shall be Substantially Completed prior to their use for hauling timber from each established landing, except that purchaser may be relieved in writing of this requirement if there is justification under existing conditions. When necessary to facilitate construction and protect bridges and roads from damage, timber felled in construction and timber logged directly to the road from areas immediately adjacent thereto may be hauled before

road construction is Substantially Completed. Such hauling shall be confined to periods when abnormal soil erosion and damage to National Forest lands will not result.

"Substantially Completed" means completion of grading and installation of drainage structures so they will function effectively.

Unless agreed otherwise, specified reconstruction shall be completed on any portion of road prior to hauling on that portion.

35(m). Designated Sources. Those sources of local material shown on the drawings and described in the pit development plans are "Designated Sources". All other sources shall be considered undesignated. The Forest Service assumes responsibility for the quality and quantity of material in the Designated Source. It is agreed that it is not feasible to determine from samples the limit for an entire deposit, and that variations in materials shall be considered as usual and are to be expected.

The purchaser shall utilize the material in the Designated Source to the fullest extent possible. Should the "Designated Source", due to causes beyond the control of the purchaser, contain insufficient acceptable material, the Forest Service shall provide another source with an equitable adjustment in accordance with 35(e).

The purchaser shall promptly and before such conditions are disturbed, notify the Forest Service of the unsuitability of the "Designated Source".

Signed in triplicate this 26th day of July, 1951.

(Corporate Seal)

Ketchikan Pulp & Paper Company

By A. Turcotte

Its President

Witnesses: Attest George V. Powell
Secretary

Oscar H. Gossny

Robert H. Evans

Approved at Washington, DC, under the above conditions, August 20, 1951.

Acting Chief, Forest Service

OPERATING GUIDELINES
FOR TIMBER SALE
LAYOUT

KPC LONG-TERM CONTRACT

1979 - 1984

OPERATING PERIOD

Recommended By: Carter L. Mendlick (signature) — 7/1/76
Timber Program Manager — Date

Approved By: J. S. Watson (signature) — 9/15/76
Forest Supervisor — Date

TABLE of CONTENTS

Page

I. Timber..... 1

II. Recreation..... 3

III. Visual Resource..... 4

IV. Fish Stream Habitat.....5

V. Log Transfer and Raft Storage.....7

VI. Soil and Watershed.....9

VII. Wildlife.....10

TIMBER

1. The timber management objectives are:

   Develop and maintain healthy, vigorous commercial forests by harvesting overmature and decadent stands prior to the harvest of younger stands of timber.

   --Establish and maintain a balanced distribution of age classes by area and productive capability.

   --Use regeneration systems which will result in adequate natural regeneration.

   --Enhance the quality and quantity of timber production by rotation age.

   --Achieve and maintain optimum productivity in all managed stands by:

      a. Minimizing adverse impacts from diseases.

      b. Obtaining and maintaining optimum stocking in stands that are under rotation age through cultural treatment.

      c. Reduce forest losses from insects to levels commensurate with resource values involved.

2. The transportation system will be planned to harvest all the commercial forest land in the given area, even though all CFL areas will not be harvested by one entry. The only roads that will be built will be those that are needed to harvest the approved units.

3. Logging systems used must be compatible with silvicultural and other resource objectives.

4. Even-aged management by clearcutting will be the preferred system for regeneration of the hemlock-Sitka spruce type.

5. Uncut stands of commercial timber will be planned so they are suitable for subsequent commercial logging.

6. Windfirmness will be a major consideration in unit boundary location.

(1)

7. Factors to consider when planning entries adjacent to existing cutover areas are:

   1. Effect of new logging activities on reproduction in existing cutover area.

   2. Visual impact of new clearcut in combination with existing clearcut. In areas of high visual sensitivity previous cutting areas should be "greened up" before second entry planned.

   3. Attainment of a balanced distribution of age classes of good and poor sites.

   4. Soundness of stump anchors in adjacent clearcut.

   5. The impact on wildlife in key habitat areas.

   The time range for these factors can vary from five to fifty years depending on specific site conditions. Therefore, whenever clearcutting is planned adjacent to less than pole-sized timber the reasons will be documented in the E.A.R. or E.I.S.

8. For additional information refer to FSM 2471 R-10 Supplement #126.

RECREATION

There is a wide variety of existing and potential recreational opportunities which make up the recreation resource of the KPC sale area. Much of the Ketchikan Pulp Company long-term sale lies within the Prince of Wales Planning Unit and is covered by Management Units of the Tongass Land Use Plan. Generally the recreation guidelines contained in this document give direction for protection of this resource.

Additional direction is:

1. Each recreation cabin and inventoried cabin site will be identified on the visual resource management overlay. The landscape architect will analyze each cabin and assign landscape management units commensurate with the appropriate sensitivity level.

2. Provide access free of logging debris along those lakes and streams identified on the 1" = 1 mile recreation overlay.

3. Proposed roads which will be retained for public travel should be located so they provide the user with a varied and interesting experience.

4. Where appropriated funds are available, provide overnight parking along roads which will remain open to public travel.

5. Known historical and archeological sites are identified on the overlays and will be protected in accordance with the Antiquities Act and its related legislation and Executive Orders.

6. Plan activities so that anchorages identified on overlays are not exposed to the wind.

7. Sensitive areas such as streamsides, lakeshores, saltwater shorelines, and roadsides identified on visual resource overlays will be managed in accordance with landscape management units assigned to them.

FISH STREAM HABITAT

The following are operating guidelines for timber harvest planning involving fish streams in the sale area. Guides to minimize sedimentation are covered in the Watershed Requirements.

1. When laying out units adjacent to designated fish streams use the stream as a yarding divide to prevent damage to streambank and introduction of debris into stream.

2. Where necessary to yard across a designated fish stream, logs must be fully suspended to protect streambanks and streambank vegetation.

3. Locate and design roads to eliminate the introduction of construction debris into fish streams.

4. Streams not shown on the overlays or in the Alaska Department of Fish & Game catalog but which are affected in any way by logging or construction activities should be reported to the Area Biologist with information of fish species, whether adult or juvenile, water temperature, and date of observations. Such streams will receive the protection outlined in these guidelines.

5. Drainage structures will be located and installed to minimize impact on all resources. All bridges will be designed to prevent spillage of road material into the stream. Culverts on designated fish streams will be designed to insure fish passage at normal streamflows. Normal flow will be based on a flow duration analysis and defined as those flows which occur between 10 and 80 percent of the time on the duration curve.

6. Roads and rock pits will be located and designed to minimize introduction of silt and other impacts to streams.

7. Streams will not be diverted from their natural channel to accommodate road location without recommendations of the area hydrologist and fishery biologist and approval of the Forest Supervisor.

8. Temperature-sensitive streams are identified on the overlays and have the following requirements for timber harvest along their banks:

    a. No more than 25 percent of the streamside overstory canopy should be removed in the initial entry.

b. Where timber is harvested near streambanks, no more than 20 chains adjacent to the streams should be cut on the N, NE, E, and SE side of the stream and 10 chains on the S,SW, W and NW side.

c. Protect the brush and understory, including shrub trees, adjacent to the stream during timber harvest operations.

d. Normally, streams shown on the overlays require tree cover to provide necessary shading from direct sunlight; however, streams not shown on the base maps or overlays, but which are tributaries to streams in the above category, generally are small and may be shaded adequately by streamside brush, grass, or high banks (topographic shading). In these cases it may not be necessary to avoid cutting of timber adjacent to these streams as outlined in guideline "b" above.

Log Transfer Sites and Raft Storage Areas 1/

A. Those people responsible for selecting transfer sites, booming grounds, and log storage areas should try to:

1. Maximize the distance between the mouths and intertidal channels of anadromous fish streams and the sites.

2. Maximize the distance between tide flats and subtidal beds of aquatic vegetation and the sites.

3. Use the steepest shores having the least intertidal and subtidal zone.

B. Other objectives relate to the reduction of certain activities in conjunction with transfer sites. These objectives include efforts to:

1. Minimize disturbance of the shoreline as a result of clearing, road building, and other activities that might produce silt or otherwise disrupt the estuarine environment.

2. Minimize storage time for rafted logs before transport to the mill.

3. Minimize the number of active transfer sites and log storage areas in any given bay or bay complex.

4. Minimize the filling of intertidal and subtidal areas for the construction of log transfer sites, fuel transfer facilities, equipment loading ramps, etc.

5. Minimize the use of intertidal areas as a source of borrow.

6. Minimize interference with other established uses such as commercial and sport fishing, hunting and anchorages for commercial and recreational boats.

C. With regard to impact on fishery resources in general, selecting the following alternatives will probably serve to minimize adverse effects:

1. Whenever possible locate sites outside bays, along straits and channels.

2. Locate transfer sites in deep bays rather than in shallow bays. Select bays without sills or other natural restrictions to tidal exchange.

3. Locate transfer sites near mouths of bays rather than at heads of bays unless the environment at the mouth of the particular bay in question has some special significance.

4. Use the deepest water possible for booming grounds and log raft storage areas.

5. Select sites that accommodate future timber development without requiring continual relocation.

If a choice must be made, protect fishery resources in the order of their importance. For example, protecting anadromous fish runs and streams has a higher priority than protecting clams and clam beds, because salmon are more important economically at this time. Such trade-offs may change from time to time as local and regional needs change. Usually, when conflicts arise that require trade-offs between fishery resources, decisions regarding resource values should be solicited from biologists after an on-site examination of the particular situation.

1/ Log transfer and Storage Area Guidelines are adopted from:

Department of Commerce
National Oceanic and Atmospheric Administration

National Marine Fisheries
Juneau, Alaska

SOILS AND WATERSHED

1. To maintain soil productivity and lessen sediments to streams from yarding activities, soil disturbance should not exceed 30 percent. Exposed bare mineral soil or rock should not exceed 10 percent of a unit, and these areas must be small, scattered, and discontinuous sites which are separated from live stream or river channels by areas with undisturbed surface organic matter layers. The other 20 percent disturbance may consist of a mulch condition which could include a mixture of organic and mineral horizons or a mixture of organic horizons.

2. Units, regardless of soil types, may not be selected for tractor yarding unless field review shows that the maximum ground disturbance in recommendation one will not be exceeded. Approved units may not exceed 10 percent slope gradients.

3. To maintain soil cover and minimize slope failure, partial or full suspension should be obtained when yarding downhill on slopes between 60 and 75 percent (31 to 37 degrees).

4. On slopes 67 percent or greater, an investigation will be made by the watershed, soils, or materials specialists to determine feasibility of logging. If logging is approved on slopes 75 percent or greater, full suspension will be required for nearly the entire length of the external yarding distance. See FSM 2470.

5. When logging units, where V-notches are present, adhere to the recommendations and hazard ratings in the paper titled: The Development of a V-notch Classification System for Southeastern Alaska, to minimize soil disturbance and mass soil movement.

WILDLIFE

1. The following guidelines are primarily for protection or enhancement of deer winter range and are based on a series of wildlife overlays in the Ketchikan Area Wildlife Atlas available at the Ketchikan Area Office.

Black - These are areas that have been heavily cut. Emphasize thinning in the second growth, but no clearcutting will be allowed in the remaining old growth during the 1979-84 operating period.

Red --Significant wildlife areas such as
--specific key winter deer range
--escape cover along salmon stream
--estuarine areas for waterfowl, big game, furbearers, and nongame species
--small islands under 50 acres

Any activity within these areas during the 1979-84 operating period will be designed to maintain or improve wildlife habitat. Such activity will be based on recommendations of the Forest Service biologist.

Blue - Beach areas adjacent to F4 ecosystems are considered to be the best potential winter range for deer in southeast Alaska under average winter conditions.

1. Beach zone is one-quarter mile deep.

2. No clearcut should cover more than one-eighth mile width of the beach zone defined above or extend completely to the beach. Generally, a 100-200 foot buffer is required between the clearcut and the beach. Guidelines to minimize blowdown should be applied. Distances between cuts should be at least one-half mile unless salvage needs dictate otherwise.

Green - Beach areas adjacent to F1 ecosystems:

1. Beach zone is one-quarter mile deep.

2. No clearcut should cover more than one-quarter mile width of the beach zone defined above or extend completely to the beach. Generally, a 100-200 foot buffer is required between the clearcut and the beach. Guidelines to minimize blowdown should be applied. Distances between cuts should be at least one-half mile unless salvage needs dictate otherwise.

Remaining (uncolored) - Beach front areas of general but unknown wildlife importance.

1. Clearcut size should be as small as practical. Average size should be 25 acres.

2. Leave areas should be as large as adjacent cutover areas.

Other wildlife requirement not necessarily species oriented

1. On catalogued salmon streams, no more than 25 percent of the streamside timber will be harvested along the first one-half mile of the stream from saltwater.

2. Beaver ponds need protection by limiting cutting to removal of maximum of one-half shoreline for each entry.

3. Some importance has been given to protection of the borders of muskegs, possibly by leaving a strip of timber. Protection of these borders should be a standard practice in areas of few muskegs. The result will be more diversified habitat with increased edge within a given area.

4. Eagle nest trees, regardless of whether currently active, are to be protected. Roads, cutting or other disturbance activities will be kept a minimum of five chains away to insure a windfirm stand around the nest. Refer to FSM 2613.01a R10 Supplement #26 and FSM 2633 Supplement #14.

5. Existing camps and facilities should be utilized where practicable, and new developments in high wildlife use areas should be avoided.

6. Roads should be located to minimize conflicts with high wildlife use areas and should be routed outside deferred cutting areas where practicable.

1

ific Corp

or 1979 -

Statement

PRINCE OF WALES ISLAND

PT. BAKER
PORT PROTECTION
LABOUCHERE BAY
REED BAY
SHAKAN BAY
SHIPLEY BAY
KOSCIUSKO ISLAND
MARBLE ISLAND
EL CAPITAN PASSAGE
NEC LAKE
WHALE PASSAGE
THORNE ISLAND
COFFMAN COVE
SWEETWATER LAKE
SARKAR LAKE
RATZ HARBOR
NAUKATI BAY
TUXEKAN ISLAND
PORT ALICE
SEA OTTER SOUND
HECETA ISLAND
TUKTKAN PASSAGE
WARM CHUCK INLET
THORNE RIVER
THORNE BAY
GULF OF ESQUIBEL
SAN ALBERTO BAY
KLAWOCK
KLAWOCK LAKE
SALMON LAKE
KARTA BAY
KASAAN PENINSULA
KASAAN BAY
WELVEMILE ARM
NOYES ISLAND
SAN FERNANDO ISLAND
LULU ISLAND
SAN JUAN BAUTISTA ISLAND
CRAIG
HOLLIS
TROCADERO BAY
SODA BAY
CABIN CREEK
POLK INLET
SKOWL ARM
HYDABURG
HETTA INLET
WEST ARM
CHOLMONDELEY SOUND
SOUTH ARM
NORTH ARM
KASAAN
MOIRA SOUND
WEST ARM
SOUTH ARM

REVILLAGIGEDO ISLAND

BELL ISLAND
BELL ISLAND HOT SPRGS.
HASSIED IS.
BEHM CANAL
SPACIOUS BAY
SHRIMP BAY
GEONEY PASS
NEETS BAY
FIRE COVE
TRAITOR'S COVE
NAHA BAY
CARROLL INLET

LEGEND

- EXISTING LOGGING CAMPS
- PROPOSED LOGGING CAMPS
- TOWNS AND VILLAGES
- EXISTING HARVEST UNIT
- EXISTING ROAD SYSTEM
- PROPOSED HARVEST UNIT
- PROPOSED ROAD SYSTEM
- SALE BOUNDARY
- LOG TRANSFER SITE
- ROADLESS AREA

ALTERNATIVE 1

The Louisiana-Pacific Corporation, Ketchikan Division, Timber Sale Plan for 1979 - 84

Final Environmental Statement

Tongass National Forest

N

PRINCE OF WALES ISLAND

PT. BAKER
PORT PROTECTION
LABOUCHERE BAY
RED BAY
SHAKAN BAY
SHIPLEY BAY
KOSCIUSKO ISLAND
EL CAPITAN PASSAGE
REC LAKE
WHALE PASSAGE
THORNE ISLAND
COFFMAN COVE
SWEETWATER LAKE
SARKAR LAKE
MARBLE ISLAND
RATZ HARBOR
TUXEKAN ISLAND
HAIDAKATI BAY
PORT ALICE
SEA OTTER SOUND
HECETA ISLAND
TUXEKAN PASSAGE
WARM CHUCK INLET
THORNE RIVER
THORNE BAY
GULF OF ESQUIBEL
SALMON LAKE
KARTA BAY
KASAAN PENINSULA
KLAWOCK
KLAWOCK LAKE
SAN ALBERTO BAY
NOYES ISLAND
SAN FERNANDO ISLAND
LULU ISLAND
SAN JUAN BAUTISTA ISLAND
CRAIG
HOLLIS
TWELVEMILE ARM
KASAAN BAY
CABIN CREEK
POLK INLET
SKOWL ARM
TROCADERO BAY
SODA BAY
HETTA INLET
HYDABURG
WEST ARM
SOUTH ARM
CHOLMONDELEY SOUND
NORTH ARM
MOIRA SOUND
NICHOLS BAY

BELL ISLAND
BELL ISLAND HOT SPRINGS
BEHM CANAL
HASSLER IS.
SPACIOUS BAY
SHRIMP BAY
GEONEY PASS
NEETS BAY
FIRE COVE
BAITORS COVE
NAHA BAY
CARROLL INLET

REVILLAGIGEDO ISLAND

LEGEND

- EXISTING LOGGING CAMPS
- PROPOSED LOGGING CAMPS
- TOWNS AND VILLAGES
- EXISTING HARVEST UNIT
- EXISTING ROAD SYSTEM
- PROPOSED HARVEST UNIT
- PROPOSED ROAD SYSTEM
- SALE BOUNDARY
- LOG TRANSFER SITE
- ROADLESS AREA

ALTERNATIVE 3

The Louisiana-Pacific Corporation, Ketchikan Division, Timber Sale Plan for 1979 - 84

Final Environmental Statement

Tongass National Forest

PRINCE OF WALES ISLAND

PT. BAKER
PORT PROTECTION
LABOUCHERE BAY
REED BAY
SHAKAN BAY
SHIPLEY BAY
KOSCIUSKO ISLAND
MARBLE ISLAND
EL CAPITAN PASSAGE
MEGUM LAKE
WHALE PASSAGE
THORNE ISLAND
COFFMAN COVE
SWEETWATER LAKE
SARKAR LAKE
RATZ HARBOR
NAUKATI BAY
TUXEKAN ISLAND
PORT ALICE
SEA OTTER SOUND
HECETA ISLAND
WARM CHUCK INLET
TUXEKAN PASSAGE
THORNE RIVER
THORNE BAY
GULF OF ESQUIBEL
KASAAN PENINSULA
KARTA BAY
SALMON LAKE
KLAWOCK
KLAWOCK LAKE
SAN ALBERTO BAY
NOYES ISLAND
SAN FERNANDO ISLAND
LULU ISLAND
SAN JUAN BAUTISTA ISLAND
CRAIG
HOLLIS
TWELVEMILE ARM
KASAAN BAY
SKOWL ARM
CABIN CREEK
POLK INLET
TROCADERO BAY
SODA BAY
HYDABURG
HETTA INLET
WEST ARM
SOUTH ARM
CHOLMONDELEY SOUND
NORTH ARM
NUTKWA INLET
MOIRA SOUND
WEST ARM
SOUTH ARM
HESSA INLET
NICHOLS BAY

BELL ISLAND
BELL ISLAND HOT SPRGS.
HASSLER IS.
SHRIMP BAY
SPACIOUS BAY
GEONEY PASS
NEETS BAY
FIRE COVE
BAILEY'S COVE
BEHM CANAL
NAHA BAY
CARROLL INLET

REVILLAGIGEDO ISLAND

LEGEND

- EXISTING LOGGING CAMPS
- PROPOSED LOGGING CAMPS
- TOWNS AND VILLAGES
- EXISTING HARVEST UNIT
- EXISTING ROAD SYSTEM
- PROPOSED HARVEST UNIT
- PROPOSED ROAD SYSTEM
- SALE BOUNDARY
- LOG TRANSFER SITE
- ROADLESS AREA

ALTERNATIVE 4

The Louisiana-Pacific Corporation, Ketchikan Division, Timber Sale Plan for 1979-84

Final Environmental Statement

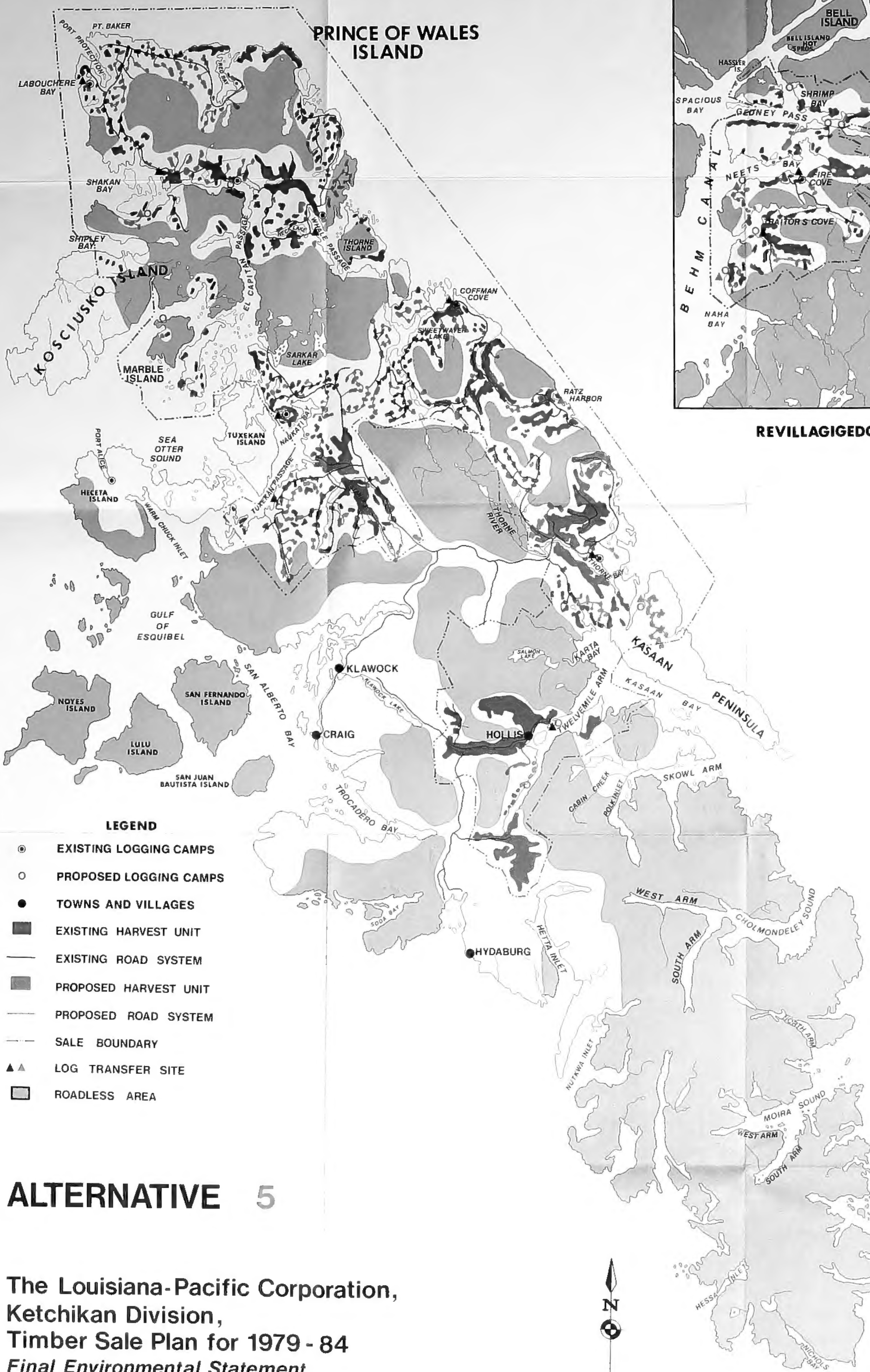
Tongass National Forest

ALTERNATIVE 5

The Louisiana-Pacific Corporation, Ketchikan Division, Timber Sale Plan for 1979 - 84

Final Environmental Statement

Tongass National Forest



U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE, REGION 10
OFFICE OF INFORMATION
P.O. BOX 1628
JUNEAU, ALASKA 99802

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE

AGR 101