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porations in previous years. In addition, to comply with the meandering requirements of the *BLM Survey Manual*, the federal government is still required to make navigability determinations for lakes smaller than 50 acres and rivers or streams narrower than 198 feet in width to determine if these waters must be meandered.

Navigability Criteria

The greatest hurdle to overcome in the state's efforts to identify and manage navigable waters has been the long-standing differences of opinion between the State of Alaska and the United States regarding the application of the test for determining title navigability. Navigability is a question of fact, not a simple legal formula. Variations in waterbody use that result from different physical characteristics and transportation methods and needs must be taken into account. There are many legal precedents for determining navigability in other states based upon the particular facts presented in those cases. In Alaska, though, we are just beginning to get the final court decisions that are necessary to provide legal guidance for accurate navigability determinations.

The physical characteristics and uses of a waterbody used by the state for asserting navigability, commonly referred to as navigability "criteria", are based upon legal principles that have been established by the federal courts. These criteria are applied to rivers, lakes and streams throughout the state and take into account Alaska's geography, economy, customary modes of water-based transportation and the particular physical characteristics of the waterbody under consideration.

The federal test for determining navigability was established over a hundred years ago. In the landmark decision of *The Daniel Ball*, 77 U.S. (19 Wall.) 557, 563 (1870), the Supreme Court declared:

> Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways of commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

Although *The Daniel Ball* test is accepted as the correct standard for determining navigability, there has been a lot of disagreement over application of many of the terms and phrases used in *The Daniel Ball* test to the specific uses of Alaska's lakes, rivers and streams. The State of Alaska uses the following interpretation of that test as the basis for its navigability program.

The Waterbody Must Be Usable as a Highway for the Transportation of People or Goods.

Interpreting the requirement that navigable waterbodies be used or usable as "highways of commerce", the courts have ruled that the central theme of title navigability is that the waterbody be capable of use as a highway which people can use for transporting goods or for travel. Neither the types of goods being transported nor the purpose of the travel are important in determining navigability. Transportation on water associated with recognized commercial activities in Alaska, such as mining, timber harvesting, and trapping, is evidence of navigability. The use of waterbodies for transportation in connection with natural resources exploration or development, government land management, management of fish and game resources, or scientific research is also evidence of navigability. Travel by local residents or visitors for the purpose of hunting, fishing and trapping, or as a means of access to an area can be used to establish navigability. The same holds for recreational transportation, including personal travel and professionally guided trips.

Waters Which Are Capable of Being Used for Transporting Persons and Goods, Although Not Actually Used, Are Navigable.

It is not necessary that a waterbody be actually used for transportation to be found navigable. It is enough that it is susceptible, or physically capable, of being used. Whether a waterbody is susceptible of use for transportation depends upon the physical characteristics of the water course such as length, width, depth and, for a river, current and gradient. If those physical characteristics demonstrate that a waterbody could be used for the transportation of persons or goods, it is legally navigable.

The susceptibility element of title navigability is very important for the identification of navigable waterbodies in Alaska. Because of Alaska's sparse population and lack of development, there are

hundreds of remote rivers, lakes and streams where there is little or no evidence of actual use. Because of their physical characteristics, however, many of these remote waterbodies could be used for transporting people or goods if the need were to develop. Under these circumstances, they are considered legally navigable.

Transportation Must Be Conducted in the Customary Modes of Trade and Travel on Water.

A finding of navigability does not require use or capability of use by any particular mode of transportation, only that the mode be customary. The courts have held that customary modes of transportation on water include all recognized types and methods of water carriage. Unusual or freak contrivances adapted for use only on a particular stream are excluded. Customary modes of trade and travel on water in Alaska include, but are not limited to, barges, scows, tunnel boats, flat-bottom boats, poling boats, river boats, boats propelled by jet units, inflatable boats, and canoes. In places suitable for harvesting timber, the flotation of logs is considered a customary mode of transportation.

The mode of travel must also be primarily waterborne. Boats which may be taken for short, overland portages qualify. The courts have ruled that the use of a lake for takeoffs and landings by floatplanes is insufficient, in and of itself, to establish navigability.

Without expressly rejecting the claim, at least two court decisions in Alaska have suggested that winter travel on the surface of a frozen river or lake is probably not evidence of navigability. The rivers involved in the two adjudicated cases were both found navigable based upon summer use by boats, however, and it appears likely that most waterbodies in Alaska that are used as highways in winter can also be travelled by at least small boats in the summer. Because of this, the state may not need to rely upon winter travel to support navigability.

Waters Must Be Navigable in their Natural and Ordinary Condition.

A waterbody which can be used for transportation only because of substantial man-made improvements to the condition of the watercourse is not navigable for title purposes. However, if transportation does or could occur on the waterbody even without the improvements and the improvements would only make transportation **easier** or **faster** or possible for **larger boats** (e.g., dredging), it is still considered navigable for title purposes.

The presence of physical obstructions to navigation (rapids, falls, log-jams, etc.) does not render a waterway non-navigable if the obstruction can be navigated despite the difficulties or if the obstruction can be avoided by other means, such as portaging, lining, or poling. A waterbody is also navigable even if seasonal fluctuations do not allow it to be navigated at all times of the year. However, a waterbody which is only navigable at infrequent and unpredictable periods of high water is not normally considered navigable. The fact that a waterbody may be frozen for several months of the year does not render it non-navigable if it is navigable in its unfrozen condition.

Title Navigability Is Determined as of the Date of Statehood.

To be considered navigable for title purposes, the waterbody must have been navigable in 1959 (when Alaska became a state). This element of the navigability test focuses on the physical characteristics of the waterbody and whether those characteristics have changed significantly since statehood. Most waterbodies have not physically changed enough since statehood to alter their navigability. Assuming there have been no significant changes in the physical characteristics of the waterbody, a waterbody that is navigable today would be considered legally navigable in 1959 as well. Exceptions might include the creation, by natural or man-made causes after statehood, of a totally new lake, river or canal now used for navigation. Such a waterbody would not be considered navigable for title purposes. Conversely, a waterbody which was navigable in 1959 but, because of natural or man-made physical changes, is no longer navigable in fact would still be considered navigable for title purposes.

Navigability Criteria Disputes

Because of differing legal interpretations of court navigability decisions, several aspects of the criteria used by the state to determine navigability have been disputed by the federal government. As a direct result of these criteria disputes, many waterbodies considered navigable by the state have been determined non-navigable by the federal government.

The major criteria dispute has been over the type or purpose of the transportation required to establish navigability. The federal government has asserted that a waterway must be used, or capable of use, for transporting commerce to be considered navigable. Other, "noncommercial" transportation uses are not considered sufficient to establish navigability. In this context, the federal government has claimed that the only relevant "commercial" transportation is the distribution of goods for sale or barter, or the transportation for hire of people or things. The federal government has admitted that professionally guided transportation on Alaska's rivers, lakes and streams constitutes commerce, but nevertheless has argued that the waters are not being used as a navigable "highway" when recreation is involved, but rather more as an amusement park. The federal government has therefore claimed that waters used only for commercial recreation are legally non-navigable even though they may be navigable in fact.

Through the work of the state's navigability program, this definition has been repeatedly rejected by the courts, most recently in the Gulkana River case. *Alaska v. United States*, 662 F. Supp. 455 (D. Alaska 1986), *affirmed sub nom. Alaska v. Ahtna, Inc.*, 891 F.2d 1401 (9th Cir. 1989). Applying the correct definition of navigability, many of the submerged lands that the federal government attempted to convey to ANCSA corporations should have been recognized as belonging to the state. The state appealed many conveyances to protect its title. As occurred in the Kandik-Nation Rivers appeal, *Appeal of Doyon*, 86 I.D. 692 (ANCAB 1979), Alaska Native corporations also found it necessary to challenge erroneous federal determinations of non-navigability to insure they would not be deprived of any portion of their entitlement by being charged for submerged land owned by the state.

The federal government has also argued that aluminum boats, boats propelled by jet units, inflatable boats and canoes are not customary modes of travel for the purpose of determining navigability in Alaska. As a result, many waterbodies navigated by these types of watercraft have been found legally non-navigable by the federal government. The claim is that these boats represent post-statehood technological advances, are too small to be considered "commercial", or that most "commercial" use of the watercraft developed after statehood.

Another navigability dispute involves remote, isolated lakes. The federal government has found many of these lakes legally non-navigable, even though they are physically capable of being navigated. The federal government's contention is that a navigable connection to another area is necessary to make travel on a remote lake worthwhile. Otherwise, the federal government views the lack of development in the area around the isolated lake as an indication that the lake will never be used for commercial transportation.

To resolve these navigability criteria disputes the state has actively pursued a limited number of court cases challenging particular findings of non-navigability by the federal government. With the sole exception of floatplanes, the courts have agreed with the navigability criteria presented by the State of Alaska and have rejected the limitations suggested by the federal government. These cases include:

Gulkana River. In this case, both in the U.S. District Court and on appeal to the U.S. Court of Appeals, the federal courts rejected the federal government's restrictive interpretation of the phrase "highway of commerce" in the title navigability test. The federal district court stated that to demonstrate navigability, it is only necessary to show that the waterbody is physically capable of "the most basic form of commercial use: the transportation of people or goods." Because the Gulkana River can be used for the transportation of people or goods, the Gulkana River was found navigable. *Alaska v. United States*, 662 F.Supp. 455 (D. Alaska 1987). On appeal, the court of appeals affirmed the district court's finding of navigability. *Alaska v. Ahtna, Inc.*, 891 F.2d 1401 (9th Cir. 1989). The court of appeals found that the modern use of the Gulkana River for guided hunting, fishing and sightseeing trips is a commercial use and, since the physical characteristics of the river have not significantly changed since 1959, provides conclusive evidence that the river was susceptible of commercial use at statehood. The court also found that modern inflatable rafts can be used to establish navigability. In April 1990, the United States Supreme Court denied a request by Ahtna, Inc. to reconsider and overturn the court of appeal's decision. The Gulkana River precedent is now binding on all future navigability determinations in Alaska.

Kandik and Nation Rivers. In this administrative appeal, the State of Alaska and Doyon Limited, an ANCSA regional corporation, successfully established that the use or susceptibility of use of a river or stream by an 18-24-foot wooden riverboat capable of carrying at least 1,000 pounds of gear or supplies is sufficient to establish navigability. Based upon the use of these types of boats for the transportation of goods and supplies by fur trappers, as well as extensive historic and contemporary canoe use, the court found the Kandik and Nation rivers, in Interior Alaska, navigable. *Appeal of Doyon*, 86 I.D. 692 (ANCAB 1979).

Alagnak River. In this federal district court case, the Alagnak River, the Nonvianuk River, Kukaklek Lake and Nonvianuk Lake were all found navigable. These interconnected waterbodies are located in the Bristol Bay region of Alaska, south of Lake Iliamna. Their primary transportation use is for commercially guided hunting, fishing, and sightseeing and for government research and management. They also serve as a means of access for local residents to their homes and to the surrounding areas for subsistence hunting and fishing. After several years of litigation, the federal government conceded that these rivers and lakes are navigable. *Alaska v. United States*, No. 82-2 1 (D. Alaska Feb. 2, 1985).

Matanuska River. The recommended decision in this administrative appeal agreed with the State of Alaska's position that post-statehood commercial river rafting operations are sufficient to establish navigability. Based upon that type of use, the administrative law judge who heard the case recommended that the Matanuska River, in Southcentral Alaska, be found navigable. The Secretary of Interior, over the state's objections, assumed jurisdiction over the case and stayed implementation of the recommended decision. No action has been taken in the case since that time. *Appeal of Alaska*, No. 82-1133 (IBLA Rec. Decision Aug. 18, 1983)

Slopbucket Lake. The state claimed that the extensive use of floatplanes on Slopbucket Lake, a twenty acre lake adjacent to Lake Iliamna, was sufficient to establish navigability. The federal courts rejected this view. The courts reasoned that floatplanes do not use the lake as a navigable highway; they just take off and land there. *Alaska v. United States*, 754 F.2d 851 (9th Cir.), *cert. denied*, 106 S. Ct. 333 (1985).

Identification of Navigable Waters

Even if the criteria for determining navigability in Alaska were totally agreed upon, it still would be difficult to prepare a complete list of all of the navigable lakes, rivers and streams in the state. Much of Alaska has not yet been surveyed and many maps are inaccurate and out-of-date. It is an immense and complex task simply to identify and locate all of the thousands of named and unnamed lakes, rivers and streams in the state which might be considered navigable. Furthermore, once a potentially navigable lake, river or stream has been identified, detailed information about its size and uses is necessary for an accurate navigability determination. Because of Alaska's undeveloped and remote character, gathering navigability information is both time-consuming and expensive. Finally, administrative navigability determinations made by the state or the federal government are always subject to legal challenge, since only the courts can authoritatively determine title to submerged lands.

Despite these difficulties, both the state and the federal government are frequently called upon to issue navigability determinations. Although the requirement that BLM adhere to the meandering requirements of the BLM Survey Manual has eliminated the need for navigability determinations on the larger rivers, lakes and streams, which must now be meandered regardless of navigability, navigability determinations are still required for the smaller rivers, lakes and streams to determine if they are to be meandered at the time of survey. Because of this, some navigability determinations are still made for nearly every federal land conveyance under ANCSA or the Alaska Statehood Act. The management plan for nearly every federal Conservation System Unit (CSU) also addresses the navigability issue.

Federal navigability determinations are reviewed by the state to insure that available information sources were used and interpreted correctly. Where the federal government determines non-navigable a waterbody which is considered navigable by the state, the state may provide the government with supplemental information about the uses and characteristics of the waterbody to obtain a redetermination of navigability. Under some circumstances, the state needs to make its own navigability determinations, such as for a state oil and gas lease sale, land disposal,

material sale, mining claim, or another use of state land or resources requiring a determination of ownership of submerged lands within the affected area.

For large, undeveloped regions of Alaska there may be little or no accurate waterbody use or physical characteristics information available for making navigability determinations. When information is lacking, and it must make a navigability determination, the state is forced to rely solely upon the physical characteristics shown on maps and aerial photographs. In these cases, the state identifies as navigable all streams depicted on the U.S.G.S. maps with double lines (generally at least 70 feet wide) and having an average gradient over the length of the stream of no more than 50 feet per mile. With rare exceptions, the state's experience has been that streams of this type are deep enough and wide enough to be navigable by boats carrying persons or goods and must therefore be considered legally navigable. Streams depicted with single lines, although narrower in width, may also be listed as potentially navigable if they have gradients of substantially less than 50 feet per mile and are at least 10 miles long.

If there is no public use or physical characteristics information readily available for lakes, those lakes which are shown on maps and aerial photographs as having a navigable water connection with other navigable waters, or which are accessible by short overland portages, are considered navigable regardless of the size of the lake. These lakes are part of a system of interconnected navigable waters. If a lake is totally isolated, it will be included on the state's navigability maps if it is at least 1-1/2 miles long. That length insures that the lake can be used as a "highway". Future judicial decisions interpreting the "highway" requirement for isolated lakes could shorten or lengthen this 1-1/2 mile "rule of thumb."

The state recognizes that, under some circumstances, lakes smaller than 1-1/2 miles long can be and are used as navigable highways. In those cases, when known, these smaller lakes are also depicted on the state's navigability map. Moreover, as a matter of administrative policy and convenience only, the state may sometimes make an exception to the 1-1/2 mile standard in the extremely wet regions of the state, including some areas in the Yukon-Kuskokwim Delta, Yukon Flats and on the North Slope. In these areas, an isolated lake might need to be 2-3 miles long to be included on the state's navigability maps. Although smaller lakes in these areas are capable of being used for transportation and should be found navigable by the courts, the state has decided to concentrate its limited resources in protecting the larger waterbodies first.

Navigable Waters within Pre-statehood Federal Withdrawals

Although disputes over which waters in Alaska are navigable are the most frequent cause of submerged land ownership disputes, there is another major legal issue which poses a threat to Alaska's sovereign claim to the beds of navigable waters. Even where navigability is conceded, the federal government often contends that title to the submerged lands did not vest in the state if the area was withdrawn or reserved by the federal government on the date of statehood. Within Native conveyance areas, the federal government has used this claim of "reserved submerged lands" to justify its attempts to convey the beds of navigable waters in fulfillment of the Native entitlements. Within state selections, the federal government has used the same claim to charge the acreage of submerged lands against the state's entitlement.

The state strongly disagrees with this federal claim and has actively pursued a number of court challenges to resolve the issue. In addition to numerous appeals from federal decisions to convey or charge for the beds of navigable waters, the state was actively involved as a friend of the court in one case before the United States Supreme Court and continues to be involved in another Supreme Court case which presents this issue. The pending case is *United States v. Alaska*, U.S. Supreme Court 84 Original (filed June, 1979).

On June 8, 1987 the Court issued its decision in *Utah v. United States*, No. 85-1772 (filed Oct. 14, 1986). In this case the federal government, in 1976, issued oil and gas leases for land underlying Utah Lake, a navigable waterbody located in Utah. The suit sought a declaratory judgement that Utah, rather than the United States, holds the lands under navigable waters in the territories in trust for future states, and, absent a prior conveyance by the federal government to third parties, a state acquires title to such land upon entering the Union on an "equal footing" with the original 13 states.

The Supreme Court held that title did pass to the state upon Utah's admission to the Union. They held that there is a strong presumption against finding congressional intent to defeat a state's title, and, that in light of the longstanding policy of the federal government's holding land under navigable waters for the ultimate benefit of future states absent exceptional circumstances, an intent to defeat a state's equal footing entitlement could not be inferred from the mere act of the reservation itself. The United States would not merely be required to establish that Congress clearly intended to include land under navigable waters within the federal reservation, but would additionally have to establish that Congress affirmatively intended to defeat the future state's title to such land.

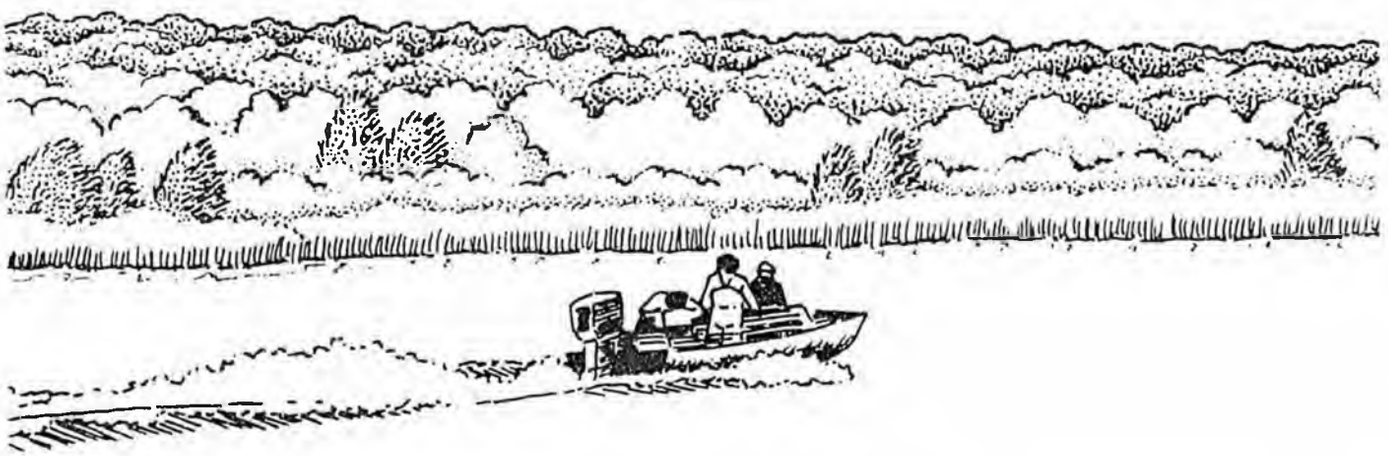
This decision has significant ramifications within Alaska, since over 95 million acres -- more than 25% of the total area of the state -- was enclosed within various federal withdrawals and reservations at the time Alaska became a state.

Navigable Waters within ANILCA Conservation System Units

On December 2, 1980, the Alaska National Interest Lands Conservation Act became law. This act created or added 104.3 million acres to various federal conservation system units. Because these "withdrawals" occurred after the date of statehood, there is no disagreement between the state and federal governments that navigable waters within the various CSU's are owned by the state. However, there is some disagreement on the amount of authority the federal land managers may have to regulate these state owned submerged lands.

The U.S. Constitution gives Congress certain limited powers to control uses on state owned submerged land. These are known as the Property Clause, Navigational Servitude and the Commerce Clause. The extent of these powers involves complex legal questions. However, even assuming that Congress has the power to regulate state-owned submerged lands in Alaska, the United States Supreme Court has ruled that Congress may choose not to exercise that power, thus leaving regulation totally up to the state. *Escanaba Co. v. Chicago*, 107 U.S. (17 Otto.) 678 (1883). Whether Congress has done that can only be determined by examining the federal laws passed by Congress dealing with Alaska lands. Another possibility is that the state and federal governments have concurrent jurisdiction, sharing the authority to regulate submerged lands.

In ANILCA, Congress did not take away the state's power to regulate state-owned submerged lands within federal CSU's in Alaska. Numerous provisions in ANILCA recognize and respect the state's authority over state-owned land. In some cases, however, Congress may have attempted to give the federal land managers some concurrent authority to regulate navigable waters within CSU's. The state, where possible, cooperates with rather than confronts the federal land managers. This cooperation often takes the form of a memorandum of understanding that discusses management issues and how they will be resolved. Differences do occur, however, over issues such as column management and restrictions on mining.



Legal and Policy Guidelines Governing Management of Submerged Lands and Public Waters

Public Trust Doctrine

The state has special duties and management constraints with respect to state owned land underlying navigable waters. These special duties and management constraints arise from the Alaska Constitution. The Alaska Constitution contains numerous provisions embracing the principles commonly known as the public trust doctrine. The public trust doctrine is remarkable both for its age and for its vigor. Rooted in the customs of the seafaring Greeks and Romans, it has evolved to become one of the most effective safeguards of public rights. Basically, the trust reflects an understanding of the ancient concept that navigable waters, their beds and their banks, should be enjoyed by all the people because they are too important to be reserved for private use.

In America, the concept of public rights to public waters was recognized since the early days of the Massachusetts Bay Colony where the Great Pond Ordinance of 1641 guaranteed the right to fish and fowl in ponds greater than 10 acres, along with the freedom to pass through private property to do so.

By 1821 American courts were pronouncing the law of public trust as we know it today. This does not mean that no water-related development can take place. The public trust doctrine permits states to improve waterways by constructing ports, docks and wharves, thus furthering the purposes of the trust. Generally speaking the people's trust rights may be alienated only in ways that further overall trust uses, and in relatively small parcels.

Illinois Central Railroad Company v. Illinois, 146 U.S. 387, 452 (1982), involved a grant by the State of Illinois of one thousand acres of the bed of Lake Michigan, constituting the entire harbor of the City of Chicago, to the Illinois Central Railroad. The U.S. Supreme Court held that the grant was revokable, that the state held the land in trust for the public, and that it was powerless to relinquish its rights as trustee.

The court went on to say that land underlying navigable waters is much more than a simple property right.

> [I]t is a title different in character from that which the state holds in lands intended for sale. It is different from the title which the United States holds in the public lands which are open to preemption and sale. It is a title held in trust for the people of the state that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein freed from the obstruction or interference of private parties... The trust devolving upon the state for the public, and which can only be discharged by the management and control of property in which the public has an interest, cannot be relinquished by a transfer of the property.

In the 19th century the purposes of the trust were generally described as "commerce, navigation and fishery." This was logical because the major waterways were essential highways of commerce. But as other values became increasingly important, courts began to recognize recreation and environmental protection among the purposes for which the trust exists. As a California court said in 1971, "with our ever increasing leisure time...and the ever increasing need for recreational areas it is extremely important that the public need not be denied use of recreational water...the rule is that a navigable stream may be used by the public for boating, swimming, fishing, hunting and all recreational purposes." *People ex rel. Baker v. Mack*, 19 Cal. App. 3d 1040, 1044 (1971).

The Alaska constitution provides protections similar to the public trust doctrine protections that cannot be disregarded by the legislature or overruled by the courts. Article VIII, sec. 3 provides; "Wherever occurring in their natural state, fish wildlife and waters are reserved to the people for common use." After reviewing the public trust doctrine in *Owsichek v. State, Guide Licensing*, 753 P.2d 488 (Alaska 1988), the Alaska Supreme Court explained that "the common use clause was intended to engraft in our constitution certain trust principles

guaranteeing access to the fish, wildlife and water resources of the state."

In CWC Fisheries, Inc. v. Bunker, 755 P.2d 1115 (Alaska 1988), the Alaska Supreme Court applied the public trust doctrine to tidelands, holding that even after conveyance the title remains subject to continuing public easements for purposes of navigation, commerce and fishery.

The 1985 Alaska legislature recognized the constitution application of public trust doctrine principles in Alaska. In an Act relating to the public or navigable waters of the state, the legislature found that "the people of the state have a constitutional right to free access to the navigable or public waters of the state" and that the state "holds and controls all navigable or public waters in trust for the use of the people of the state". 85 SLA Ch. 82. In the same act, the legislature ruled that submerged lands are "subject to the rights of the people of the state to use and have access to the water for recreational purposes or any other public purpose for which the water is used or capable of being used consistent with the public trust."

Courts in other states over the years have defined in somewhat different ways the public uses that are permitted and protected by the public trust as it applies to submerged lands. In reviewing these other cases, it can clearly be seen that through time an ever expanding definition of the public uses protected by the public trust doctrine is being adopted. The California Supreme Court recently held that:

> Although early cases had expressed the scope of the public's right in (lands subject to the public trust) as encompassing navigation, commerce and fishing, the permissible range of public uses is far broader, including the right to hunt, bathe or swim, and the right to preserve the (public trust) lands in their natural state as ecological units for scientific study. *City of Berkeley v. Superior Court of Alameda*, 606 P. 2d 362, 365 (Cal. 1980).

It is clear under the Alaska Constitution that the State of Alaska has the responsibilities of a trustee with respect to management of land underlying navigable waters. Moreover, the Alaska legislature has adopted a broad view of the public uses protected or permitted by the public trust. Accordingly, the Alaska Attorney General's Office has determined that, until the Alaska Supreme Court rules on the question, the state should assume that a broad definition of public rights protected by the Alaska Constitution and the public trust doctrine applies in Alaska, similar to the one adopted by the California Supreme Court. 1982 Atty. Gen. Op. No. 3 (June 10, 1982).

Public Waters

It is not only the beds of navigable waters in Alaska that are reserved in public ownership for public use. Under Article VIII, section 3 of the Alaska Constitution, all waters occurring in their natural state are reserved to the people for common use. Article VIII, section 14 of the Alaska Constitution also provides for the broadest possible access to and use of state waters by the general public.

> Section 14. *Access to Navigable Waters.* Free access to the navigable or public waters of the state, as defined by the legislature, shall not be denied any citizen of the United States or resident of the state, except that the legislature may by general law regulate and limit such access for other beneficial uses or public purposes.

Pursuant to this grant of authority, the Alaska State Legislature, in AS 38.05.365(12), defined "navigable waters" as follows:

> "Navigable waters" means any water of the state forming a river, stream, lake, pond, slough, creek, bay, sound, estuary, inlet, strait, passage, canal sea or ocean, or any other body of water or waterway within the territorial limits of the state or subject to its jurisdiction, that is navigable in fact for any useful public purpose, including but not limited to water suitable for commercial navigation, floating of logs, landing and takeoff of aircraft, and public boating, trapping, hunting waterfowl and aquatic animals, fishing, or other public recreational purposes.

This definition of navigable waters does not define state ownership of submerged land in Alaska. The definition of navigability for ownership purposes was discussed earlier in this paper. This definition, however, does define what types of waterbodies in Alaska are available for public use under the Alaska statutes.

The Alaska State Legislature has broadly construed the constitutional protections for public use of the

waters of the state. In an Act (85 SLA chap. 82, codified as AS 38.05.128) relating to the navigable or public waters of the state, the state legislature found:

> (a) The people of the state have a constitutional right to free access to the navigable or public waters of the state.
>
> (b) Subject to the federal navigational servitude, the state has full power and control of all of the navigable or public waters of the state, both meandered and unmeandered, and it holds and controls all navigable or public waters in trust for the use of the people of the state.
>
> (c) Ownership of land bordering navigable or public waters does not grant an exclusive right to the use of the water and any rights of title to the land below the ordinary high water mark are subject to the rights of the people of the state to use and have access to the water for recreational purposes or any other public purposes for which the water is used or capable of being used consistent with the public trust.
>
> (d) This Act may not be construed to affect or abridge valid existing rights or create any right or privilege of the public to cross or enter private land.

Thus, under the Alaska Constitution and this statute, any surface waters capable of use by the public defined in AS 38.05.365(12) are available to the public, irrespective of streambed ownership. Further, such public use is not considered a taking and is not subject to inverse condemnation action. Private ownership is subject to the public rights that are protected by the public trust.

In two Montana Supreme Court cases involving the nature of public rights where the submerged lands are privately owned, the court ruled that public portaging, anchoring, and other uses incidental to the use of the water are allowed. The court also found that if travel on the water or streambed is obstructed, the public is allowed to use the adjacent private land to portage around the barrier in the least intrusive way possible, avoiding damage to the property holder's rights. However, the public does not have the right to enter into or trespass across private property in order to enjoy the recreational use of state owned waters. The State of Alaska agrees with this ruling and believes a similar ruling would be made by our state courts.

Boundaries of Navigable Waters

The state is often asked where the public portion of a navigable lake or stream ends and private ownership rights begin. The boundary between public and private ownership is the ordinary high water mark. According to the Alaska Supreme Court, the ordinary high water mark is a natural physical characteristic placed upon the lands by the action of the water. It is not a highly technical boundary requiring a surveyor to locate. It has been defined as the mark along the bank or shore where the presence and action of water are so common and usual, and so long continued in all ordinary years, as to leave a natural line impressed on the bank or shore. That line may be indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics. *See State Department of Natural Resources v. Pankratz*, 538 P.2d 984, 988-89 (Alaska 1975).

The same question often arises in the case of wide, braided streams. A braided stream is simply a river with numerous channels that are constantly changing. *See Oklahoma v. Texas*, 260 U.S. 606, 634-36 (1923). Thus, the test for determining the boundary is the same. Is the area so regularly covered with water as to deprive it of terrestrial vegetation? If so, it is considered part of the bed of the stream and is subject to the public rights of use. On the other hand, if upland vegetation has taken hold, the area should be considered part of the adjacent uplands or, if isolated, an island. Islands are not part of the riverbed and, if privately owned, are not subject to the same public rights. However, newly formed islands belong to the owner of the river bed. Thus, islands which have risen since the date of statehood from the beds of state owned navigable rivers belong to the state and may be used by the public. If the river is nonnavigable and the bed is privately owned, a newly formed island belongs to the private owner.

Conclusion

This paper describes the state's policies and procedures for managing and protecting state submerged lands and public waters. As further legal and practical developments occur in this area, these policies and procedures will be reexamined by the state and, if necessary, appropriate changes will be made.

Fact Sheet:

Dam Safety in Alaska

Alaska Department of NATURAL RESOURCES
Division of Water • March 1992

Who is ultimately responsible for the safety of dams in Alaska?

Old English common law, on which our legal system is based, holds that the capture of water in itself is a hazardous activity. Therefore, whoever captures the water is liable for any damages caused. In almost all cases, the dam owner is responsible. However, under state law, the Department of Natural Resources oversees most dams in Alaska to ensure that safety standards are met.

What state dam safety statutes and regulations are in effect?

The statutory basis for the dam safety program, AS 46.17, went into effect in May 1987. 11 AAC 93, Article 3, gives the regulatory requirements for activities related to dam safety; and 11 AAC 05.010(a)(8)(I)-(K) states the fees required for dam safety applications.

What dams are covered by state dam safety statutes and regulations?

- Any dam that impounds at least 50 acre-feet of water and is at least 10 feet high;
- Any dam that is at least 20 feet in height, regardless of the amount of water impounded;
- Any dam that the department determines through an inspection to pose a threat to lives and property.

State statutes do not apply to federally owned or operated dams, or dams that are regulated by the Federal Energy Regulatory Commission (FERC), such as those used for hydro-electric power.

How is the height of a dam, and the volume of water impounded by a dam, measured?

The height of the dam is measured from its lowest point, which is found at either the upstream or downstream toe of the dam, to the crest of the dam. Water volume is measured by determining the acre-foot volume of water in the reservoir when the water level is at the crest of the dam. An acre-foot of water is the equivalent of one foot of water covering one acre.

How does the department determine that a dam poses a threat to lives and property?

The department rates dams in a "hazard potential classification" which is based on the threat to lives and property the dam would pose if the dam were to fail. The hazard potential classification is not an indicator of how safe or unsafe the dam is. Under Alaska regulations dams are classified into three hazard potential classifications:

- Class I: Failure would result in loss of life, a serious health hazard, or damage to high value property.
- Class II: Failure would result in the loss of high value property, damage to major transportation facilities or public utilities, or damage to important salmon spawning habitat.
- Class III: Failure would result in damage to rural land, buildings, and local roads.

What are the requirements to construct, modify, remove, or abandon a dam?

Any person who constructs, modifies, removes or abandons a dam must receive prior approval from the department. The regulation governing such activity, 11 AAC 93.171, requires:

- Submitting engineering reports, plans, and specifications for the dam.
- Submitting the fee required by 11 AAC 05.010(a)(8)(J), which is based on the projected cost of the activity, but is not less than $500.

continued on back

A Certificate of Approval must be issued by the department before the activity can proceed. If construction or modification is involved, the department must approve as-built plans and a completion report before the dam owner will be issued a Certificate of Approval to operate the dam. Once the certificate is issued the dam owner may fill the reservoir and operate the dam.

Is dam inspection required?

Periodic dam safety inspections must be performed on dams at intervals based on the hazard potential classification. Class I and Class II dams must be inspected every three years and Class III dams every five years. Owners are responsible for the inspections. A qualified engineer, approved in advance by the department, must be used. The inspection is conducted according to guidelines issued by the department. The inspection report must be approved by the department and the specified number of copies of the final report submitted.

What happens if the owner does not perform the required inspection?

The department will perform the inspection under 11 AAC 93.159(e) and will require the owner to reimburse the state for its costs incurred in making the inspection.

Does the department have the authority to inspect dams that it believes to be unsafe and to take emergency action if necessary?

If the department determines a dam is likely to be unsafe, it has the right to inspect a dam at any time under 11 AAC 93.161. The owner is responsible for reimbursing the state for these inspections. If the dam is determined to be unsafe and the owner does not voluntarily comply with the department's order to correct the condition, the department may take action to protect lives and property, including taking supervisory control of the dam.

What records is the owner of a dam required to maintain?

The owner of a dam must maintain on file all records pertaining to the safety of the dam. These records include:

- Construction plans and specifications
- Engineering reports
- As-built plans
- Completion reports
- Construction inspection reports
- Material test analyses
- Reports of routine and periodic dam safety inspection

The department may inspect these records at any time during the owner's regular business hours and, if denied access, may seek an administrative subpoena to require the owner to produce the records.

Is it illegal to make a false report concerning the condition of a dam?

Yes. Under AS 11.56.800(a)(4) it is illegal to knowingly make a false report to the department concerning the condition of a dam or reservoir.

For more information on the dam safety program and to submit applications for construction, modification, removal or abandonment of dams, contact:

Dam Safety Program
Division of Water
Department of Natural Resources
P.O. Box 772116
Eagle River, Alaska 99577-2116
(907) 696-0070

Current Dam Safety Projects

AJ Mine Sheep Creek Dam (Juneau Area)

This dam is a state of the art roller compacted concrete, arch-gravity dam that has been designed to store tailings from the AJ Mine. The AJ Mine Project is being developed by Echo Bay Alaska. Stage I will be heavily instrumented and the information collected will be used in any subsequent stages. The review of Stage I is complete and a draft permit is in process.

Kensington Dams (Juneau Area)

Kensington Venture is proposing to build a large embankment dam for storage of mine tailings from the Kensington Mine. A smaller water dam is also proposed. Review of the project is underway and it is expected that a permit can be issued before the end of the year.

Fort Knox Dams (Fairbanks Area)

Fairbanks Gold is proposing to build a large embankment dam for storage of mine tailings and a large embankment dam for water storage. It is essential that the water dam design be reviewed and approved in a timely manner to allow capture of two years of flow to provide enough water for mine operation. Design review is in progress and it is expected that permits will be issued by February 1, 1993.

Valdez Creek Mine Dams (Denali Highway Area)

Camboir Alaska operates the largest placer mine in North America at Valdez Creek, 65 miles from Cantwell. The dam safety program has been actively involved for the past several years reviewing and inspecting settling pond, tailing pond, and water diversion dams. Our most recent project was working with Camboir Alaska to correct problems associated with a failed, unpermitted dam and appurtenant dams.

Bridge Creek Dam (Homer Area)

For the past year the dam safety program has been working cooperatively with the City of Homer to monitor and determine the cause of a possible seep on the downstream face of Bridge Creek Dam. The dam is the primary water supply for the city and its failure could also adversely affect the Anchor River. Completion of the monitoring effort and subsequent solution is expected in early 1993.

Fact sheet:

WATER RIGHTS IN ALASKA

Alaska Department of NATURAL RESOURCES

Division of Water • September, 1992

What Are Water Rights?

A water right is a legal right to use surface or ground water under the Alaska Water Use Act (Alaska Statute 46.15). A water right allows a specific amount of water from a specific water source to be diverted, impounded or withdrawn for a specific use. When a water right is granted, it becomes attached to the land where the water is being used for as long as the water is used. If the land is sold, the water right transfers with the land to the new owner, unless the Department of Natural Resources approves its separation from the land. In Alaska, land owners do not have automatic rights to ground water or surface water. For example, if a farmer has a creek running through his property, he will need a water right to protect his use. Using water without a permit or certificate does not give the user a legal right to use the water.

How Do I Obtain Water Rights?

To obtain water rights in Alaska, you should submit an application for water rights to the Division of Water regional office in the area of the proposed water use. After your application is processed, you will be issued a permit to drill a well or divert the water. Once you have established the full amount of water that you use beneficially and have complied with all of the permit conditions, a Certificate of Appropriation will be issued. This is the legal document that establishes water rights.

What Costs Are Involved?

An application for water rights must be accompanied by the filing fee: $50 for the use of 5,000 gallons per day (gpd) or less; $100 for the use of more than 5,000 gpd but less than 30,000 gpd; $200 for the use of 30,000 gpd or more but less than 100,000 gpd; $300 for the use of 100,000 gpd or more but less than 500,000 gpd; $500 for the use of 500,000 gpd or more but less than 1,000,000 gpd; $1,000 for the use of 1,000,000 gpd or more except $1,500 for the use of 1,000,000 gpd or more outside of the hydrologic unit from which it was removed (hydrologic units are based on the most current U.S.G.S. Hydrologic Unit Map of Alaska). To insure that the public is notified of proposed water uses, you are required to pay the cost of a legal advertisement in at least one issue of a local newspaper in the area of the proposed water use. Public notice is required if the appropriation is over 5,000 gallons per day, if it comes from an anadromous fish stream, or if the water source has a high level of competition among water users.

Why Should I Apply For Water Rights?

1. If you have water rights, you have legal standing to assert those rights against conflicting water users who do not have water rights.

2. A person with water rights has priority to use water over persons who later file for water rights from the same source.

3. Anyone who diverts, impounds, or withdraws water, or uses a significant amount of water without a permit or certificate is guilty of a misdemeanor (AS 46.15.180). A significant amount of water is defined by 11 AAC 93.970(14) as:

   - the use of more than 5,000 gallons of water in a single day from a single water source; or,
   - the regular daily or recurring seasonal use of more than 500 gallons of water per day for 10 days or more per year from a single water source; or,
   - the non-consumptive use of more than 30,000 gallons of water per day (0.05 cubic feet per second) from a single water source; or,
   - any use of water from a water source listed in the Department of Fish and Game "Catalog of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fishes"; or,
   - any water use that might adversely affect the water rights of other appropriators or the public interest.

4. By filing for water rights, you provide valuable information about water use and water availability in Alaska. This information allows state water managers to estimate present uses of water, determine how much water is available from streams and aquifers in the state, protect established water rights holders, prevent over-appropriation of water sources, and manage the state's water resources.

What Other Water Resources Authorizations Are Available From the Department of Natural Resources?

Dam Safety: If your water use requires you to construct a dam that impounds 50 acre-feet of water and is at least 10 feet high, or is at least 20 feet high, or poses a threat to life and property, a certificate of approval is needed. A separate application form and the fee prescribed by 11 AAC 05 should be filed with the Division of Water.

Instream Reservation: If you do not want to remove water from its source, but want to make sure that enough water is available for a particular use, you should apply for an instream reservation to maintain a specific flow in a stream or water level in a lake. An instream flow reservation application can be made to protect fish and wildlife habitat, migration, and propagation; recreation and park purposes; navigation and transportation purposes; and sanitary and water quality purposes.

How Do I Obtain Authorization for Short-Term Water Use? (Temporary Water Use Permit)

A temporary water use permit may be needed if the amount of water to be used is a significant amount, the use continues for less than five consecutive years, and the water to be used is not already appropriated. This permit does not establish a water right but will avoid conflicts with fisheries and existing water right holders. The application fee for a temporary water use permit is the same as for a water right.

Where can I get more information?

More information about water rights is available in the Department of Natural Resources' "Water User's Handbook", and from fact sheets on Glacier Ice Harvesting, Instream Water Reservations, Dam Safety, Federal Reserved Water Rights and the Water Resources Board. Copies of this information and application forms are available at the offices listed below. Applications should be submitted to the regional office located in the area of the proposed water use.

Department of Natural Resources

Public Information Center
3601 C Street, Suite 200
P.O. Box 107005
Anchorage, AK 99510-7005
(907) 762-2261
FAX: 762-2236

Division of Water
Southcentral Region
3601 C Street, Suite 822
P.O. Box 107005
Anchorage, Ak 99510-7005
(907) 762-2575
FAX: 562-1384

Southeast Region
400 Willoughby Avenue, 4th Floor
Juneau, AK 99801
(907) 465-3400
FAX: 586-2954

Northern Region
3700 Airport Way
Fairbanks, AK 99706-2703
(907) 451-2700
FAX: 451-2751

Mat-su/Copper Basin Area
1800 Glenn Hwy., Suite 12
Palmer, AK 99645
(907) 745-7200
FAX: 745-7112

ALASKA WATER RIGHTS ADJUDICATION PROCESS

Alaska water law is founded on the doctrine of prior appropriation. The law is set forth in Article VIII Section 13 of the Constitution of the State of Alaska and the Alaska Water Use Act, Alaska Statute 46.15. Alaska Department of Natural Resources (DNR), Division of Water (DOW) administers water rights and is responsible for the appropriation and distribution of water in the State. The only way to establish a new water right is through the filing of an application to appropriate water as set forth under law. Initially a Permit to Appropriate Water is issued while the beneficial use is being established. A Certificate of Appropriation is granted after the water right is perfected. In Alaska the use of water without a permit or certificate does not give the user defensible legal rights to the water no matter how long the water has been in use or continues to be in use. The following is a brief summary of the process that an applicant must follow to establish a water right from either a surface or ground water source and for any water use in excess of 500 gallons per day.

To initiate a water right, the applicant is required to submit a completed application form along with the required supporting documentation and correct filing fee to the Division of Water. The date on which an application is filed serves as the priority date for the eventual water right. The proposed appropriation is reviewed for completeness, accepted, then initiated into an indexed tracking and retrieval system. The pending applications are adjudicated in the order in which they are received. Prior to public notice, the adjudicator establishes the proper quantity of water to be permitted, the proper legal description to the points of take and use, determines which prior appropriators to notify, and identifies any other additional information or concerns that need to be addressed prior to public notice. Public notice is required if the appropriation is over 5,000 gallons per day; if it comes from an anadromous fish stream; or if the water source has a high level of competition. This notice process includes certified mailings to prior appropriators that might be affected; the Departments of Fish & Game and Environmental Conservation; local governments; and regional native corporations and other interested parties. The legal notice is published in a local newspaper or when appropriate posted in a local post office. A 15-day comment period is required for public and agency notice. All substantive objections are addressed in writing before a permit will be issued.

In addition, if a proposed water use is to take place within the Alaska coastal zone boundary or within an approved coastal resource district, a coastal zone consistency review and determination must be made prior to the issuance of a permit to appropriate water. The CZM determination review will either be conducted by DOW or the Division of Governmental Coordination depending on other state or federal permits that may be required.

In approving or rejecting an application, the Division of Water must find the following: 1) rights of prior appropriators will not be unduly affected; 2) the proposed means of diversion or construction are adequate; 3) the proposed use of water is beneficial; and 4) the proposed appropriation is in the public interest. In determining the public interest, the Division of Water shall consider: 1) the benefit to the applicant resulting from the proposed appropriation; 2) the effect of the economic activity resulting from the proposed appropriation; 3) the effect on fish and game resources and on public recreational opportunities; 4) the effect on public health; 5) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation; 6) harm to other persons resulting from the proposed appropriation; 7) the intent and ability of the applicant to complete the appropriation; and 8) the effect upon access to navigable or public water. If the applicant or objector disagrees with the DOW's decision, an appeal in writing must be received by the Director of DOW within 30 days from receipt of notification. The DOW may hold a hearing on the objections. After a decision to issue or deny a permit, an applicant or the objector may appeal the decision to the Commissioner and then finally to the Alaska Superior Court.

When a permit is approved, it will include specific conditions, such as: requirements that fish passage and minimum flows for fish be maintained, water use is metered and reported to DOW, establishment of gaging stations and submittal of flow records, mandatory recycling, submittal of design specifications, as-built plans, plan of operation, and any other condition DOW feels is necessary to protect prior appropriators and the public interest. A permit is granted for a specific period of time

(generally two or five years) in which to develop the project. If additional time is needed, a request for an extension of time must be filed and a like period may be granted for good cause. A site inspection may be conducted by DOW or in cooperation with other state and federal agencies to verify that water is being used and the size and type of operation or equipment used to determine the appropriate quantity of water needed. Once the system is fully developed, the full amount of beneficially used water is established, all the permit conditions have been complied with, and a sworn Statement of Beneficial Use is submitted, a Certificate of Appropriation can be granted. This right becomes attached to the land where the water is being used for as long as the water is used. If the land is sold, the water right transfers with the land to the new owner, unless the DOW approves its severance from the land (severance by regulation requires a public interest determination).

A Permit to Appropriate Water and a Certificate of Appropriation can be amended to decrease the quantity of water used, to change the take points, points of use, type of water use, structures used to divert, impound, withdraw, and beneficially use water. DOW must review the proposed changes in order to determine its impact on other water rights holders and the public interest; if approved, a 1-year permit is issued to make the change. If no objections are raised within that year, the change becomes final.

A water right can be lost in whole or part by abandonment of forfeiture. A certificate holder may voluntarily relinquish his or her water right by submitting a notarized statement. A water right is lost by forfeiture with 5 successive years of nonuse. Water lost through abandonment or forfeiture reverts back to the state and is subject to future appropriation.

If the water use requires construction of a dam that impounds 50 acre-feet of water and is at least 10 feet high, or is at least 20 feet high, or poses a threat to life and property, a certificate of approval issued by the DOW is required.

An instream flow reservation can be granted by the DOW to protect fish and wildlife habitat, migration, and propagation; recreation and park purposes; navigation and transportation; and sanitary and water quality purposes. Private individuals, organizations, and government agencies may apply for a reservation of water for instream use. The adjudication of an Instream Flow Application is similar to that of a water right. The major difference is in the quantification of the flows to be reserved and the expanded public and agency notice.

A public water supplier can exercise a preferred use to water under Alaska Statutes and can be granted rights to water over prior appropriators. This preference right can only be granted if just compensation is made to prior appropriators.

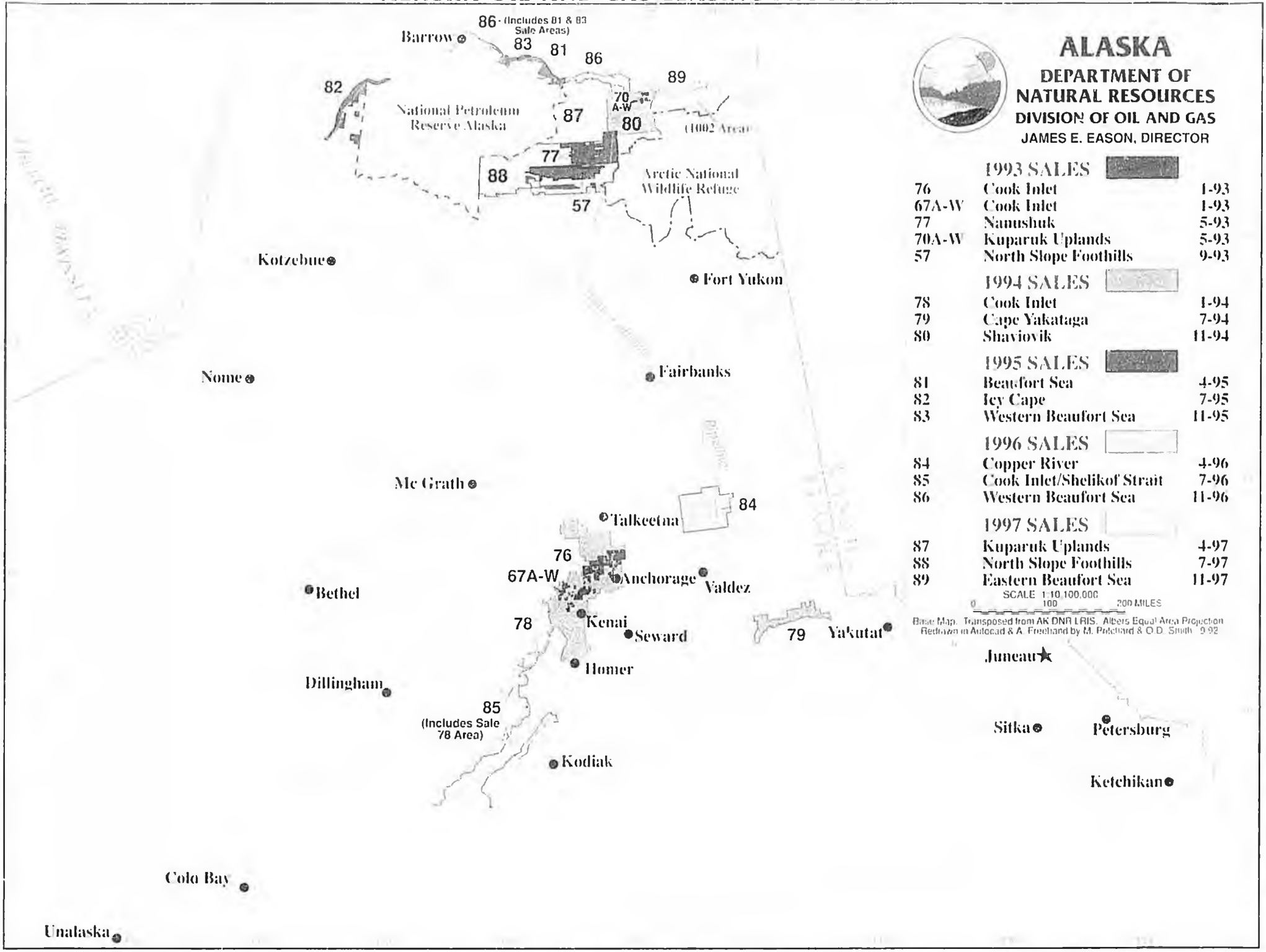
A temporary water use permit (TWP) may be issued to take and use water for a period of time not to exceed 5 years. No water rights are assigned with a TWP, and the use is junior to current and future appropriations of water. Notice to ADF&G and DEC is still required and, where appropriate, the water use must be found consistent with the Alaska Coastal Management Program.

The State of Alaska may be the first and only state, to date, with the express statutory authority to appropriate water to itself for the purpose of sale. The water for sale must be surplus to needs within the hydrologic unit from which it is appropriated. A purchaser of water from the state shall acquire only those contractual rights to the water set out in sale documents prepared by the Division of Water.

The state agency with responsibility for issuing water rights and for the management of Alaska's water resources is the Alaska Department of Natural Resources, Division of Water. For further information, please contact the Director, Division of Water, P.O. Box 107005, Anchorage, AK 99510-7005 or call (907) 762-2575.

November 9, 1992

ALASKA OIL AND GAS LEASING PROGRAM



ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

JAMES E. EASON, DIRECTOR

1993 SALES

76	Cook Inlet	1-93
67A-W	Cook Inlet	1-93
77	Nanushuk	5-93
70A-W	Kuparuk Uplands	5-93
57	North Slope Foothills	9-93

1994 SALES

78	Cook Inlet	1-94
79	Cape Yakataga	7-94
80	Shaviovik	11-94

1995 SALES

81	Beaufort Sea	4-95
82	Icy Cape	7-95
83	Western Beaufort Sea	11-95

1996 SALES

84	Copper River	4-96
85	Cook Inlet/Shelikof Strait	7-96
86	Western Beaufort Sea	11-96

1997 SALES

87	Kuparuk Uplands	4-97
88	North Slope Foothills	7-97
89	Eastern Beaufort Sea	11-97

SCALE 1:10,100,000

0 100 200 MILES

Base Map: Transposed from AK DNR LRIS, Albers Equal Area Projection
Redrawn in Autocad & A. Freehand by M. Pritchard & O.D. Smith 9.92

A STRATEGIC PLAN

"INTO THE 21ST CENTURY"

Alaska is the most centrally located geographical feature in the Northern Hemisphere. As such, Alaska is the largest air cargo hub in the world, and with the opening of the "Northwest Passage" or Arctic Ocean Sea Route across the top of Russia, Alaska is also the most centrally located maritime shipping location to the three most developed continents of the world.

VISION

Lead *Alaska* into the *21st century* in *response* to the *economic, social,* and *cultural* needs of our *people*. *Fulfill* the Statehood Compact and pioneer effective leadership of the Owners' State. Raise public *awareness* that Alaska's *natural resources* are the *basic assets* of our economy. *Stimulate* and *encourage* resource-based, value-added *economic activity,* while conserving Alaska's wild and scenic values.

October 1992

Alaska Department of
NATURAL
RESOURCES

A MESSAGE FROM THE GOVERNOR

We must say "yes" to Alaska's future!

We used to say , "North to the Future." Now we ask, "Do we have a future?" We've been so busy counting our money, we've lost our courage.

I've been in Alaska 52 years and one very basic lesson I've learned is: ***There is no wealth without production.*** We can not save ourselves rich, we must produce ourselves rich. Because we forgot that lesson, we have gone from being a rich state with no money to a poor state with money in the bank.

We're not poor, we're just thinking poor. Its' time to think rich again and bring back the environment of hope.

For more than a decade virtually all of Alaska's economy has come from one oil field. Is there any other state economy that dependent on one project?

Money is not secure wealth. It is merely a medium of exchange to acquire assets that produce. **We may have a Permanent Fund but we do not have a permanent economy.**

What are we doing to get things started? This strategic plan is a beginning and I invite all Alaskans to join in our effort to lead Alaska into the 21st century.

Walter J. Hickel
Governor

A MESSAGE FROM THE COMMISSIONER

Time and Place. Both are critical to Alaska's global future.

What a time for Alaska! The North is where the resources are in great abundance to renew the world - fresh water, land, timber, minerals, fuel, energy, unencumbered by the population explosion. Here is where some of the most tenacious peoples mingle with contemporary scientific cultures to form a new partnership with nature in forging a new world.

We are leaving behind the tired struggle of development versus environment. Our commitment makes the two compatible. That's the pioneering of this generation and the next. At stake is the quality of life of not only the Alaskan people, from the new born child on Gambell Island to the pioneer senior in Ketchikan but the world.

Alaska's role is to lead and serve, positioned as we are equidistant from Europe and Asia over its shortest route, the pole, and blessed with resources of sea, land and air. This profile of possibilities sketches our opportunities. This is where tomorrow begins.

Glenn A. Olds
Commissioner

GOVERNOR'S PRIORITIES FOR ALASKA

1. **Implement** responsibilities of an Owners' State.
2. **Stimulate** sustainable economic development.
3. **Implement** efficiencies.
4. **Deliver** essential services.
5. **Stimulate** local initiative and personal responsibility.

DNR's STRATEGIC MISSIONS

(Consistent with this strategic plan, each Division will adopt tactical plans)

"Leading Alaska into the 21st Century"

As Alaska moves into the 21st century facing a time of serious economic stress and in response to the Governor's priorities, the missions of the Department of Natural Resources are:

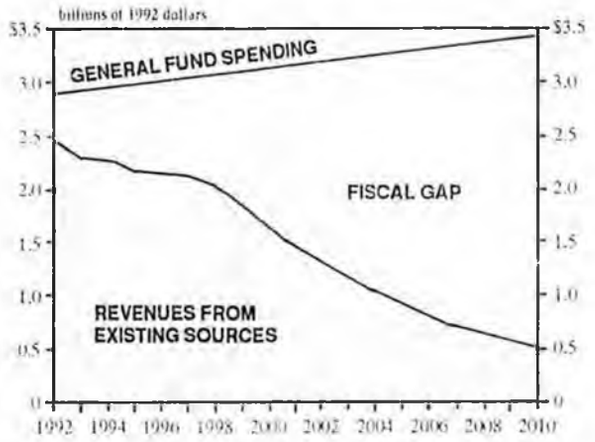
I. To vigorously **fulfill** and **implement** the Statehood Compact and pioneer effective leadership of an Owners' State through the **integration** of state and federal interests, **cooperation**, and protect State interests.

II. To **stimulate** resource-based economic activity while **conserving** Alaska's wild, scenic and cultural values as a major player in an evolving world.

III. To **simplify** and accelerate regulatory processes and organizational structures to **allow** rapid, **sustained** economic growth.

IV. To **raise** public awareness of Alaska's natural resource asset base, its **market** potential within Alaska and the world, how it effects our daily lives, and how to implement its promise for our common future.

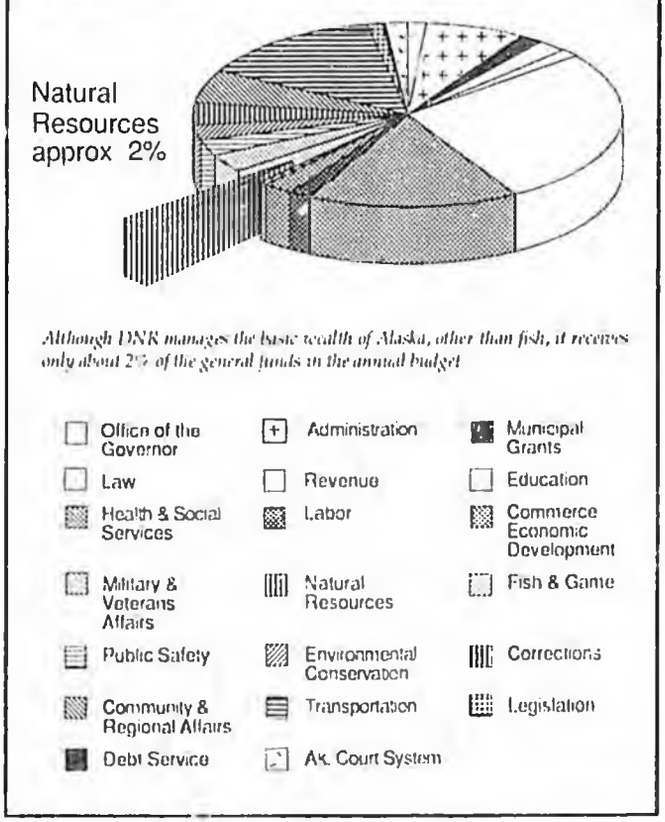
Estimated State Fiscal Gap



Estimated gap assuming current spending trend (constant real per capita) with no new revenue sources and oil prices at $19 per barrel

Source: ISER estimates

Expenditures by Department



Although DNR manages the basic wealth of Alaska, other than fish, it receives only about 2% of the general funds in the annual budget

THE DEPARTMENT OF NATURAL RESOURCES

The Department of Natural Resources (DNR) is the manager of Alaska's land, water and its surface and subsurface resources - *its wealth*. The state was granted 106 million acres of land at statehood to provide an economic base for its people. The state has chosen land for community expansion, natural resource development, recreation and wildlife habitat. DNR manages approximately 86 million acres of land (more than the combined areas of Colorado, Vermont, New Hampshire, and Maryland) for diverse uses ranging from oil and gas development to state parks. The State of Alaska also owns about 40% of our nation's unfrozen fresh water.

With offices in every major community in the state, the department consists of 8 divisions and 740 full-time and about 230 part-time and seasonal employees. Against Alaska's 86 million acres, this equates to a little over 116 thousand acres per full-time employee. The department's total operating budget of just over $63 million equates to a management cost of less than 75 cents per acre.

RESOURCE MANAGEMENT POLICY

The management philosophy of the Department of Natural Resources is derived from the State Constitution: to "encourage the **settlement** of its **land** and the **development** of its **resources** by making them available for **maximum use** consistent with the **public interest**."

The department's management challenge is shaped by the projected rapid downturn in the overall state economy resulting from the depletion of the Prudhoe Bay oilfield and the necessity for developing a swiftly diversifying economy. Oil revenue, now providing 85% of the state's general fund and a substantial portion of the economy may decline 50% over the next decade. Without rapid, responsible development of Alaska's varied resources, a serious decline in the quality of life for Alaska's residents is inevitable.

Consistent with this philosophy and within its statutory mandates, the Department of Natural Resources must encourage the development, use, and responsible management of Alaska's natural and cultural resources in cooperation with resource-based industry and improve the standard of living for all Alaskans. This is accomplished by:

- Advancing economic activity by encouraging exploration and development of Alaska's trade and value-added natural resource industries.
- Ensuring competent and responsible management of Alaska's vast natural and cultural resources.
- Enhancing the quality of life and property through the understanding and interpretation of Alaska's dynamic natural and cultural resources.

LAND

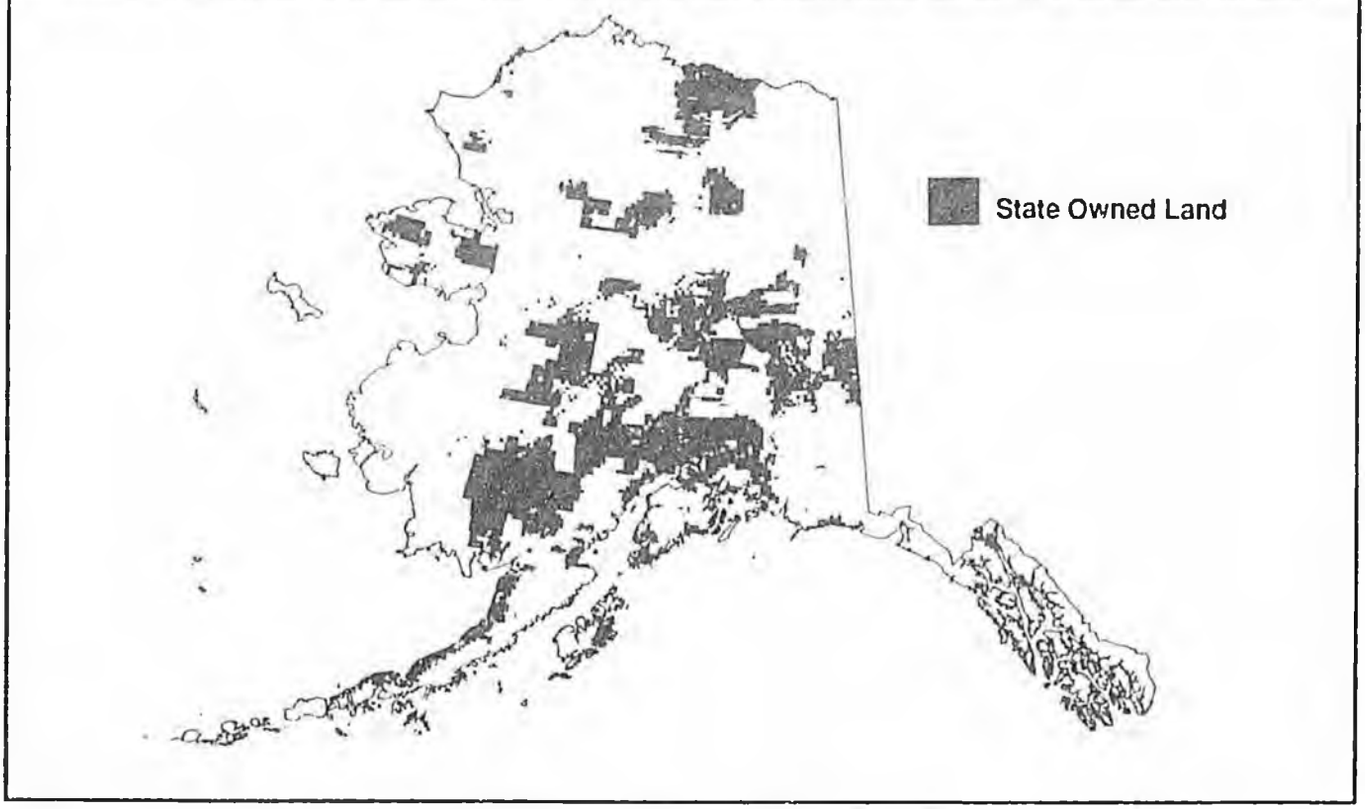
Our Wealth: Alaska's Natural Resources

- 86 million acres of upland.
- 22 million acres under selection.
- 34 thousand miles of coastline .
- 65 million acres of tide and submerged land.
- Annual land sales and fees generate about $10 million in revenue.
- 552,000 acres transferred to private ownership since 1960.
- Over 2.5 million acres in Public Use and Recreational River Systems.
- Alaska is 1/5 the size of the lower 48 states combined- more than twice the size of Texas.

Our Markets: Alaska's Future

Demand for strategically located commercial and industrial land is so strong that the state has a serious backlog of lease applications. Examples are sites for timber transfer facilities in southeast Alaska; upland and tideland seafood processing sites in southeast and western Alaska, as well as the Aleutian Chain; industrial support facilities for oil and gas exploration and development on the North Slope; gravel sales for roads and facilities; leases and permits for guide sites, and other commercial recreation activities. Thousands of new land sale contracts for private recreational and residential use can be issued as soon as surveys and appraisals are completed. DNR is also working to facilitate major mine developments such as Fort Knox, and all-season resorts at Girdwood and Hatcher Pass. Land use classifications are designed to support a vibrant mix of uses - mining, tourism, forestry, oil and gas leasing, guiding, gravel sales, commercial, sport, and subsistence fishing, commercial water use, and recreation - in contrast to the limited activities permitted on most federal land.

State Land Ownership



OIL & GAS

Our Wealth: Alaska's Natural Resources

- Prudhoe Bay is the largest known oil field in North America; Kuparuk is second largest.
- Six common-carrier pipelines, including the 800-mile Trans-Alaska Pipeline that transports up to 2 million barrels of oil per day, 25% of the nations domestic production.
- Remaining known reserves in Prudhoe Bay exceed 4.6 billion barrels. Over 300 million barrels were recently discovered at the Point McIntyre field. Other known, but undeveloped, North Slope oil reserves exceed 500 million barrels. Other fields such as Endicott, Kuparuk, and Milne Point further expand known reserves.
- 1,200 oil and gas leases: three-quarters on North Slope, one quarter in Cook Inlet.
- Nation's only liquid natural gas (LNG) export operation at Nikiski.
- 14 lease sales scheduled by 1994.
- Minimum 25% of petroleum royalties deposited in the Alaska Permanent Fund since 1976.
- 85% of the state's General Fund comes from oil and gas activity.
- Some analysts believe we may have just scratched the surface of this major arctic resource.

Our Markets: Alaska's Future

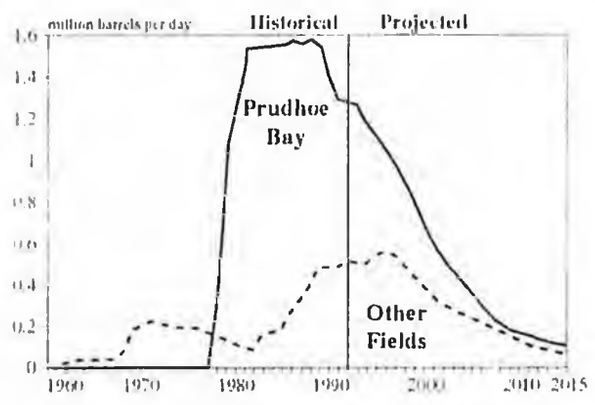
Governor Hickel has filed suit against federal restrictions that forbid Alaska to export its North Slope oil to other nations. When the export ban is lifted, Alaska would realize an additional $185 million per year in new revenue allowing many marginal fields to become economic.

Proven North Slope gas reserves exceed 30 trillion cubic feet and the probability of additional gas reserves is high. Currently this gas is reinjected or used as a fuel source in the fields. When a delivery system is available, North Slope gas can be sold to any market. Markets appear primarily in Asia (Japan, Taiwan, South Korea).

Some of Alaska's royalty oil is sold to in-state refiners, creating jobs and economic activity.

Oil and gas are two of the world's most valuable commodities and the competition for markets is fierce. If federal restrictions are lifted, Alaska's location makes these products readily available to Pacific Rim nations. Alaska, a stable and dependable supplier, can compete with the Middle East, Indonesia, Australia and Russia. Energy has become the new currency for international economic development, and Alaska is a prime energy bank for the nation.

Alaska Oil Production



Sources: Alaska Departments of Revenue and Natural Resources

PARKS & RECREATION

Our Wealth: Alaska's Natural Resources

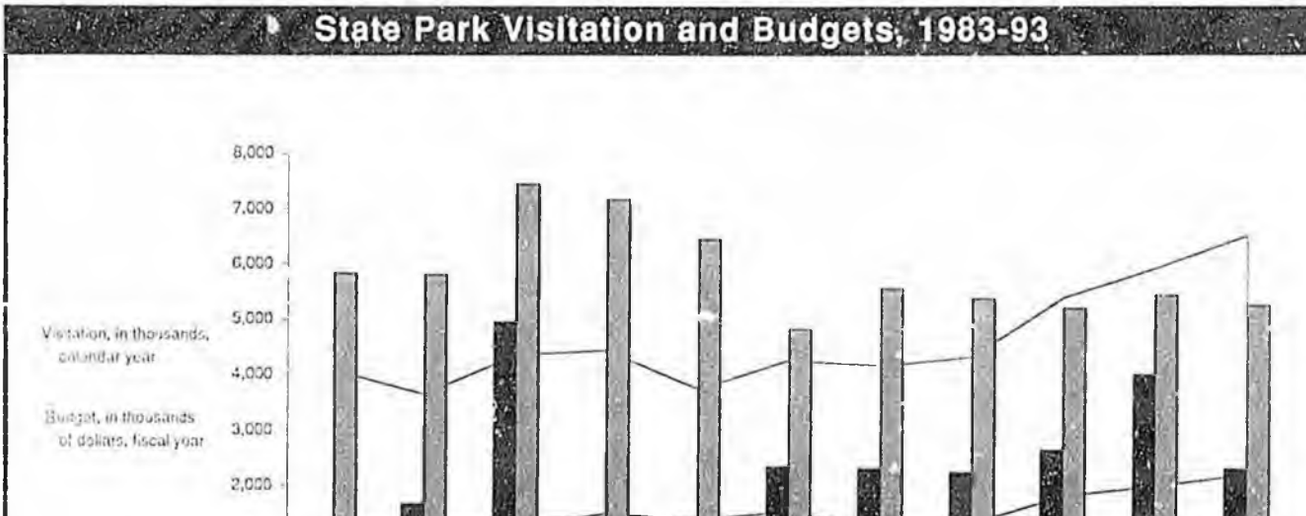
- Newest and largest state park system in the United States containing more than 130 units and more than 3.2 million acres.
- State parks average nearly seven million "visits" each year with one out of four visits from a non-resident.
- More than 2,000 campsites, visitor centers, picnic areas, fishing access sites, trail systems, public use cabins, and historic sites.
- More than $1 million in user and concession fees generated annually.
- The largest volunteer program in Alaska with more than 360 volunteers contributing more than 100,000 hours of labor.
- More than half of America's national park land, with 15 units covering 51 million acres.
- More than 80% of all National Wildlife Refuge land, with 16 units covering 77 million acres.
- Alaska has one third of the total state park acreage in the United States.
- Wood-Tikchik State Park is the nation's largest state park, at 1.6 million acres.
- The Alaska Chilkat Bald Eagle Preserve supports the world's largest concentration of bald eagles each fall, when 3,500 gather to feed on late salmon runs.

Our Markets: Alaska's Future

Alaskans utilize state parks at rates often twice the national average contributing 75% of the more than six million visits annually. National Parks support an additional 1.2 million visits. More than 400 commercial use permits are issued annually to small businesses operating inside state parks.

Alaska's scenic beauty, wildlife, and outdoor recreation are premier exports attracting 800,000 non-residents a year. Tourists spend an estimated $1.1 billion annually. Seasonal employment surpasses 18,000 jobs with an annualized equivalent of 13,500 jobs. Tourism is the second largest private sector employer, behind fisheries. With an annual growth potential of 5% projected into the next century, tourism is a key component of Alaska's economic future. More people are travelling independently rather than in group package tours, benefitting communities as the independent traveler spends more in local businesses. Foreign visitors , most coming from Europe, are a small but growing segment of the market.

State Park Visitation and Budgets, 1983-93



Notes: 1. 1993 visitation projected to grow 10% over 1992. 2. Budgets expressed in 1992 dollars.

WATER

Our Wealth: Alaska's Natural Resources

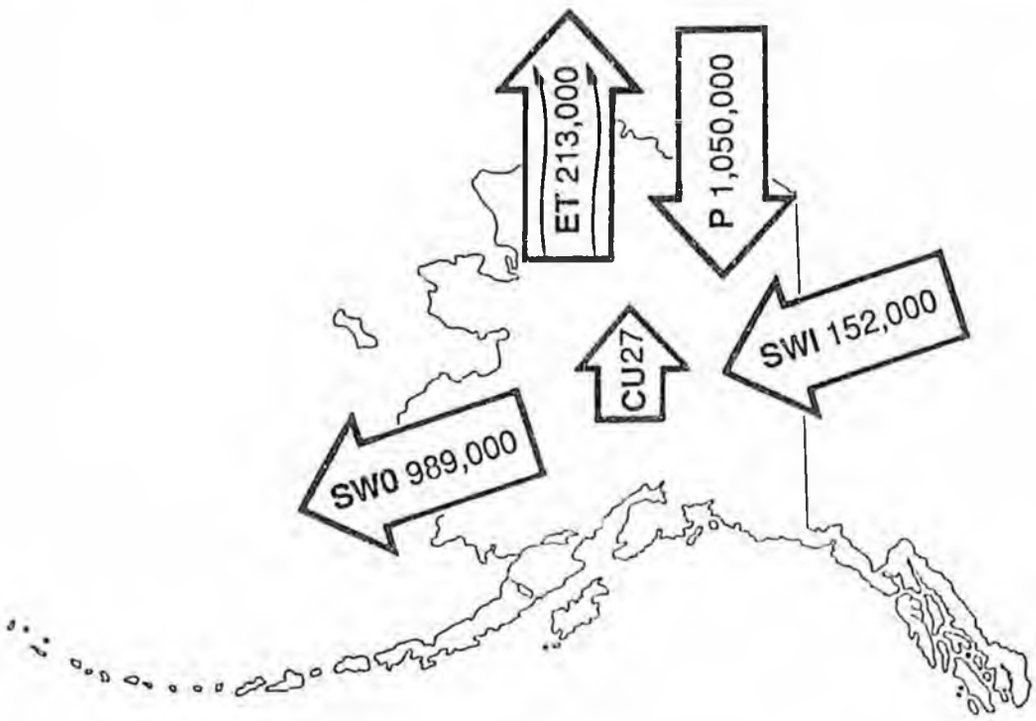
- Alaska has about 40% of our nation's free (not frozen) freshwater resources in 30,000 streams and 3 million lakes (50+ acres). An estimated 100,000 glaciers covering approximately 28,800 square miles hold almost 75% of all fresh water in Alaska.
- Alaska owns and manages 20 million acres of inland waters--and claims title to 12 to 14 million acres of land underneath those waters.
- Alaska discharges nearly 1 billion acre feet (892 billion gallons a day) into the ocean annually.
- With annual precipitation upwards of 400 inches in some southeast drainages, Alaska has vast recharge capabilities in locations accessible for large volume water exports.

Our Markets: Alaska's Future

Many experts agree that by the mid 21st century fresh water in urban areas will be more valuable than oil for human survival and economic development. The world's need is Alaska's opportunity to serve. Currently the most viable market for Alaska's water is the area of southern California and northern Mexico, now in its seventh year of drought and bracing for a population increase of one third by the year 2010. Officials project an annual water deficit of 4 to 6 million acre feet for southern California, even if it rains. Desalinization is Alaska's only significant competition. However, on a dollar per acre-foot basis, Alaska can beat "desal" costs, especially with cost vulnerabilities in desal energy and waste stream management. An export target of 2 million acre-feet a year is possible with existing technologies, generating potentially $200 million a year in new revenue to the State treasury.

Alaska's Water Budget

(million gallons per day)



CU - Consumptive Use
ET - Evapotranspiration
P - Precipitation
SWI - Surface-Water Inflow
SWO - Surface-Water Outflow

MINING

Our Wealth: Alaska's Natural Resources

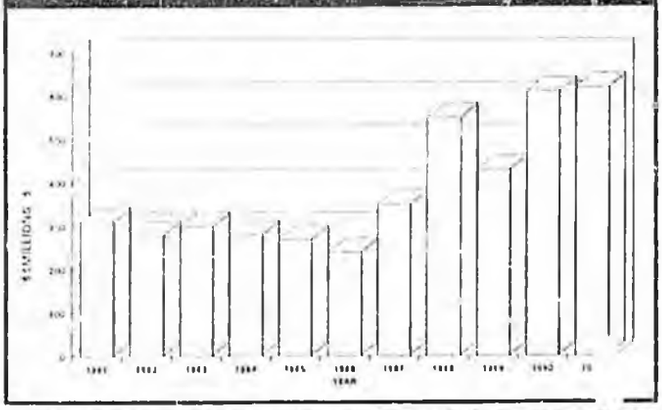
- 159 million acres, of which 96 million are state land, available for mineral exploration and mining.
- 1.4 million acres presently under mineral location or lease, representing only 1.5% of the state land open to mineral entry.
- 1,980 known mineral deposits on land open to mining.
- Abo 31,000 mining claims on state land generate $oo0,000 in revenue to the state treasury.
- Land and gravel revenues exceed $1.1 million.
- Mining leases, excluding Healy, generate nearly $50,000 to the state treasury.
- 2.8 trillion tons of coal resource, representing 44% of nation's coal and 15% of known world's inventory.
- Alaska coal is one of the world's lowest in sulfur.
- More than $1 million in coal royalties generated each year.
- 3 gold deposits contain estimated 13.0 million ounces, worth $5 billion(in place).
- Identified reserves of 7 of 13 strategic minerals including tin, nickel, platinum, cobalt, chromium, graphite, and titanium.
- Copper, lead, zinc, and molybdenum contained in 8 deposits worth $32 billion.
- Alaska mines account for 57% of U.S. production of zinc, 16% of silver, and 13% of lead.

Our Markets: Alaska's Future

Alaska represents a secure and diverse source of international energy and strategic minerals. Large hardrock deposits under development will soon make Alaska one of the nation's largest producers of gold. Mining now generates over 3500 jobs directly and over 12,000 indirectly, many in rural Alaska. As mining becomes more restricted in the Lower 48, the industry will increasingly turn to Alaska's state and private lands as a source of raw minerals.

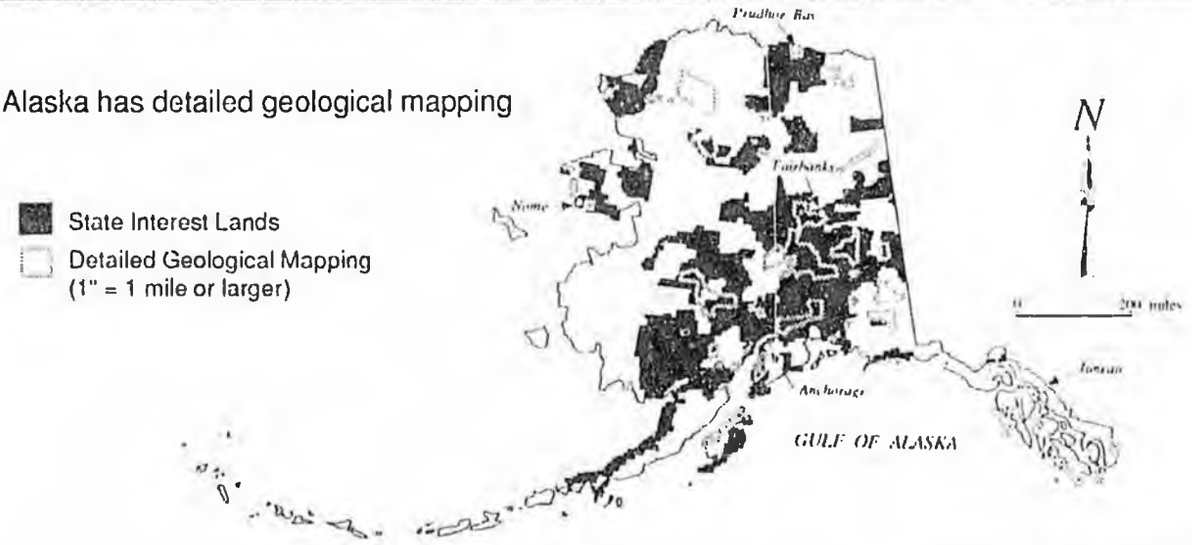
Global demand for clean, low sulfur Alaskan coal is increasing with interest from the lower 48 states, Asia, and Western Europe. Two large coal reserves are close to tidewater. Existing exports (about 1 million tons annually) go to South Korea.

Value of Alaska Mineral Industry 1981-1991



Geological Mapping in Alaska

7% of Alaska has detailed geological mapping



AGRICULTURE

Our Wealth: Alaska's Natural Resources

- Alaska's giant vegetables caused by natural conditions and summer light are world famous.
- 560 farms, averaging more than 1,000 acres each, contribute $30 million to Alaska's economy each year.
- More than 1 million acres of open farmable land with less than 200,000 in production.
- With Alaska's vast acreage and bountiful natural gas, a greenhouse industry can be developed to help feed the hungry of the world.
- More than 20 million pounds of potatoes produced annually.
- The number one U.S. producer of reindeer meat and byproducts (over $1.7 million in sales).
- 9 million acres of potential crop land in state and private ownership.

Our Markets: Alaska's Future

Alaska consumes what it grows. Success with products that demonstrate freight or freshness advantages include potatoes, vegetables, milk, and hay. New markets for greenhouse bedding plants, reindeer, honey, and grass seed. Future and exciting opportunities in game farming of indigenous species, and wild berry production and processing.

There is a growing demand for specialized grass seed suitable for environmental cleanup and reclamation in northern latitudes.

FORESTRY

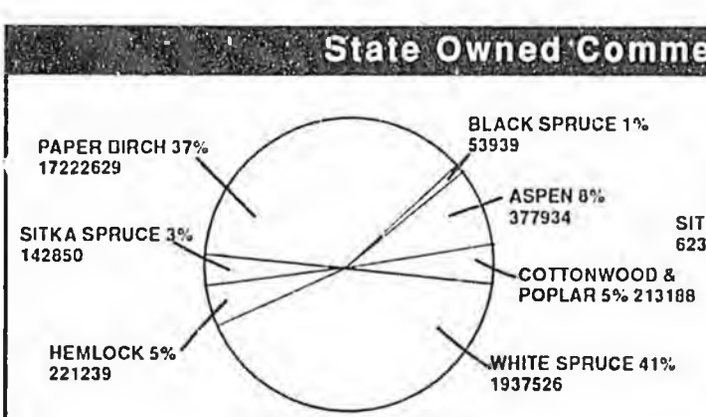
Our Wealth: Alaska's Natural Resources

- Over two million acres of dedicated state forest located in the Tanana Valley and near Haines, greater than all forests in Washington State.
- State sells about 25 million board feet of timber annually, grossing $500,000 in state revenue.
- State nursery produces 800,000 seedlings a year for reforestation. New nursery, in construction, will increase production and seedling quality.
- Highly trained wildfire suppression organization protects 134 million acres, over twice the size of Washington State.

Our Markets: Alaska's Future

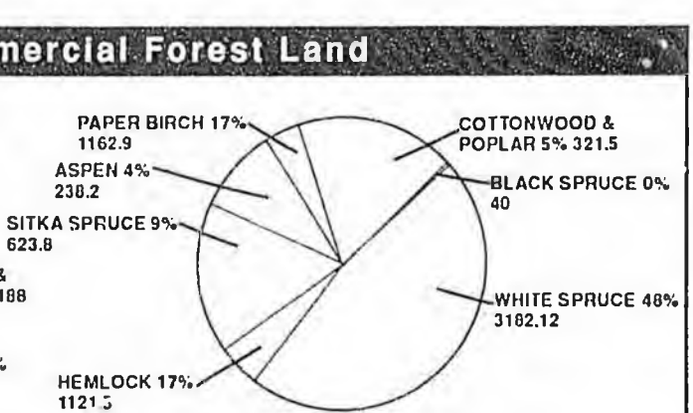
Vast spruce and hardwood interior forests are among North America's great untapped timber resources. Demand in the Pacific Rim for round logs and processed wood fibre is expected to continue. Small scale local mills supply some domestic demand. Coastal private timber holdings now are limited; federal timber harvesting in Alaska has been reduced; and Pacific Northwest timber supplies have decreased. As a result, state, Mental Health, and University of Alaska timber will be more marketable. Future opportunities include expanded local processing of unused hardwood into value-added products, such as fiberboard.

State Owned Commercial Forest Land



ACRES BY FOREST TYPE

Hemlock includes Western & Mountain Hemlock



VOLUME (million cubic feet) BY TYPE

Hemlock includes Western & Mountain Hemlock

INTELLECTUAL CAPITAL

Our Wealth: Alaska's Natural Resources

- As a result of Alaska's unique history, its vast resources, and its environment, Alaskan people have developed special knowledge, skills, and a heightened sensitivity to the challenge of human social, cultural and economic survival in the arctic. Pioneering oil and gas exploration, environmental clean-up and mitigation, development of specialized plants, business experience in rent and royalty structure and resource sales, resource mapping designed for the management of vast areas, and mining demonstrate Alaskans' proven, tested skills.
- Existing institutions such as the Alaska Foundation for Science and Technology, the WorldTrade Center and the Center for International Trade, the Arctic Research Commission, the Northern Forum, and the many research institutes associated with the University of Alaska and other post secondary institutions are viable instruments to facilitate technological transfers.

Our Markets: Alaska's Future

Long exported to other northern nations, Alaska's intellectual talent is resulting in new and important social, cultural, and trade relationships. The first joint mineral assessment of the Russian Far East and Alaska is taking place through the Alaska/Russian Academy of Sciences metallogenis project.

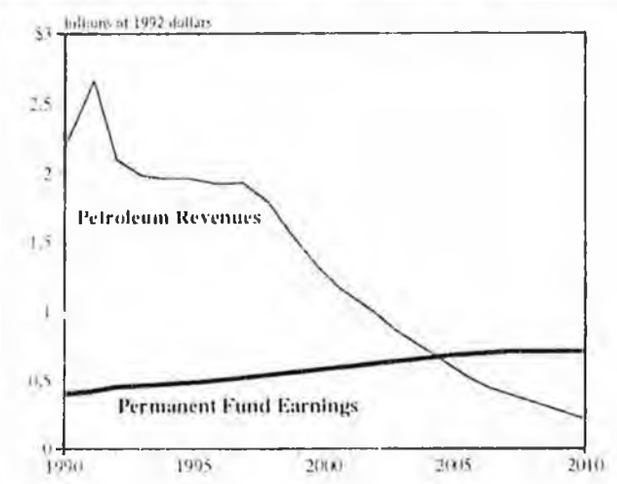
Space Development Authority. Space is the world's new frontier. Alaska offers unique polar launch and technology miniturization opportunities.

PERMANENT FUND

Our Wealth: Alaska's Natural Resources

- State's savings account of over $13 billion is a result of oil and mineral royalty income stimulated by DNR.

Permanent Fund Earnings Compared to Petroleum Revenues



Source: ISER estimates

STRATEGIC LOCATION

Our Markets: Alaska's Future

Because of Alaska's location, unique investment opportunities are available in sea and air transfer locations. With the development of the Northern Sea Route, new and economically viable access is available to new markets. Alaska's location in the north also allows unique opportunities for space exploration. The state and the University of Alaska's significant investments at Poker Flats have attracted international attention.

MISSION I

To vigorously fulfill and implement the Statehood Compact and pioneer effective leadership of an Owners' State through the integration of state and federal interests, cooperation and protect State interests.

Goal A

Acquire the highest value natural resources for the people of the state.

Necessary Action

- **Identify** and select land containing Alaska's most useful resource access corridors, securing Alaska's land entitlement in the Statehood Compact.
- **Determine** title navigability on all water bodies of interest to the state.
- **Complete** the STORET system providing more cost effective and more useful information storage and retrieval for land and water managers.
- **Quantify** federally reserved water rights in areas of potential development such as the coastal plain of the Arctic National Wildlife Refuge.

Goal B

Implement state interests

Necessary Action

- Administratively **assert** and **file** with the court for all surface access rights.
- Administratively **assert** and **file** with the court all navigability and submerged land rights.
- **Ensure** title is clear of encumbrances and environmental and physical liabilities before state invests.
- **Assert** Statehood rights to oil and gas revenue (90% - 10% split) on federal lands.
- **Assert** Alaska's right to open export markets.

Goal C

Review and revise final land selection strategy to ensure state priorities.

Necessary Action

- **Expand** and **extend** upland selections through innovative exchanges of appropriate submerged lands within CSUs where some permitted state uses may be in conflict with federal purposes.
- **Pool** some remaining selections allowing later choices.

Goal D

Seek geographic distribution of selected lands to ensure that high quality resources are accessible to Alaska's population centers.

Goal E

Integrate state and federal interests.

Necessary Action

- **Identify** opportunities where state and federal interests coincide for the benefit of the people of Alaska and formalize appropriate management agreements.
- **Assume** control of federal mining programs through agreements on management authority of specific federal lands or activities, such as permitting of coal extraction on federal lands.
- **Obtain** a General Permit under Section 404 of the Clean Water Act (wetlands).
- **Acquire** land to assemble state or privately owned strategic blocks.

Goal F

Institutionalize cooperative resource management.

Necessary Action

- Formally **establish** the Alaska Water Management Council consisting of 20 state and federal agencies and the University of Alaska.
- **Facilitate** an efficient and expedited land conveyance process with federal agencies, to move state lands under state title.
- **Create** cooperative waterbody management agreements in federal areas with state owned submerged lands and state-owned water.

Goal G

Attract, retain, and develop superior DNR staff through unique opportunities, training, and employee improvement programs.

MISSION II

To stimulate resource-based economic activity while conserving Alaska's wild, scenic and cultural values as a major player in an evolving world.

Goal A

Foster practical, effective, and efficient methods for developing, marketing, selling, and leasing, the state's natural resources, emphasizing value-added jobs and development that is environmentally responsible.

Necessary Action

- **Develop** regional guidelines and site-specific strategies for putting state land to use by resource developers and land purchasers such as pollution free natural gas, low sulpher coal, and pristine water.
- As a stimulus to private sector development and to facilitate marketing, **publish** and **disseminate** summary reports on Alaska's resources and their market potential.
- **Promote** the uniqueness of Alaska's water resources as a marketing tool (pristine, glacial).

Goal B

Promote the enhancement, production, and management of Alaska's **renewable** resources to *improve* their economic value.

Necessary Action

Timber-

- **Identify, inventory,** and **dedicate** an appropriate land base for forest production.
- **Attract** private investment.
- Cooperatively **research** technical, economic, and silviculture issues.
- **Create** non-profit "Center for Northern Forestry" funded by timber development revenue.

Water -

- **Maintain** high profile with Western State's Water Council to ensure that water marketing network captures opportunities as they develop.
- **Encourage** drought states (and Mexico) to consider Alaska water imports as a part of their Drought Contingency Plans.
- **Maintain** highest possible knowledge of competitors, including desalinization technologies.
- Work closely with groups developing new technologies for water transfers.
- **Encourage** the General Accounting Office to investigate limitations to water transfers.

Agriculture-

- **Maintain** effective marketing service programs providing quality assurance on production, and facilitate commercial transactions between producers and buyers based on prevailing markets.
- **Develop** an agricultural land base inventory with planned infrastructure to facilitate new farm development
- **Identify** an inventory of grazing land to allow scheduled resource leasing to livestock producers.
- **Maintain** agricultural lending program with development goals focused on new resource opportunities.

Recreation-

- **Refurbish** and add new recreation and tourism facilities in key locations.
- **Create** a scenic highway program with DOTPF and develop wayside system.
- **Enhance** the integrity of cultural and environmental resources affected by Exxon Valdez Oil Spill with innovative use of the $900 million trust fund. Develop a restoration plan that will identify options.

Space-

- Foster commercial use in maximizing the potential of polar orbits.

Goal C

Cooperatively develop and advance innovative economic tools that attract and encourage investment and risk-taking by the private sector.

Necessary Action

- **Identify** public/private partnership opportunities in resource development using the Alaska Industrial Development and Export Authority, the Alaska Railroad Corporation, the University of Alaska, the Alaska Permanent Fund, and other funding partners.
- **Explore Leveraging, Tax Incentives,** and **Regulatory Incentives** as economic tools, where appropriate, to **stimulate** economic activity.

Examine:

Strategic Location - New infrastructure (ports/highways), that **links** other development opportunities, **opens** new resource areas due to improved economics.

Creation of Alaska Work Hours - Leverage work hours for forgiveness in costs.

Capital Investment - Leverage amount of investment for cost forgiveness of capital investment.
Conversion or Upgrading - **Encourage** the harvest of a very low-value renewable resource so a higher value renewable resource can be developed.

Goal D

Improve the business investment climate in Alaska.

Necessary Action

- **Streamline** authority to enable the Department of Natural Resources to negotiate and finalize large transactions such as land exchanges, water sales, and royalty oil and gas sales.
- **Inform** the business community of DNR's strategic and tactical plans to encourage resource development.
- **Prepare** sales prospectuses and establish schedules for resource development.

Goal E

Structure development and settlement activities to increase the overall asset value to the state.

Necessary Action

- **Structure** timber sales in the southcentral and northern basins to support local forest-product manufacturing.
- Actively **market** state lands for onshore fish processing sites.
- **Delineate** and **offer** public land disposals that promote trade and local industry.
- **Offer** state land for sale or lease to Alaskans for settlement and recreation.
- **Complete** the transfer of state land grants to cities and boroughs.
- **Market** appropriate state land for year-round recreation resorts.
- **Acquire** undeveloped former state land disposals that cause conflict with forest-product harvesting.
- **Bring** the University of Alaska into parity with other land grant universities by transferring more state land to the University.
- Actively **solicit** buyers for state water.
- **Explore** increasing the acreage of state land grants to municipalities with requirements that the land selected be converted to a value-added use within a specific time frame.

Goal F

Capitalize state assets to stimulate and underwrite venture capital investment.

Necessary Action

- **Identify** prevailing market values for both undeveloped and developed resources.
- **Obtain** appraisals of key resources with high probability of investment that should result in value-added industries.

Goal G

Develop and implement a short-term and long-term transportation infrastructure plan in cooperation with ARR, AIDEA, DOTPF, CRA.

Necessary Action

- **Ensure** that transportation corridor identification and selection is a priority in final state land selections.
- **Assert** and defend RS 2477 rights-of-ways.
- **Develop** partnerships with federal agencies, native corporations, and private land owners to link corridors .
- **Establish** a statewide stream-gaging network in cooperation with USGS (federal/state /private land areas).
- **Secure** public easements with sensitivity to federal government land grants to ANCSA corporations.
- **Establish** easements across uplands and along public waters before the state conveys land.
- **Prioritize** and acquire easements necessary to restore public access to landlocked state parcels.
- **Assure** access to Alaska's coastal lands via land and water routes.

Goal H

Explore with the Department of Commerce and AIDEA, the cost benefits of establishing a state insurance corporation for bonding Alaskan developments.

Goal I

Utilize the University of Alaska Northern Research Center and other post secondary institutions ro research northern and arctic issues.

Necessary Action

- **Develop** and implement cooperative agreements with institutions establishing research partnerships in the development of oil and gas, minerals, timber, water, agriculture and recreation.
- **Utilize** the University of Alaska Water Research Center.

- **Work** with University of Alaska to establish a Center for Northern Forestry.
- **Work** with University of Alaska coal research program and industry to advance coal bed methane opportunities.
- **Cooperate** with the University of Alaska petroleum engineer program and industry to advance gas hydrates (estimate 40+ trillion cubic feet in Prudhoe/Kuparuk fields).

Goal J

Identify, analyze, and mitigate potential hazards to human life, property, and economic recovery

Necessary Action

- *Earthquakes* - **Identify** and map active faults, determine their earthquake potential, and prepare maps of earthquake hazards in populated areas.
- *Volcanos* - **Determine** eruptive potential and hazards of volcanoes in Cook Inlet and Alaska Peninsula regions and, through participation in the Alaska Volcano Observatory, provide timely information to state public-safety officials in the event of threatened or actual eruptions.
- *Landslides* - **Prepare maps** of existing landslides and potential slope instability in developing areas.
- *Dam Safety* - **Assure** dams are constructed and maintained to protect lives and property, natural resource values, and the capital investment in the structures.
- *Flood and Erosion Mitigation Program* - **Provide** technical assistance to local communities, groups, and other agencies to mitigate potential flood and erosion to avoid expensive emergencies.
- **Provide** wildfire protection to appropriate state resources and protect life and property.
- **Maintain** inspection staff to regulate and control the entry into the State of plants, pests, seed, and products that are potentially harmful to the public interest.

Goal K

Rehabilitate and expand existing park and tourism facilities and develop new facilities to meet growing demand.

Necessary Action

- **Pursue** capital improvement funding from state and federal sources with priorities in areas of highest demand that can stimulate private or local investment. Public facilities will be managed on a self-sufficient basis through user fees or concession contracts.

Goal L

Advance tourism destination projects that serve as attractions for resident and visitor use.

Necessary Action

- **Pursue** capital funding from an interagency public/private effort to identify, plan, design, and market large scale tourism development opportunities.
- **Advance** tourism infrastructure projects in Denali, Wrangell-St. Elias, Prince William Sound, Hatcher Pass, and Glacier Winter Creek.

Goal M

Expand DNR user-fee programs appropriate to cost and service.

Necessary Action

- **Pursue** legislation authorizing new user-fee categories, including day-use fees, interpretive programs, sale of DNR merchandise, water use, and publications.
- **Pursue** the establishment of a water management fee for all large (50 acre feet a year or more) water users.
- **Establish** and **adjust** use fees consistent with prevailing markets and more reflective of costs.

Goal N

Protect, p[illegible]ve, and interpret Alaska's cultural heritage for residents and visitors.

Necessary Action

- **Pursue** capital funding for an Alaska Historic Preservation Plan.
- **Designate** new state park units that commemorate important themes, periods, and people in Alaska's history.
- **Strengthen** enforcement of the Alaska Historic Preservation Act.
- **Identify** and **pursue** opportunities for celebrations commemorating important historical events.

Goal O

Assure that Alaska's water resources are managed responsibly and made available for maximum use.

Necessary Action

- **Ensure** all Alaskans obtain rights, within a reasonable time, to the water they use for domestic, commercial, and industrial purposes.
- **Assure** water-right applications and Temporary Water Use Permits are adjudicated in a reasonable time. Accelerate reduction of permit backlog (over 1000).

Goal P

Audit and evaluate accounting integrity to assure full and timely payment for resources sold, leased, or permitted.

Goal Q

Evaluate and audit the process for determining if waste of resources is occurring.

Goal R

Enhance the role of local government in economic recovery.

Necessary Action

- **Revise** municipal land entitlement statutes to allow an increased locally controlled land base that stimulates local governments to attract diversified resource development value-added opportunities.
- **Provide** technical assistance in resource development to local governments.
- **Revise** appropriate regulations allowing greater local control and less delay in resource development permitting.
- Actively **solicit** local government participation in the development and implementation of regional strategies.

Goal S

Evaluate the process for determining unauthorized use of state land and review the citation and litigation processes for the purpose of expediting resolutions.

Necessary Action

- **Amend** statutes and regulations to allow faster resolution of problems.

MISSION III

To simplify and accelerate regulatory processes and organizational structures to allow rapid, sustained economic growth.

Goal A

Craft statutes and regulations and a departmental organization to **streamline** natural resource development.

Necessary Action

- **Amend** Titles 38 and 46.
- **Amend** mining laws to promote coal and mineral exploration.
- **Implement** the Forest Practices Act.
- **Develop** a State Water Management Strategy including a plan for water exports.
- **Develop** statutes and regulations that enhance water sales.
- **Establish** program management accountability for implementation of the approved Strategic Plan.
- **Establish** the Alaska Water Management Council.
- Cooperatively **consolidate** state, federal, and local government offices in regional areas.
- **Develop** and **implement** regional strategic plans.
- **Improve** the investment climate by minimizing the time required to fully permit major projects.
- **Explore** the establishment of an oil and gas monitoring office with all affected agencies in one location.
- **Consolidate** inspection and regulatory functions related to food and agriculture industry within one state agency.
- **Reclassify** mineral land categories to make exploration permitting less expensive while maintaining appropriate environmental protection.

Goal B

Identify and remove inappropriate barriers to the exploration and development of natural resources.

Necessary Action

- **Evaluate** and **revise**, where appropriate and with proper processes, land use categories that may foreclose or significantly inhibit resource development.
- **Add**, as appropriate, resource development and economic strategies and schedules to all land and resource management plans.
- **Use** land management plans to *simplify* development processes.
- **Develop** an asset- or economic-potential inventory for all state lands and related surface and subsurface resources.
- **Build** and **maintain** automated resource-inventory tracking and evaluation systems.

- **Develop** the ability to issue some permits on site, similar to ADF&G and DEC processes.
- **Acquire** necessary land records and surveys to protect state land against encumbrances and adverse claims.
- **Reacquire** those former state disposals that have limited or stopped the development of state resources with value-added potential.

Goal C

Make accessible those unique Alaskan locations that hold special value.

Necessary Action

- **Remove** barriers to opening access routes such as the Haul Road for the purpose of resource extraction, recreation, and transportation.
- **Acquire** North Denali and Loop Road Access rights-of-ways.

Goal D

Expand the department's volunteer and internship programs to augment the professional staff and provide additional public services.

Necessary Action

- **Identify** opportunities for volunteers at all levels of DNR.
- **Solicit** volunteers from Alaska and other states and nations.
- **Increase** park volunteer effort to at least 150,000 hours annually.

Goal E

Create local economic development opportunities through commercial use permits, concession contracts, and other public/private partnerships.

Necessary Action

- **Expand** opportunities for business operations in state parks or other designated recreational areas.

Goal F

Improve Alaska's highway waysides, scenic overlooks, trails, and wildlife viewing sites.

Necessary Action

- **Work** with DOTPF to provide recreational and tourism enhancement, using the Intermodal Surface Transportation Efficiency Act (ISTEA).
- **Develop** and implement a cooperative management agreement with DOTPF for improved services at selected highway waysides in exchange for improved road maintenance in state parks.
- **Implement** an interagency memorandum of understanding for the development of a wildlife-viewing program.
- Continue **research** on possible state legislation to implement the federal Symms Trail Act and designate a state trails council.

Goal G

Establish a state park foundation to raise funds, acquire land, and secure donations of goods and services for the state park system.

Necessary Action

- **Create** a park foundation and develop it as appropriate.
- **Work** with park advisory boards and interest groups to draft articles of incorporation and designate a board of directors.

MISSION IV

To raise public awareness of Alaska's natural resource asset base, its market potential within Alaska and the world, how it effects our daily lives, and how to implement its promise for our common future.

Goal A

Establish and maintain a current comprehensive portfolio of Alaska's marketable assets.

Necessary Action

- **Identify, inventory,** and **quantify** the surface and subsurface natural resources, and rank them based on market potential.
- **Determine** the market potential of Alaska's metals, minerals, construction materials, hydrocarbons, water, geothermal resources, wood products, agriculture, lands.
- With the cooperation of private industry, **archive, maintain** and **make available** a systematic collection of subsurface geological samples, specimens, and drill cores from oil wells, water wells, geothermal fields, and mineral properties throughout Alaska.
- **Publish** and **disseminate** technical and summary reports on Alaska's geological and hydrological resources as a stimulus to private investment.
- **Publish** *practical* guides for resource development. Include maps of inven.ories resource ownerships, use limitations, regulatory process descriptions.
- Work in direct cooperation with the Department of Commerce and Economic Development and International Trade to explore and enhance the world potential for Alaska products.

Goal B

Create a resource development and marketing education program in cooperation with other agencies, the University of Alaska, and other appropriate institutions.

Necessary Action

- **Negotiate** a cooperative agreement with appropriate academic and research programs.
- **Coordinate** with Department of Commerce, AIDEA, and the Alaska Permanent Fund Board.

Goal C

Raise citizen awareness of the domestic and export value of Alaska's water resources.

Necessary Action

- **Establish** a water marketing group.
- **Establish** a water education group of government agency, special interest, and education representatives under the Alaska Water Management Council.
- **Utilize** state Public Information Centers for marketing.

Goal D

Train staff and volunteers in search and rescue, law enforcement, emergency medicine, interpretive programs, and public information services in collaboration with other appropriate State and Federal agencies.

Necessary Action

- **Pursue** legislation giving the DNR commissioner the authority to commission trained park rangers and others for law enforcement.
- **Update** and **expand** the department's policies and procedures for training and professional standards.
- **Appoint** division training officers to coordinate annual training for staff and volunteers.

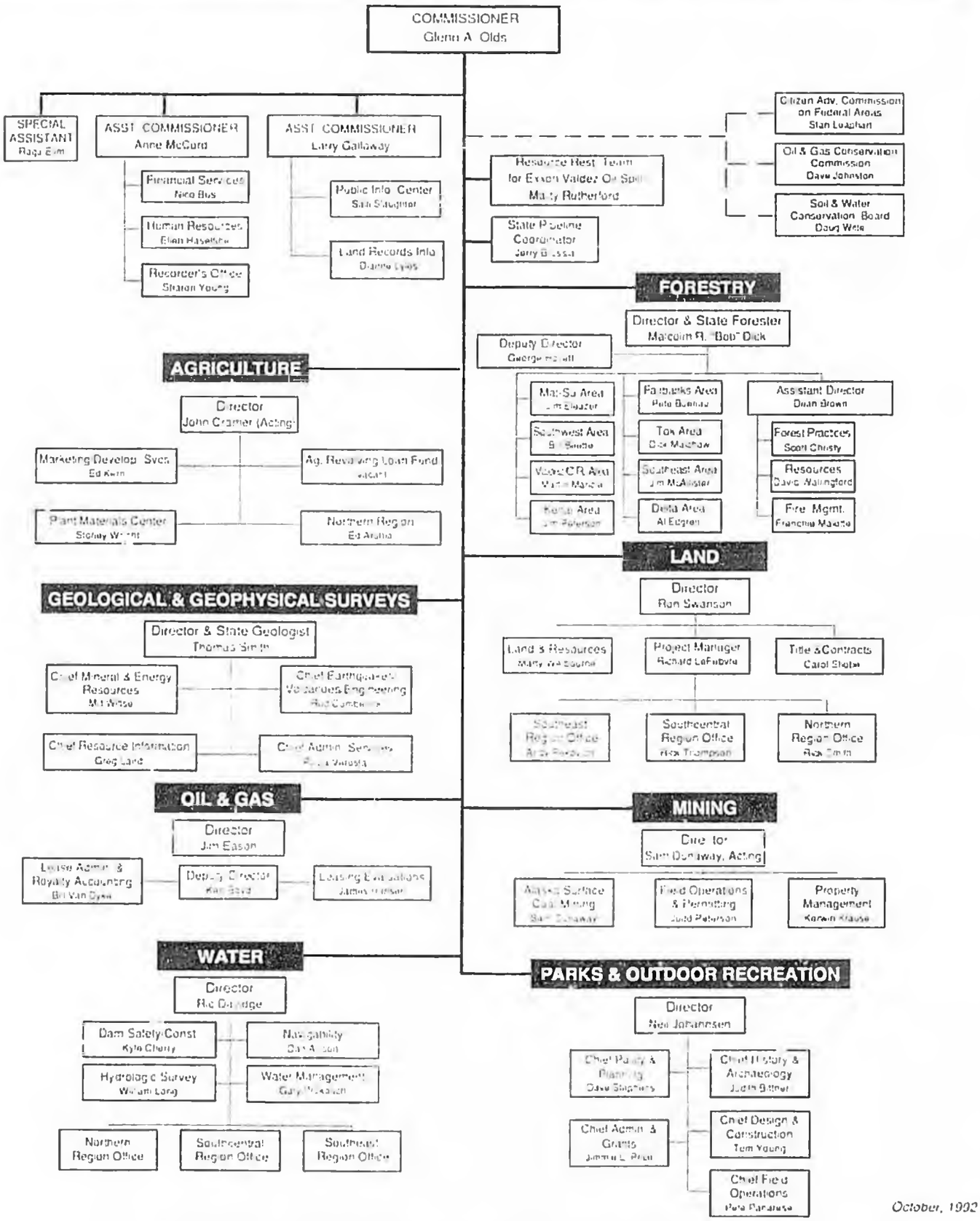
Goal E

Improve recreation and tourism-related research and marketing, enabling better quality control and more precise targeting of tourism developments and visitor services.

Necessary Action

- **Strengthen** relationships with the Division of Tourism, Alaska Tourism Marketing Council, Alaska Visitors Association, and colleges and universities.
- **Develop** a marketing plan for state parks and other state owned recreational resources in cooperation with the Division of Tourism.

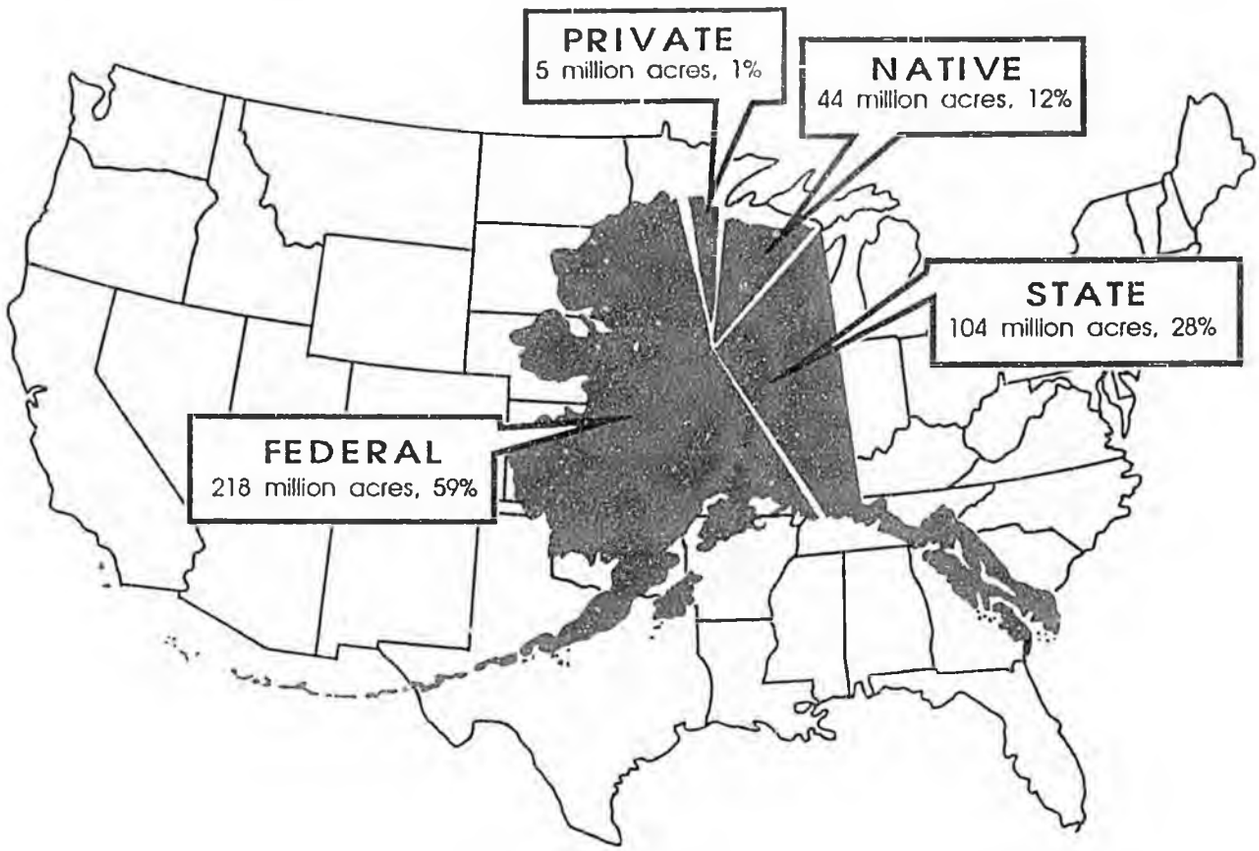
DEPARTMENT OF NATURAL RESOURCES



October, 1992

This publication was developed and released by the Department of Natural Resources, at a cost of $0.74 per copy to inform the public of the efforts of the department to stimulate economic development and diversification. This publication was printed in Anchorage, Alaska.

WHO OWNS ALASKA?



Prepared by the Management Team of the Department of Natural Resources - 1992

THE ALASKA

DEPARTMENT OF

NATURAL RESOURCES

THE DEPARTMENT OF NATURAL RESOURCES

has the responsibility to manage and develop Alaska's land, water, and surface and subsurface resources.

- It oversees approximately 86 million acres of uplands and 65 million acres of tidelands, shorelands, and submerged lands.
- The State also owns about 40% of the nation's freshwater resources.
- The department has 8 divisions, offices in 22 Alaskan communities, and nearly 740 full-time employees and 230 part-time and seasonal employees.

STATE OF ALASKA
WALTER J. HICKEL
GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
GLENN A. OLDS
COMMISSIONER

Prepared by:
Public Information Center

THE COMMISSIONER'S OFFICE

sets department goals and policies and provides support services to DNR's divisions and 25 boards and commissions. It serves the public and private sectors through fourteen Recorders' Offices throughout the state, and its public information services. The Pipeline Coordinator's Office, the Citizen's Advisory Commission on Federal Areas, the Alaska Oil and Gas Conservation Commission, and the Soil and Water Conservation Board are also within the Commissioner's Office. The Commissioner maintains offices in Juneau and Anchorage.

Intellectual Capital

ALASKA HAS

- people who have developed special knowledge, skills and a heightened sensitivity to the challenge of survival in the Far North. Alaskans have pioneered arctic oil & gas exploration, environmental clean-up and mitigation, development of specialized plants, and have experience in resource sales, mapping and mining.
- institutions that facilitate technology transfers: Alaska Foundation for Science and Technology, the World Trade Center and the Center for International Trade, the Arctic Research Commission, the Northern Forum and the many research institutes associated with Alaskan universities.

THE DIVISION OF AGRICULTURE

works with local producers to promote and support Alaska's agriculture industry through financing for farmers and processors, conservation education and inspection, and farm product certification. The "Alaska Grown" program promotes Alaska's farm products, and the Plant Materials Center develops and tests plants for Alaska's climate for use in agriculture production, erosion control, land reclamation and habitat improvement.

ALASKA

- has more than 1 million acres of open farmable land with nearly 200,000 acres in production.
- has 9 million acres of potential crop land in state and private ownership
- has vast acreage and bountiful natural gas creating potential for a greenhouse industry that can help feed a growing world population.

ALASKA'S 560 FARMS

- produce world-famous giant vegetables--a result of natural conditions and long summer light.
- average more than 1,000 acres each, and contribute $30 million to Alaska's economy each year.
- produce more than 20 million pounds of potatoes annually.
- are the number one U.S. producers of reindeer meat.

THE DIVISION OF FORESTRY

manages State Forests for multiple use and sustained yield, protects forest values, and develops and sells forest products. Staff gives technical assistance to private forest landowners; operates the State Forest Nursery, and administers the Forest Practices Act. Foresters cooperate with other agencies to protect 134 million acres of private and state forest land from fire and disease. Village crews are trained in fire protection, enabling them to work on fires in Alaska and around the nation.

ALASKA

- has over two million acres of dedicated state forest located in the Tanana Valley and near Haines.
- sells about 25 million board feet of timber annually
- produces 800,000 seedlings a year for reforestation.
- protects 134 million acres--over twice the size of Washington State--with its highly trained wildfire suppression organization.
- is responsible for implementing the Forest Practices Act on non-federal lands throughout the state.

THE DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

collects, analyzes, and interprets data on natural resources and natural conditions; maps and inventories resources on state land for use by government, private industry, scientists, educators and the public. Their geologic hazards program provides engineering and safety information on slope-stability, volcano and earthquake hazards, permafrost and other natural conditions. The staff annually publishes about 75 technical reports and geologic maps and distributes more than 11,000 copies of publications.

ALASKA

- has 1,980 known mineral deposits on land open to mining.
- has 2.8 trillion tons of coal resource, representing 44% of the nation's coal and 15% of the known world's inventory.
- has some of the world's lowest sulfur coals.
- has three gold deposits containing an estimated 13.0 million ounces, worth $5 billion (in place).
- has identified reserves of seven of 13 strategic minerals including tin, nickel, platinum, cobalt, chromium, graphite, and titanium.
- has copper, lead, zinc, and molybdenum contained in eight deposits worth $32 billion.
- has mines accounting for 57% of U.S. production of zinc, 16% of silver, and 13% of lead.

THE DIVISION OF MINING

oversees state mineral exploration, development and leasing programs (excluding oil, gas and geothermal energy) on state land; maintains records of locatable mineral claims; administers the state's Surface Coal Mining Control and Reclamation Program; and provides mineral information to the public and technical assistance to the mining industry.

ALASKA

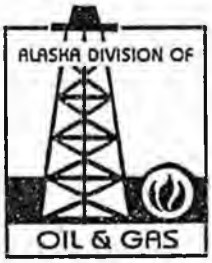
- has 96 million acres of state land available for mineral exploration and mining; another 63 million acres are available through other land owners.
- has 1.4 million acres presently under mineral location or lease, representing only 1.5% of the state land open to mineral entry.
- has about 31,000 mining claims on 1.3 million acres of state land generating $650,000 in revenue to the state treasury.
- generates nearly $50,000 from mining leases, excluding Healy.
- generates more than $1 million in coal royalties each year.

THE DIVISION OF LAND

is the primary manager of Alaska's land holdings. Responsibilities include classifying land; selling land and materials; leasing state land for recreation, commercial and industrial uses; managing major projects such as land selections to fulfill the state's land entitlement, reconstituting mental health lands, and Fort Knox gold mine development.

ALASKA

- is 1/5 the size of the lower 48 states combined – more than twice the size of Texas.
- owns 86 million acres of upland.
- has 22 million acres of uplands under selection.
- manages 34 thousand miles of coastline and 65 million acres of tide and submerged land.
- generates about $10 million in revenue from land sales and fees.
- generates gravel and other material sale revenues exceeding $1.1 million.
- has transferred 552,000 acres to private ownership since 1960.
- has over 2.5 million acres in Public Use and Recreational River Systems.



THE DIVISION OF OIL & GAS

develops and manages the state's oil and gas leasing programs which generate 85% of the State of Alaska's general fund revenues. The staff identifies prospective lease areas; performs geologic, economic, environmental and social analyses, develops a five-year leasing schedule, and conducts public review of proposed sales. The Division conducts competitive oil, gas and geothermal lease sales and monitors collection of all bonuses, rentals and royalties resulting from its leasing program.

ALASKA

- has the two largest known oil fields in North America: Prudhoe Bay and Kuparuk River.
- has oil reserves: over 4.6 billion barrels remaining at Prudhoe Bay; 300 million barrels at Pt. McIntyre; over 500 million barrels in other known North Slope fields.
- has six common-carrier pipelines, including the 800-mile Trans-Alaska Pipeline that transports up to 2 million barrels of oil per day, 25% of the nation's domestic production.
- has 1,200 oil and gas leases: three-quarters on the North Slope, one quarter in Cook Inlet.
- has the nation's only liquid natural gas (LNG) export operation at Nikiski
- has 14 lease sales scheduled through 1994.

THE DIVISION OF PARKS & OUTDOOR RECREATION

plans, develops and manages the Alaska State Park System, which hosts over six million visits annually, with assistance from its Volunteers in Parks and youth employment program. The park system provides interpretive programs for its visitors; administers grant programs and manages historic sites and a wildlife preserve. The Alaska Office of History & Archaeology is housed within the Division of Parks.

ALASKA

- has the newest and largest state park system in the United States containing more than 130 units and more than 3.2 million acres.
- averages nearly seven million "visits" to its state parks each year with one out of four visits from a non-resident tourist.
- manages more than 2,000 campsites, as well as visitor centers, picnic ares, fishing access sites, trail system, public use cabins, and historic sites.
- generates more than $1 million in user and concession fees annually.
- has the largest volunteer program in Alaska with more than 400 volunteers contributing over 60,000 hours of labor.
- has one-third of the total state park acreage in the United States.
- has the nation's largest state park, Wood-Tikchik, with 1.6 million acres.
- has the world's largest concentration of bald eagles each fall, when 3,500 gather to feed on late salmon runs in the Alaska Chilkat Bald Eagle Preserve.

THE DIVISION OF WATER

manages, plans, promotes and authorizes responsible use of Alaska's water resources. Its staff also works to resolve state title to submerged lands under all navigable water bodies; collects and provides information on quantity and quality of Alaska's vast surface, ground and coastal waters; issues water use permits and water rights; and protects lives and property through its Dam Safety Program.

THE STATE OF ALASKA

- has about 40% of our nation's free (not frozen) freshwater resources in 30,000 streams and 3 million lakes. An estimated 100,000 glaciers covering approximately 28,800 square miles hold almost 75% of all fresh water in Alaska.
- owns and manages 20 million acres of inland waters–and claims title to 12 to 14 million acres of land underneath those waters.
- discharges nearly 1 billion acre feet (892 billion gallons a day) into the ocean annually.
- has vast recharge capabilities in locations accessible for large volume water exports with annual precipitation upwards of 400 inches in some southeast drainages.

THE DEPARTMENT OF NATURAL RESOURCES & THE ALASKA PERMANENT FUND

- Since 1977, Alaskans have saved 25% of the $38.8 billion in petroleum revenues received by the state.
- The State of Alaska annually deposits a minimum of 25% of each petroleum royalty dollar into the Permanent Fund.
- The Permanent Fund has earned $8.9 billion since its inception in 1977.
- Each eligible Alaskan has received a Permanent Fund Dividend check since 1977. The average payment to individual Alaskans is more than $900.00.
- 65% of the Permanent Fund's principal is from the state's petroleum revenues, the majority of which comes from land managed by the Department of Natural Resources.
- Approximately half the Permanent Fund's earnings have been distributed to Alaskans, and half has been saved for future generations through inflation-proofing and special appropriations.

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Division of Forestry

1991

Annual Report

Alaska Department of Natural Resources
Division of Forestry
State Forester's Office
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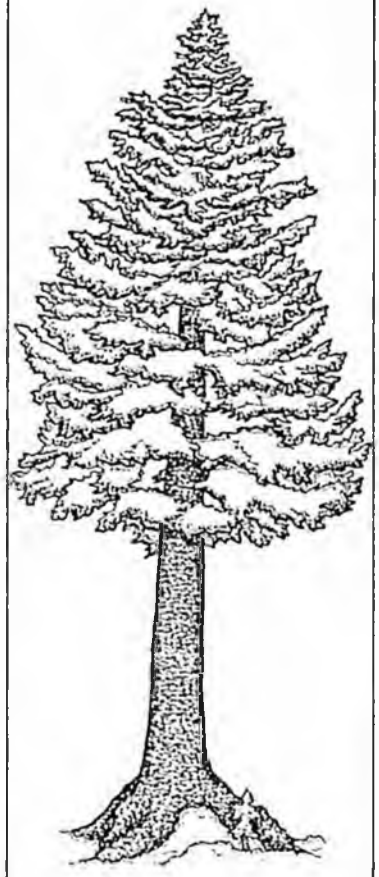


State Forester's Comments

Malcolm R. "Bob" Dick

This year's annual report will give you an overview of 1991. I would like to look ahead—set the stage, if you will—for 1992 and beyond.

Forest Practices regulations are complete. Next comes training, implementation and monitoring. The division will develop training workshops for agencies and operators; implementation of the new regulations will occur once the final package is signed; monitoring programs will be developed with agencies and operators. The Board of Forestry will be an integral part of the division's Forest Practices Program.

Timber sales will get more attention in 1992. The division will review the program to see where and how we can get timber to market. On a related note, the new forestry nursery will be built in Palmer. We will lose one crop but the expansion will supply more, higher quality seedlings destined for harvested and burned areas.

The Fire and Aviation Program has its hands full as it seeks to find the most efficient and safe program for today's budget realities. The growing urban/wildland interface and increasingly complex interagency relationships provide significant challenges for the 1990s. Restructuring options are being reviewed in such areas as crew contracting, aviation management, logistics, warehousing and fire prevention.

The division's Resources Section houses forest inventory, insect and disease, and silviculture experts, who provide technical and on-site support for our operational programs. Increasingly, this group is lending its expertise to landowners and others outside the division. We expect this trend to continue.

The Forest Health Program, which is just getting underway will focus on forest health problems, particularly the spruce bark beetle. The division will develop a plan for the Kenai Peninsula, emphasizing public input.

The division has also joined the national tree planting program, America the Beautiful. This federally funded effort includes the Forest Stewardship Program, which promotes stewardship on private non-industrial forested land, and Urban and Community Forestry, which supports tree planting and care in urban areas and communities. Two citizen committees guide these programs.

In 1989 the division established a goal of being a full service forestry agency, dedicated to good forest stewardship and the efficient use of our forests. We are getting ever closer to that goal, even with reduced budgets. It hasn't been easy but we are moving forward and are proud of our progress.

"... the division established a goal of being a full service forestry agency, dedicated to good forest stewardship and efficient use of our forests. We are getting ever closer to that goal..."

Introduction

The Alaska Division of Forestry was established in November, 1981. Prior to that time it was a section within the Division of Forest, Land and Water Management. Today it is one of eight divisions under the Direction of the Commissioner of the Department of Natural Resources. Its mission is to manage and protect the state's forest resources.

The division manages state forested lands for multiple use and sustained yield. It encourages development of the timber industry and forest products markets; conducts personal-use and commercial fuelwood and timber sales; gives technical assistance to forest landowners; operates the Forest Regeneration Center; and administers the Forest Practices Act and the Community Forestry and Stewardship programs. The division also manages the Haines and Tanana Valley state forests, consisting of more than two million acres.

To perform these functions, the division has a central office for policy and program direction, regional offices that provide program direction and support, and ten area offices responsible for field work on a statewide basis.

In 1991 the division employed 94 people full-time, 138 seasonally, and about 950 emergency firefighters.

The Division of Forestry is designed to:

- protect water quality, fish and wildlife habitat and other forest values through the use of appropriate forest practices;
- provide efficient management of the benefits and products associated with a dynamic forest system;
- manage a wildland fire program on public, private and municipal lands;
- provide administrative and technical services to support program activities and meet state administrative directives.

1991 Highlights

Day-to-day activities may seem routine, but collectively they add up to major accomplishments for the Division of Forestry.

In 1991 the division:

- Cooperated with federal agencies in providing fire protection for 134 million acres of private, state and municipal land.
- Responded to 493 fires that burned 174,276 acres of state-protected land.
- Employed emergency firefighters who collected $9.09 million in state and federal wages.
- Administered aviation contracts and rentals that, along with fuel purchases, put nearly $6 million into Alaska's economy in 1991.
- Processed 193 forest practices notifications for 57,237 acres of forest land and conducted 222 inspections.
- Produced 827,388 seedlings for reforestation of federal, state, municipal and private land.
- Planted 618,936 seedlings on 605 acres of state harvested or burned land.
- Issued 40 commercial timber sale contracts and 11 salvage beach log licenses.
- Issued 928 fuelwood permits, 20 house log sales and 12 saw log sales for personal use by Alaskans.
- Issued 4,359 permits for burning, as part of the fire prevention program—1,500 more than in 1990.
- Constructed 31 miles of road and maintained an additional 180 miles.
- Granted federal community forestry funds, totaling $37,000, to nine communities for tree planting projects. The grants were matched with $53,000 in local donations and in-kind services.
- Administered a $32,000 grant from the Small Business Administration for a tree planting and highway beautification project in Delta Junction.
- Completed a draft plan for managing the 360-acre Homer Demonstration Forest.
- Began a major effort to address forest health in Alaska, beginning on the Kenai Peninsula.
- Participated in six open houses and provided information to the Division of Land for the Kenai Area Plan.

Fire Management

Wildland fire protection

Wildland fire suppression in Alaska is administered by the Division of Forestry, the Bureau of Land Management's Alaska Fire Service, and the U.S. Forest Service. Each organization protects its respective land under cooperative suppression agreements that were developed through an interagency planning process. Alaska is the only state covered by an interagency fire plan.

The Alaska Interagency Fire Management Plan recognizes that fire is a part of the natural cycle, as well as a potential destroyer of life, property and resources. The plan divides the state into fire-suppression areas based on major natural fire breaks and the objectives of land managers.

Fire suppression efforts are focused on communities and valuable natural resources. In remote and unsettled areas, fires are monitored to assure they do not burn unchecked toward areas where human life or development can be threatened.

All lands in Alaska have been placed in one of four Fire Protection Levels:

Critical Protection: Areas where life and property are present receive immediate and aggressive suppression efforts.

Full Protection: Areas with high value resources, where fire adversely impacts the resource management objectives, also receive immediate and aggressive suppression efforts.

Modified Action: Areas of high value resources, but where land managers may consider the trade-off of acres burned versus suppression costs. Initial attack is immediate but resource managers guide the suppression effort.

Limited Action: Areas where fire is beneficial or the cost of fighting the fire is greater than the fire damage. Fires are monitored and no suppression action is taken except to prevent the fire from burning onto higher value land.

1991 fire season

The 1991 fire season began with concerns that the drying trend of the past few summers could cause problems. The record snow pack in the Interior did not soak the organic layer because most of the snow melted before the ground thawed enough to absorb it.

The first fire began on April 1, on state protected land in the Delta area. There were 20 fires in April, all on state protected land. The first lightning fire of the summer was on May 6 near Delta. There were nine additional lightning fires in May; none caused major problems. Fire occurrences for the month were not unusual, however, 27 new fires were reported May 1 through May 12 in state protected areas.

June began normally with the first day of multiple lightning-caused fires on June 6. The season's one-day high for new starts was June 30, with 46 new fires.

The project fire period began on June 22 with 42 new fires. From that day until July 3 there were 269 new fires. The Upper Yukon and Tanana Zones and the Southwest Area were the hardest hit. The Yukon Territory also recorded 100 starts the last eight days of June.

After July 3 starts dropped to an average of 2.7 per day for the rest of the month. There were no new starts the first week of August, however, there were 28 during the rest of the month.

There were 20 new fires during September, with four occurring on September 2, the day of the last recorded lightning start. The last AFS fire began on September 29 and the last fire of the season was reported on November 15 near Illiamna.

Fire Highlights

Pothole Lake Fire

The Pothole Lake Fire was discovered on May 19 in the Kenai National Wildlife Refuge, in an area that required monitoring only. After aerial reconnaissance and a review of weather forecasts, the Division of Forestry and the refuge manager decided to continue daily monitoring.

By May 21 the fire was threatening to move east, possibly into a modified suppression area in the Chugach National Forest. An updated evaluation obligated the division to take some indirect suppression action and a small management corps and firefighters were dispatched.

On May 24, after winds switched during a large burnout effort, a type II team was brought in. During a five-mile run on May 26, requiring the evacuation of Hidden Lake Campground, a type I team was employed. At the height of the suppression activity the fire organization grew to more than 625 people. The fire was controlled on June 3 at 8,900 acres.

The fire appeared in local, state and national news stories due to its proximity to Cooper Landing and the evacuation of the campground. Although the fire drew attention to the beetle-killed forests, it seemed to spread through the dead grass of early spring more than through the dead spruce trees.

A local multi-agency coordinating group, made up of the Forest Service, Fish and Wildlife Service, Kenai Peninsula Borough and the Division of Forestry coordinated concerns of land managers and presented them to the fire management team.

American Wellesly Lake Fire

On August 17, a 40-mph wind caused a fire, which was being monitored on Fish and Wildlife Service land, to escape. The fire ran nine miles in six hours and came within a half-mile of the U.S. Customs and Immigration complex at the Yukon/Alaska border. It also threatened another dozen residences and structures along the Alaska Highway, both in Canada and in Alaska. Heavy smoke and high winds led to the evacuation of 25 people.

The fire became dangerous when it spread toward homes, other high-value improvements and the visual corridor along the Alaska Highway. It required the cooperation of both the U.S. and Canadian Customs and Immigrations Services, the Fish and Wildlife Service, the BLM, the Division of Forestry, the Canadian Department of Northern Affairs and Canadian Fire Management. Interagency and international fire suppression cooperative agreements were successfully implemented during the fire. The fire was contained at 19,150 acres.

1991 fires by cause on state protected land

	Number	Acres
Lightning	130	164,920.2
Campfires	60	7,941.5
Field/debris	72	996.5
Fireworks	17	304
Dump/trash	21	21.7
Children	37	6.8
Smoking	27	6.1
Incendiary	7	2
Other	122	78
Total	**493**	**174,276.8**

1991 Statewide Fire Statistics

Fire activity by landowner

Landowner	No.	Acres
State Division of Land	112	255,637.3
State Dept. of Transportation	14	3.3
State Refuge	0	0
State Parks	14	7.8
State Railroad	8	21
State Forest	6	3.7
State Mental Health	3	5,761
State University	5	1,812.7
Borough/City	15	3
Private	270	1,342
Bureau of Land Mgmt.	89	522,577.6
National Park Service	13	86,651.1
Fish & Wildlife Service	72	703,090.7
Bureau of Indian Affairs	5	673.2
Native Lands	81	169,478.6
Military	35	2,688.1
Canada	2	345
Forest Service	16	557.1
Total	**760**	**1,750,653.2**

Fire activity statewide

Number of fires:	760
Acres burned:	1,750,653.2

Area key

AMS	Anchorage/Mat-Su
KK	Kenai/Kodiak
VCR	Valdez/Copper River
SW	Southwest
F	Fairbanks
D	Delta
T	Tok
SE	Southeast
CGF	Chugach National Forest
CMF	Tongass Nat'l Forest, Chatham Area
KNF	Tongass Nat'l Forest, Ketchikan Area
STF	Tongass Nat'l Forest, Stikine Area
GAL	Galena
TAL	Tanana
UYK	Upper Yukon
FCC	Fire Coordination Center, Fairbanks

1991 Fires by Area and Management Option

State protected

Area[1]	CRITICAL No.	CRITICAL Acres	FULL No.	FULL Acres	MODIFIED No.	MODIFIED Acres	LIMITED No.	LIMITED Acres	TOTAL No.	TOTAL Acres
AMS	102	1,132.1	10	5.5	2	1.8	2	128	116	1,267.4
KK	43	19.6	3	106.5	0	1,386	1	6,418	47	7,930.1
VCR	7	1.6	14	3.9	1	0.2	4	5,697	26	5,702.7
SW	6	5.4	33	45,181.8	17	36,941.8	26	53,661.8	82	135,790.8
F	112	165.8	37	1,737.1	10	505.7	1	10	160	2,418.6
D	8	12	12	179.7	0	0	0	0	20	191.7
T	18	2.7	14	16.7	3	155.0	6	20,801	41	20,975.4
SE	0	0	1	0.1	0	0	0	0	1	0.1
Total	**296**	**1,339.2**	**124**	**47,231.3**	**33**	**38,990.5**	**40**	**86,715.8**	**493**	**174,276.8**

U.S. Forest Service protected

Area[1]	CRITICAL No.	CRITICAL Acres	FULL No.	FULL Acres	MODIFIED No.	MODIFIED Acres	LIMITED No.	LIMITED Acres	TOTAL No.	TOTAL Acres
CGF	7	14	6	1.3	0	0	1	0.1	14	15.4
CMF	0	0	3	0.3	0	0	0	0	3	0.3
KNF	2	0.2	1	0.2	0	0	0	0	3	0.4
STF	0	0	0	0	0	0	0	0	0	0
Total	**9**	**14.2**	**10**	**1.8**	**0**	**0**	**1**	**0.1**	**20**	**16**

Alaska Fire Service protected

Area[1]	CRITICAL No.	CRITICAL Acres	FULL No.	FULL Acres	MODIFIED No.	MODIFIED Acres	LIMITED No.	LIMITED Acres	UNPLANNED* No.	UNPLANNED* Acres	TOTAL No.	TOTAL Acres
GAL	0	0	7	7,803	27	17,739.2	26	71,429.2	1	3	61	96,974.4
TAL	3	271.6	14	72,047.4	33	543,662.9	40	326,260.6	26	2,556.5	116	944,799
UYK	6	4.1	15	74.1	24	197,191.8	16	333,639.8	9	3,677.1	70	534,586.9
FCC	0	0	0	0	0	0	0	0	0	0	0	0
Total	**9**	**275.7**	**36**	**79,924.5**	**84**	**758,593.9**	**82**	**731,329.6**	**36**	**6,236.6**	**247**	**1,576,360.3**

Statewide

Area[1]	CRITICAL No.	CRITICAL Acres	FULL No.	FULL Acres	MODIFIED No.	MODIFIED Acres	LIMITED No.	LIMITED Acres	UNPLANNED* No.	UNPLANNED* Acres	TOTAL No.	TOTAL Acres
Total	314	1,629.1	170	127,157.6	117	797,584.4	123	818,045.5	36	6,236.6	760	1,750,653.2

[1]Area key on page 6 [2]Military land

Fire management goals

Management

- Stabilize the organizational structure that supports the fire program.
- Finalize master agreements with the BLM and Forest Service.
- Become a working member of the Western State Fire Managers organization.
- Improve property management, inventory control and fire equipment cost-tracking by computerizing the fire warehouse system.
- Complete and implement the *Forest Fire and Aviation Program: A Program Review and Workforce Analysis 1991.*

Operations

- Complete development of an Air Attack Supervisor position under supervision of the Fire Operations Forester and implement the Air Attack Supervisor Module.
- Strengthen relationship with the Chugach National Forest.
- Verify the accuracy of the Canadian Forest Fire Danger rating System on Alaska fuels.
- Expand the prescribed fire program with the Alaska Department of Fish & Game.
- Initiate an evaluation of the merits of the Limited Action Protection category and quantify the impacts on the ecosystem and natural resources.
- Complete consolidation of the 13 Interagency Fire Management Plans.

Aviation

- Develop relationship with the Alaska Fire Service to provide for joint decisions on air tanker and smokejumper aircraft requirements.
- Complete a Five-year Aviation Plan.

Training

- Formalize our approach to providing training for structure fire departments.
- Train division managers and initial attack personnel in the Canadian Forest Fire Danger Rating System.
- Develop and offer contract administration training with emphasis on aviation contracts.
- Provide fire management training for division line officers.

Prevention

- Initiate action to create a non-profit fire prevention and education organization. (Learn to Live with Wildland Fire)
- Complete Hazard Mitigation Plan on the 1990 Tok River fire. (FEMA requirement)
- Conduct a prevention analysis to determine program needs and deficiencies. (USFS participation)

Communications

- Complete and bring to full operation the computerized Fire Suppression Tracking System.
- Complete Five-year Communications Plan.
- Determine if the Initial Attack Management System is a viable communication network for interagency initial attack operations.
- Complete communications upgrades for the Southwest and Tok areas. (dependent on CIP/supplemental funding)

Fire management program

Fire and aviation working group formed

In December, 1990 a fire and aviation working group formed to help guide the division's fire program. The group has been accepted within the division as an effective clearinghouse for fire related issues and has become an important part of the management structure. The group meets monthly to help chart the future of the fire program.

Interagency cooperation

The state participated in interagency type II fire overhead teams for the first time in 1991. The state and federal government had previously had separate teams. The teams were used successfully on state and federal responsibility fires nine times and the state will continue to participate in the future.

In another cooperative, cost-saving effort, the Southern Region and the Chugach National Forest started an interagency dispatch function in Anchorage.

Land manager meetings

The Southwest Area Forester and Fire Management Officer met with land managers for the National Park Service and the Fish and Wildlife Service in Dillingham, Bethel and King Salmon to discuss fire plans and management goals. This was the first opportunity for some land managers to hold such discussions with the fire management agency. The meetings proved to be informative and good training exercises for all who participated. Wildland Fire Suppressio topics covered were:

- fire management plans and updates
- suppression capabilities
- communications, radio frequencies
- cabins/improvements, locations
- sensitive areas such as archaeological sites, burial sites, and nesting areas
- level of involvement and land manager's ability to assist DOF
- land manager's concerns about DOF operations
- utilization of resources

Canadian Forest Fire Danger Rating System

In 1990, the division examined the possibility of using the Canadian Forest Fire Danger Rating System in Alaska, as it appeared to be more applicable to Alaska's fire environment than the American System. Several division employees went to Alberta for training in the spring of 1991 and then trained other personnel. The system was very useful in managing wildfire in the state in 1991.

The Division of Forestry and the Big Lake Volunteer Fire Department cooperate on an early season grass fire.

T-28 program

The state has successfully used surplus T-28 airplanes since 1984. However, due to the poor availability of replacement parts, they will be gradually phased out by 1993.

McGrath retardant ramp damaged by flood

The retardant ramp in McGrath was closed for a week during fire season because of flood damage. It was reopened with a new management plan detailing safety procedures and traffic patterns to increase safety and prolong the useful life of the surface. The plan included moving the service island and installing steel hardstands.

Damage to the ramp was estimated at $63,900. Total flood damage to the fire station and ramp was estimated at $114,822.

Tok fire mushrooms

The 100,000-acre fire near Tok in 1990 created conditions for a bumper crop of morel mushrooms in 1991. An estimated 350,000 pounds were collected and nine buyers paid pickers up to $3 per pound, green weight. The morel mushroom is a delicacy in Europe, where it is sold for up to $75 per pound dry weight. A few local families who persisted earned up to $20,000 for their summer's work. Many professional pickers arrived from outside Alaska, including a crew of 30 Cambodians that camped out for 30 days.

This was the first time commercial mushroom buyers had been to Interior Alaska and the experience has created nationwide interest in commercial mushroom harvesting in Alaska. The many large fires that burn in Alaska each year may provide other opportunities for mushroom harvesting—an interesting way to use forest products to diversify Alaska's economy.

Rural community fire protection grants

The division administers Rural Community Fire Protection grant monies from the U.S. Forest Service. Through this program, volunteer fire departments serving communities of under 10,000 people may apply for grants of up to $5,000 on a 50/50 cost share basis to organize, train and equip fire protection units. In 1991 the division approved 20 grants, totaling $69,990, to conduct training and to purchase portable pumps, radios, protective clothing, smoke detectors, self contained breathing apparatus, fire hose and supplies.

Department	Grant Amount
Haines VFD	$1,500
Thorne Bay VFD	5,000
Wrangell VFD	2,930
Chugiak VFD	2,358
Houston VFD	1,968
Palmer VFD	5,000
Victory VFD	3,200
Chitina VFD	600
Copper Center VFD	5,000
Glennallen VFD	5,000
Kenny Lake VFD	5,000
Valdez VFD	4,664
Ester VFD	2,500
Chena-Goldstream VFD	3,750
McKinley VFD	900
Moose Creek VFD	2,140
Nenana VFD	4,430
North Star VFD	5,000
Delta VFD	4,050
Huslia VFD	5,000
Total	**$69,990**

Emergency firefighter wages paid by agency

Calendar Year	State	Federal	Total
1980	614,887	600,561	1,215,448
1981	1,705,360	2,898,293	4,603,653
1982	19,950	1,230,351	1,250,301
1983	1,553,258	1,969,374	3,522,632
1984	234,388	507,004	741,392
1985	561,238	2,656,350	3,217,588
1986	2,515,750	2,832,208	5,347,958
OT[1]	561,770		561,770
1987	646,674	5,352,799	5,999,473
OT[2]	643,932		643,932
1988	4,474,107	5,146,861	9,620,968
OT[3]	907,865		907,865
1989	1,805,955	2,276,175	4,082,130
1990	7,398,211	5,765,547	13,163,758
1991	5,344,384	3,741,521	9,085,905
Total	**$28,987,729**	**$34,977,044**	**$63,964,773**

[1] Special appropriation due to Fair Labor Standards Act.

[2] U.S. Dept. of Labor ruling required payment at time-and-one-half when week exceeded 40 hours. Amount shown was paid in 1990.

[3] U.S. Dept. of Labor ruling required payment at time-and-one-half when week exceeded 40 hours. Amount shown was paid in 1991.

Emergency out-of-state crew use (20-person crews)

Year	Number of crews
1970	40
1973	6
1981	18
1982	4
1985	39
1986	22
1987	59
1988	54
1989	61
1990	7
1991	0

Resource Management

Alaska Forest Regeneration Center

In 1991 the Alaska Forest Regeneration Center (nursery) shipped 640,433 seedlings and sowed 827,388 to fill increased orders. Seedlings were used to reforest state, federal and non-industrial private land; for research; Arbor Day activities and other civic purposes such as Koncor Forest Products' First-Tree Program.

As in past years, inmate laborers from the Department of Corrections worked at the nursery throughout the year. Two full-time forestry technicians, a maintenance worker and a University of Alaska Anchorage student intern also provided labor. Handicapped students received vocational training through an agreement with the Anchorage School District.

Regeneration center plans move

In 1990 the state legislature appropriated funds to expand the Forest Regeneration Center, which is located in Eagle River at the site of the division's mechanical shop and fire warehouse. The expansion was planned for that site, but when an engineer found the water supply inadequate for a larger facility the search began for another location. The division is now considering 12 acres at the University of Alaska Agriculture and Forestry Experiment Station on Trunk Road near Palmer. This location is readily accessible to the public, has sufficient water and no flood danger.

Expansion plans call for moving the division's two greenhouses from Eagle River and constructing two new greenhouses, depending on costs. Annual production for the four greenhouses would be about 800,000 seedlings (200,000 in each greenhouse). The Alaska Reforestation Council has recommended an eventual annual production of 1.6 million seedlings.

The two greenhouses at Eagle River have each been producing two crops of 200,000 seedlings each per year, however, in the future the division intends to grow only a single crop each year to produce higher quality seedlings and to allow greater flexibility in production schedules.

An important addition to the nursery will be a 100-foot by 100-foot head house containing equipment for tray filling and sowing, seed extraction and cleaning, and fertilizer and pesticide storage and mixing. It will also include a walk-in freezer, 600-square-foot cooler, lunch room, shower and wash rooms.

Regeneration

Fabric Mat Study

In areas impacted by spruce bark beetles, or that have not produced adequate natural regeneration following timber harvest, Calamagrostis grass dominates the ground vegetation. The grass is a stiff competitor for spruce seedlings, as its thick rhizome layer cools soils and the foliage blocks sunlight.

The division, in cooperation with the Institute of Northern Forestry, established several plots on the Kenai Peninsula and on a timber sale unit near Willow to assess the use of fabric reforestation mats with white spruce seedlings. The mats inhibit the growth of vegetation around the seedlings.

While initial costs of planting with fabric mats is higher than some other techniques, it may be cost-effective when compared to seedling survival rates and the replanting costs on sites dominated by grass. These studies compare survival, growth and form of seedlings using mats, against control plots with no mats. They will also distinguish the best type of mat fabric for use in Alaska's forests.

Trencher for regeneration

The Anchorage, Mat-Su and Kenai-Kodiak area offices, in cooperation with the Department of Fish and Game, purchased a TTS-35 disc trencher for regeneration work on timber sale and habitat enhancement projects. The trencher was first used in the spring of 1991 and results of work in the Susitna Valley and on the Kenai have been promising.

1991 nursery production

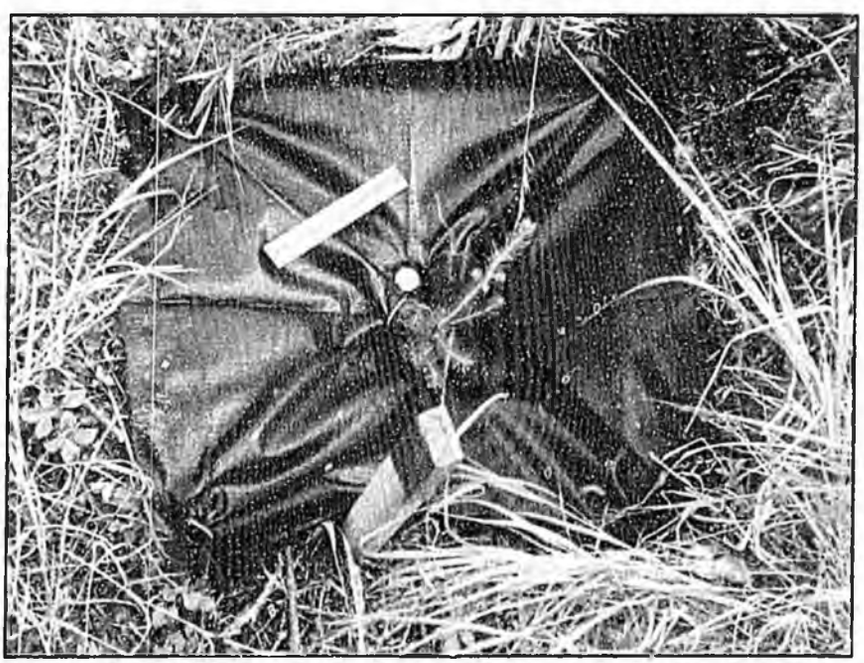
Species	Seedlings Sown
white spruce	702,318
lodgepole pine	29,046
Siberian larch	28,046
Scotch pine	13,800
Sitka spruce	11,800
paper birch	9,400
willow (cuttings)	6,076
American green alder	4,018
European mountain ash	3,600
blue spruce	3,600
Sitka alder	3,000
Norway spruce	2,800
Siberian pea shrub	2,176
poplar (cuttings)	1,173
mountain hemlock	2,000
subalpine fir	1,000
Sakhalin fir	800
Siberian pine	600
Swiss stone pine	400
bush cinquefoil	356
misc. species	1,379
Total	**827,388**

	Seedlings	
Client	**Sown**	**Shipped**
State	618,936	444,394
Federal	53,824	17,553
Borough	132,000	130,038
Private	22,628	48,448
Total	**827,388**	**640,433**

Species	Seed processed (lbs)
white spruce	701
Lutz spruce	140
Sitka spruce	13
paper birch	8
black spruce	3
Total	**865**

Reforestation

Reforestation	1990	1991
Seedlings grown	586,086	827,388
Acres planted	707	605
Pounds of seed processed	28	865
Acres surveyed for regeneration	370	2,395
Acres of site preparation	421	462
Acres direct-seeded	0	240



Fabric mats inhibit the growth of vegetation around seedlings and give them a better chance of survival.

Forest insects & disease

Forest insect populations and disease increased throughout the state in 1991. This was the third consecutive year with warm, dry springs and early summers, which allowed insect populations to increase dramatically. The largest increase in acres infested by destructive insects was in southcentral and interior Alaska.

Hardwood defoliators

Hardwood defoliator activity increased for the second consecutive year throughout most of southcentral and interior Alaska. Willow defoliation accounted for most of the increase. Assorted leaf miners, Noctuid and Rusty-tussock moth larvae defoliated more than 130,000 acres of willow in 1991, compared to 30,000 acres in 1990.

Exploding populations of spruce budworm near Fairbanks and Delta Junction defoliated more than 20,000 acres of white spruce. Black-headed budworm defoliation on western hemlock and Sitka spruce in Prince William Sound decreased to 7,000 acres compared to 40,000 acres of defoliation detected in 1990. White and Sitka spruce throughout southwest and southcentral Alaska were affected by needle rust. Aspen leaf blight was conspicuous for the second consecutive year in portions of the Kenai Peninsula.

A list of forest insect and disease infestations in Alaska by acreage, land ownership and pest is on page 17.

A summary of statewide annual survey results titled the "Alaska Conditions Report" is available from the State Division of Forestry (762-2107) and the U.S. Forest Service, State and Private Forestry Office (271-2575). The report includes extensive summaries of forest insect and disease trends by pest species statewide. The annual forest insect and disease aerial survey is a cooperative effort between the Division of Forestry and the Forest Service.

Spruce bark beetles

Spruce bark beetle activity increased for the third consecutive year, with on-going and new infestations affecting more than 375,000 acres, primarily in the southcentral and interior regions. This represents an increase of 142,000 acres, or 38 percent, over all areas surveyed in 1990. On just state and private lands, including Native corporation land, spruce beetle-caused mortality increased from 152,000 acres in 1990 to 215,000 in 1991, a 62 percent increase.

Spruce beetle activity in the Copper River area near Chitina increased from 11,000 acres in 1990 to 25,000 acres in 1991. In the Clam Gulch/Tustumena Lake area on the Kenai Peninsula the infestation on state and private lands grew from 35,000 acres to about 55,300 acres. On the west side of Cook Inlet near the Theodore River/Beluga area and the Skwentna River, the infestation increased from 12,700 to 45,000 acres.

An area in Southcentral Alaska where spruce beetle activity decreased is along the south side of Kachemak Bay where 10,000 acres of infested Sitka spruce were detected in 1990 and only 7,000 acres were detected in 1991. No expansion was detected outside the area originally infested.

Another area of reduced activity was the Yukon River where the number of infested acres decreased for the second consecutive year, to about 80,000 acres. In 1987, aerial surveys detected 100,000 infested acres between Anvik and Koyukuk.

Southeast Alaska experienced less dramatic increases in spruce beetle damage due to generally cool, wet weather, which tends to keep insect populations in check. The most notable increase was in the Haines area where several discrete populations of spruce beetles infested 6,500 acres on University of Alaska and Mental Health Trust lands.

Spruce beetle pheromone testing

The Division of Forestry continues to cooperate with the U.S. Forest Service pest management researchers in testing spruce bark beetle pheromones as a way to manipulate spruce beetle populations. Spruce beetles produce chemicals (called pheromones) to communicate with other beetles, for mating, to locate susceptible spruce hosts, and to attract or repel other spruce beetles.

Pheromone research has been limited because of the time and expense involved in obtaining EPA registrations, formulating adequate quantities of the pure pheromone and rigorous testing. However, recent advances with new pheromone components have enhanced the lure strength and efficiency of spruce beetle traps.

Pheromones are being used primarily as a beetle monitoring tool, but there is the potential for manipulating low-level populations and reducing damage in large areas.

The anti-attractant pheromone, methylcyclohexenone (MCH), though experimental, may prove effective in reducing the build-up of spruce beetle populations during logging operations, right-of-way clearing, or similar activities. Applying the synthetic chemical to susceptible spruce sends signals to attacking beetles that the trees are full and that they should go elsewhere. This disrupts the natural dispersal of beetles.

The Forest Service and Division of Forestry were asked by Marathon Oil Co. to evaluate right-of-way debris clearing along a gas pipeline to determine what treatment could be used to minimize spruce beetle populations. The pipeline, located on the west side of Cook Inlet, had Lutz spruce decked on both sides of the clearing.

Following Forest Service recommendations, an aerial and ground application of MCH was made along the right-of-way in May to test its efficiency. The Forest Service and DOF completed sampling the treatment in August. Overall, very low numbers of spruce beetle attacks and progeny were found in the 30 evaluation plots, but, based on the low levels of beetles in the right-of-way, the effects of the MCH treatment were not conclusive. The number indicated a low endemic spruce beetle population in the surrounding forests. A publication with details of the test is available upon request. Its title is "Evaluation of Potential for Spruce Bark Beetle Population Build-up in Right-of-Way Clearing Debris Tyonek/Beluga—August 1991."

Sampling spruce beetle infestation in trap trees.

Kenai Peninsula infestation and surveys

In an annual detection flight over the Kenai Peninsula, state and U.S. Forest Service entomologists mapped a new, large infestation of spruce bark beetles in the vicinity of Kasilof/Clam Gulch. The 1991 infestation is estimated at 101,543 acres; this is in addition to the 39,033 acres infested in 1990. Tree mortality was found on Native, university, borough, state and federal land. DOF completed systematic survey plots in the impacted area during 1990 and 1991. Data from the surveys will be analyzed and a summary report prepared in late 1992.

A ground survey at Upper Trail Lake, near Moose Pass, after the July aerial survey, found new pockets of infestations. Forestry technicians and Seward Skill Center forestry students took samples on the north and east sides of the lake in October to determine numbers of infested spruce per acre for this and the last two years. Although the visual impact of the red, beetle-damaged trees is very evident, preliminary information from the survey indicates a low level of beetle-caused mortality in the spruce stands along the lake and Johnson Pass Trail. An additional ground survey is planned for summer, 1992, to assess impacts on the residual spruce stands in the area.

Information on growth increment, height, age, basal area and tree diameter will be compiled and provided to the Kenai Peninsula Borough in 1992. Most of this area is state community grant land selected for conveyance to the borough under its municipal land entitlement.

Klukwan Forest Products baits log decks with attractant pheromones to prevent spruce beetles from leaving the decks and infesting adjacent unlogged spruce.

Three student interns working in the Kenai-Kodiak Area collected field data on bark beetle infestations from more than 600 one-half-acre strip plots. The crew recorded the number of trees within each plot and the number of beetle infested spruce by the year that the attack occurred. Three plots within each strip recorded species, dbh, heights, stand composition and vegetative ground cover data. Most of the plots were located in the Clam Gulch/Kasilof vicinity, but some were on other parts of the peninsula, including the Homer Demonstration Forest.

Public meetings on Kenai infestation

Forest health and fire problems caused by spruce beetles near Cooper Landing have lead to a great deal of interest on the part of the public and media. Kenai-Kodiak Area Office staff attended public meetings at the Funny River Road and Homer chambers of commerce to raise public awareness of spruce bark beetle problems on the peninsula. They presented information about the infestation, how to recognize the beetles and beetle attacked trees, how to protect trees from beetles and actions being taken by the state and other agencies.

Pest Management Assistance

The Division of Forestry provides technical pest management assistance to private non-industrial landowners, using matching grants from the U.S. Forest Service. The division completed two such projects in 1991. It helped Klukwan Forest Products to bait log decks with attractant pheromones on land owned by the Ninilchik Native Association to prevent spruce beetles from leaving the decks and infesting adjacent unlogged spruce.

1991 Forest Insect and Disease Infestation in Alaska by Land Ownership [1]

Pest	Nat'l Forest	Other Federal	Native	State/Private	Total
Spruce beetle *Dendroctonus rufipennis (Coleoptera)*	19,526	142,228	23,315	191,748 [2]	**376,817**
E. larch beetle *Dendroctonus simplex (Coleoptera)*		156		3,425	**3,581**
Engravers *Ips spp. (Coleoptera)*		2,572	1,414	1,902	**5,888**
Spruce budworm Choristoneura spp. *(Lepidoptera)*			1,791	25,143	**26,934**
Black-headed budworm *Acleris gloverana (Lepidoptera)* affects w. hemlock, Sitka spruce	11,064		2,107	234	**13,405**
Hemlock sawfly *Neodiprion tsugae (Hymenoptera)*	934				**934**
Large aspen tortrix *Choristoneura conflictana (Lepidoptera)*		3,176	267	677	**4,120**
Spear-marked black moth *Rheumaptera hastata*		4,223			**4,223**
Birch defoliation *various spp. (Lepidoptera)*		215	251	716	**1,182**
Cottonwood defoliation . *various spp (Coleoptera, Lepidoptera)*	2,955	4,617		9,119	**16,691**
Willow defoliation *(Coleoptera, Lepidoptera)*		53,538	75,081	3,098	**131,717**
Alaska yellow cedar decline[3] (cumulative)	500,406		17,511	8,718	**526,635**
Total Acres	**534,885**	**210,725**	**121,737**	**244,780**	
Grand Total 1,112,127 **acres**					

[1] Table does not include many of the most destructive diseases, e.g., wood decays and dwarf mistletoe, because those losses are not detectable in aerial surveys.

[2] Represents an increase of 63,000 acres over 1990 on state and private (including Native corp.) land. This is almost 70% of the total increase in spruce beetle infestation statewide on all ownerships since 1990.

[3] Acreage of Alaska yellow-cedar decline is the cumulative total up to 1991 and not an annual figure.

Forest Health Initiative

The Alaska State Legislature appropriated $450,000 to the Division of Forestry in 1991 to develop a "forest pest infestation management plan." Pete Buist was hired as project manager in August. Recognizing that pest problems are often a symptom of poor forest health, the division decided to look at ways to improve the condition of forests in general, as a means of preventing and suppressing infestations. The division is beginning on the Kenai Peninsula, but intends to expand the effort to other forests in the state.

The first step in this project is to complete a forest health management plan for the western Kenai Peninsula and Kalgin Island. Three groups were formed to provide information and help draft the plan—a Planning Team made up of Division of Forestry and U.S. Forest Service staff; a Policy Group with the major landowners and managers within the planning area; and a Working Group, an advisory committee of representatives from state and federal agencies, land managers, private landowners and others interested in forest health on the Kenai. The working group will meet regularly through the spring of 1992 and a draft plan will be completed by July 1.

Public Opinion Survey

The Division of Forestry commissioned the University of Alaska Anchorage, Institute of Social and Economic Research (ISER) to research public opinion on managing spruce bark beetles. ISER's study, entitled, *Developing a Public Consensus on the Management of Spruce Bark Beetles on the Kenai Peninsula* includes a survey of 400 peninsula households and 100 Anchorage households.

Nearly 90 percent of those surveyed said that dead or dying spruce trees are the most serious problem with forests on the Kenai Peninsula. Respondants said the chief problems caused by beetle-killed trees were (1) less attractive views, (2) fire threat, and (3) loss of privacy. Other problems cited were the large areas affected, loss of timber and declining property values.

The survey asked how the state should manage infested spruce in four locations—near homes, along highways, in campgrounds and in the backcountry.

Following is a summary of the responses:

- About three out of four respondents want the state to cut and remove dead trees near homes.
- More than half want the state to plant new trees near homes and either scrape the ground or use fabric mats to discourage grass from choking seedlings.
- Fewer than one-quarter support the use of chemicals near homes to kill grasses that could choke newly planted trees.
- Two-thirds of peninsula residents and more than half of Anchorage residents want the state to cut and burn beetle-killed trees along the highways and plant new trees.
- A substantial minority—40 percent in Anchorage and nearly 30 percent on the peninsula—think the state should do nothing about beetle-killed trees along highways.
- More than half want the state to thin infested trees in campgrounds.
- Nearly 40 percent favor protecting selected trees in campgrounds by spraying them with insecticides.
- Southcentral residents are almost evenly split in their opinions about what the state should do about beetle-killed trees in the backcountry; roughly half say the state should do nothing, and almost half want the state to cut and burn dead trees and plant new ones.

A summary of survey results is available from the Division of Forestry. A copy of the complete report is available from ISER (786-7710) for a cost of $5.

America the Beautiful

America the Beautiful is a national tree planting initiative introduced by President Bush in 1990. It calls on the public, volunteers, businesses, industry and local government to work together to plant and care for one billion additional trees each year.

Healthy community trees and forests provide important environmental, social and economic benefits to the nation and to local communities. Trees and forests:

- enhance wildlife, fish and human habitats;
- conserve energy in buildings by providing summer shade and winter wind protection;
- improve air, soil and water quality, and reduce soil erosion;
- act as natural air cleaners by removing carbon dioxide and other impurities from the atmosphere and by releasing oxygen into the atmosphere;
- provide valuable products (timber, paper, firewood, etc.) and associated jobs which strengthen local economies;
- improve aesthetics in neighborhoods, communities and business areas, which increases neighborhood pride and property values;

The Forest Service provides national guidance and funding for America the Beautiful and the Division of Forestry coordinates the program in Alaska. Dan Ketchum was hired in August as coordinator for America the Beautiful's two main programs, Community Forestry and Forest Stewardship.

Two citizen advisory groups were appointed by the state forester to provide direction to the programs. The Alaska Community Forestry Council and the Alaska Forest Stewardship Coordinating Committee were formed and each held an organizational meeting in late August.

Forest Stewardship

The Forest Stewardship Program's goals are to:

- help private forest land owners to more actively manage their forests and related resources;
- increase the number of trees planted and cared for nationwide;
- enhance economic, environmental and aesthetic qualities of rural areas; and
- reduce global carbon dioxide levels.

To meet these goals, the Forest Stewardship Program provides technical assistance to owners of non-industrial private forest land—forested land owned by a private individual, group, association, corporation, Indian tribe or other private legal entity, such as an Alaska Native Corporation, not involved in wood product manufacturing.

Landowners, with the help of a natural resource professional, prepare a Forest Stewardship Plan that meets their land management objectives. The plans address such aspects of forest management as:

- soil and water quality;
- wetlands and their role in the ecosystem;
- timber production, harvesting and regeneration;
- protection from fire, pests and disease;
- recreation and aesthetics;
- fish and wildlife habitat.

The Stewardship Incentive Program (SIP) is a cost-share assistance program for non-industrial, private forest landowners who own a maximum of 1,000 forested acres. SIP allows up to 75 percent cost-sharing for certain activities that protect, manage or enhance forest resources. Landowners must develop, and agree to maintain, a Forest Stewardship Plan to be eligible for the SIP.

Instead of focusing simply upon trees as a crop, Forest Stewardship helps educate people about the forest as a complete ecosystem containing many plants, animals, birds and fish—all of which depend on a healthy forest condition.

National Association of Conservation Districts

Community Forestry

The objectives of Alaska's Community Forestry Program go beyond just planting trees. They are to:

- maintain an active Alaska Community Forestry Council.
- encourage the establishment of local community tree boards or advisory committees wherever there is a need and desire for them.
- provide information, training, and educational opportunities on the benefits of, and proper techniques for, retaining, planting and caring for community trees.
- enhance the understanding of, and technical skills for, sound vegetation maintenance and arboricultural practices, including the cultivation of trees, shrubs and complementary ground covers, by individuals who plan, develop and maintain urban landscapes and community trees and forests.
- support, and increase the number of, citizens informed and involved in local volunteer efforts to plant and maintain trees, shrubs and perennials.
- encourage more local governments to develop effective, long-term, community forest and tree, shrub and perennial management programs.
- encourage state agencies, local government, industry, private business, civic groups and individuals to support and fund community forestry.
- encourage and support the establishment of school, community and university forests.
- increase the number of trees and shrubs retained, established and cared for in Alaskan communities.
- increase the number of trees and shrubs retained, planted and cared for during urban development and community expansion.
- encourage owners of private residences and commercial properties to retain, maintain and increase the number of trees and shrubs on their properties.
- encourage and support programs involved in research, introduction or trials of new tree, shrub and perennial varieties in Alaska.

Community forestry grants

The division awards federal grants to communities to encourage local tree planting projects and provides technical assistance to ensure their success. Any non-profit organization or local government may prepare proposals for projects on non-federal public property.

To be considered for funding, a project must have the support and involvement of community volunteers. It must also accomplish a specific goal or remedy a specific problem and include a detailed five-year maintenance plan for any trees planted.

In 1991, the division funded demonstration and pilot projects in nine communities. Federal funds totaling $37,249 were matched by $53,530 in donations and in-kind services from comunities that received the grants. Projects included plantings to beautify the grounds of public buildings and schools in Delta, Anchorage, Talkeetna and Wrangell; plantings along streets in Fairbanks, Wasilla and Palmer; landscaping a ballpark in Sitka; and creating a living wind break in Nome. More than 300 ornamental trees, 500 ornamental shrubs and 3,500 seedlings were planted.

Resource management and planning

Anchorage/Mat-Su Area

The Anchorage/Mat-Su Area Office completed the State Forest Land Management plans for the Kashwitna Corridor and Recreation River, and the Susitna Forestry Guidelines in 1991. Mental Health Land Trust legislation identified all land classified for forestry in the Susitna Forest Guidelines Area (502,890 acres) as part of ...nd pool for possible selection by the ...ntal Health Land Trust.

Kenai Area

The Division of Forestry assisted the Division of Land in preparing a Kenai Area Plan. Forestry staff participated in six public open houses, provided input on areas to retain in state ownership, areas to be managed for timber production, activities that would conflict with forest management, maps depicting areas needing forest management actions, and silvicultural prescriptions for various forest conditions.

Ruffed Grouse Management Area in Delta

The first annual Ruffed Grouse Society event in Delta was held in the fall to demonstrate the division's interest in seeing habitat improvements for these feathered creatures. Ruffed Grouse Society President Sam Pursglove was given a tour of a 40,000-acre aspen stand considered a potential ruffed grouse management area. A grant was proposed to make small patch cuts in this over-mature stand to encourage young aspen shoots. Al Edgren of DOF, Sam Pursglove, and Paul Karczmarczyk of ADF&G were featured in the Ruffed Grouse Society magazine in February.

The Goodpaster River settlement

When former DNR Commissioner Rod Swope signed the Tanana Basin Area Plan the communities of Delta and Tok responded with a protest of the restrictions. The Delta City Council, Tok Chamber of Commerce and other private citizens and organizations submitted petitions and resolutions to the incoming Hickel administration opposing the plan.

The next DNR Commissioner, Harold Heinze, directed the Division of Land to work with the communities to resolve the issue. A working group of 15 representatives from local government, state agencies and private interest groups was formed, but was not able to reach consensus. Majority and minority viewpoints were presented to the planning team, which ultimately drew compromising corridor boundaries and set guidelines. The commissioner has signed amendments to the Tanana Basin Area Plan and the Tanana Valley State Forest Plan that allow access to state forest and other state lands that surround a river corridor one to two miles wide. The general public seems satisfied with this settlement.

Forest inventory

In support of the Yakataga Area Plan, the inventory and associated Geographical Information System coverages were edited. Maps showing timber values, 20-year timber availability and vegetation stratification were produced.

Aerial surveys of spruce beetles in the Kasilof and Ninilchik vicinity were digitized and laid over a map of land ownership. The map illustrates the ownership complexity of the Forest Health Initiative project.

A partial fire database was constructed that portrays the 1991 fire season. Also, area/zone boundaries were converted to the Geographical Information System and used in a map showing fire occurrences from 1985 through 1989.

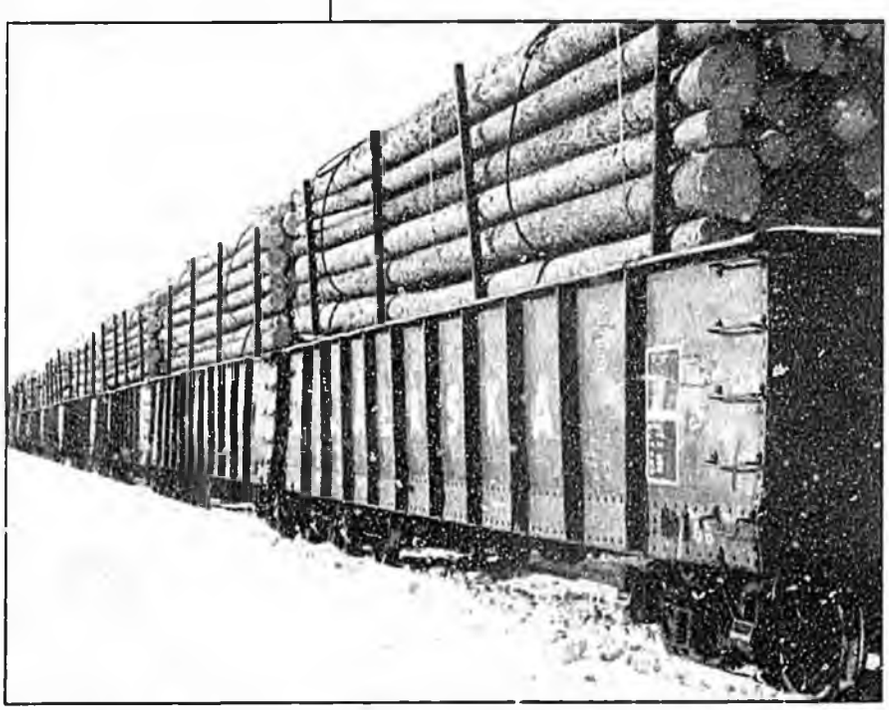
The division's goal for forest resource management is to efficiently manage the benefits as well as the products of a dynamic forest system.

Timber sales

Falls Creek salvage sale

A cooperative salvage sale of bark beetle-killed trees in the Falls Creek area was sold between the Division of Forestry, University of Alaska and Cook Inlet Region, Inc. in November. DOF Kenai-Kodiak Area staff proposed a joint salvage sale to combat the spruce bark beetles in the Kasilof-Clam Gulch vicinity. Although the University and CIRI agreed to the sale, they did not have field staff to set up it up. In order to move the sale forward, DOF staff completed the field and paper work. The Kenai-Kodiak Area is also, by agreement, administering the sale. Harvest operations will be complete by the end of March, 1992.

An increase in bark beetle activity in the area was detected in late 1989. During the spring of 1990, DOF staff put in more than 45 trap tree plots and 50 beetle pheromone traps. The trap tree plots were successful in drawing beetles into the down green trees. Harvest operations must be completed and trap trees removed by the spring of 1992, when the beetles emerge and fly to new host trees.



Logs in the Fairbanks railroad yards on their way to Japan.

Mat-Su timber sales

The Five-Year Schedule of Timber Sales for the Anchorage/Mat-Su Area was withdrawn because 99 percent of the proposed sales were located on lands hypothecated to the Mental Health Land Trust.

Southwest Area timber management

Southwest Area foresters and technicians had a busy year of data collection and resource planning. The Five-Year Timber Sale Schedule was updated, and reviewed by agencies and the public. Sale administration efforts were stepped up, with several visits to each of the active sales and a preliminary regeneration survey conducted on one of the sales. Observations of severe insect infestations along the Kuskokwim River resulted in plans to harvest additional infested trees from one sale area.

Additional sales were added to the timber sale schedule for fiscal years 1993 through 1997 following meetings with loggers from Bethel and McGrath. In particular the loggers requested that the division begin planning a sale near Big River on the Kuskokwim River northeast of McGrath.

Southeast beach log salvage licenses

The number of beach log salvage licenses dropped from a record high of 22 in 1990 to 11 in 1991. These licenses are a direct reflection of current log prices, since the cost of the one-year license is fixed. Although the process for issuing the licenses has been streamlined, it still requires between three and nine months.

Log brands

The 1990 Log Brand Book showed the following activities regarding the five-year log brands that were issued in 1986 and expiring in 1991:

Activity	1986	1991
Renewed	27	27
Expired	29	
New		18
Total	56	45

Of 54 log brans registered in 1987, 13 have been renewed.

Forest Resources & Practices Act

Key elements of the Forest Practices Program are:

- to educate forest landowners, operators and the public about the requirements of the Forest Resources and Practices Act and proper forest practices
- to administer the Forest Resources and Practices Act by reviewing notifications, conducting forest inspections and taking appropriate enforcement actions.

In 1991 draft regulations to implement revisions made to the Forest Resources and Practices Act in 1990 were completed and presented for public review. The intent of the proposed regulations is to establish a new working relationship among state agencies, timber owners and the timber industry. There is a new enforcement procedure with significant penalties for non-compliance.

Public hearings were held in Anchorage, Fairbanks, Juneau and Ketchikan for the public to present verbal and written comments.

Following the hearings, a revised draft of the regulations was presented to the Board of Forestry for review in December.

Forest practices activity has increased statewide, but the Southeast Region continues to be the most active. There were 142 forest practices notifications for 21,016 acres in the Southeast Region in 1991. The total acreage was down almost 30 percent from 1990, and down 37 percent from the 1989 high. However, the number of inspections climbed to an all-time high of 149, up 66 percent from 1990 and 73 percent from 1989. This jump in inspections is a result of the increased requirements in the new Forest Resources and Practices Act.

The trend of growth in inspections and in variation requests is likely to continue for the next few years. Such activities are also increasing in areas outside of the Southeast, especially on Native corporation land in Interior and Southcentral Alaska. Harvesting operations continue on the lower Kenai Peninsula, on Afognak Island, near Cordova and near Tetlin.

Kitoi Lake timber harvest

Two large-scale timber operators provided plans in early 1991 for harvesting timber in the Kitoi Lake watershed on Afognak Island. The lake supplies water for a Department of Fish and Game fish hatchery. The planned harvest caught the attention of the hatchery manager and Kodiak fishermen who feared that the harvest could potentially impact fish production at the hatchery.

As interest mounted in the plans for the timber harvest, a special interest group, the Kodiak Environmental Network, sponsored well-attended public forums. The Division of Forestry, ADF&G's Habitat and Commercial Fish divisions, the landowner, timber industry representatives and an environmentalist participated in a panel discussion at one of these meetings. The division focused on requirements of the 1990 Forest Practices Act amendments and the safeguards these legislative standards would provide for this important fishery. At a second meeting, the state forester provided information on the maintenance of water quality during and after timber harvest.

Plans for the harvest proceeded and operations were completed during 1991. The forest products industry set up water sampling stations to test for any differences in water quality. Samples from streams running through the harvest area were compared with nearby unaffected streams. Kitoi Lake was sampled near the water intake for the fish hatchery. The tests showed little discernable variation in the water quality as a result of the timber harvest activity.

The Forest Practices Program is designed to protect water quality, fish and wildlife habitat and other public forest values through the use of appropriate forest practices.

Statewide Forest Practices Activities

Activity	1990	1991
Number of notifications	201	193
Acreage under notification	55,091	57,237
Number of inspections	146	222
Number of training sessions	5	10
Alaska coastal mgmt. project reviews	78	70

Cut and Sold on State Lands
1959 ~ 1991

Year	Annual Sales Volume (MBF)	Annual Cut Volume (MBF)	Cut Value ($)
1959-66	231,109	93,227	$238,415
1967	134,371	45,816	164,782
1968	97,948	47,974	162,210
1969	246,415	49,018	221,371
1970	14,926	53,568	229,101
1971	41,077	43,191	246,091
1972	23,110	50,591	401,133
1973	449,452	38,356	218,357
1974	21,146	51,241	376,450
1975	4,655	33,540	430,486
1976	2,358	41,714	73,043
1977	2,412	60,251	544,884
1978	6,932	30,301	638,806
1979	156,235	32,382	1,016,585
1980	4,949	47,547	1,254,500
1981	18,402	53,678	1,491,554
1982	24,154	35,198	488,512
1983	72,145	35,511	402,774
1984	21,087	29,044	833,793
1985	20,178	12,864	192,109
1986	10,469	18,995	233,862
1987	27,588	25,884	379,540
1988	27,475	25,177	515,980
1989	21,600	22,711	514,632
1990	35,783	18,603	477,580
1991	10,156	16,241	236,205

Sawtimber Calendar Year Average Stumpage Per MBF

Year	Aspen	Birch	Cottonwood	Hemlock	Sitka Spruce	White Spruce
1981	0.00	32.22	7.46	14.53	24.82	35.96
1982	0.00	27.27	10.00	10.92	28.24	25.65
1983	14.47	29.95	0.00	3.50	166.93	39.95
1984	10.60	26.70	0.00	0.00	32.72	20.20
1985	0.00	0.00	15.10	21.85	17.65	26.52
1986	20.13	30.00	15.10	9.22	19.44	25.00
1987	10.00	8.76	0.00	14.13	18.78	7.32
1988	2.03	0.00	9.42	3.00	97.80	21.11
1989	2.13	7.01	9.96	5.88	71.29	34.25
1990	0.00	6.86	10.00	3.67	46.95	17.14
1991	0.00	24.76	0.00	0.00	82.57	14.32

Cut and Sold Report by Region, CY 1991
Volume - MBF Scribner

Volume Cut

Region	Sawtimber	Other Products[1]	Volume
Northern	7,000.0	4,000.0	11,000.0
Southcentral	1,412.0	1,101.0	2,513.0
Southeast	2,728.4	0.0	2,728.4
Total	**11,140.4**	**5,101.0**	**16,241.4**

Volume Sold

Region	Sawtimber	Other Products[1]	Volume
Northern	4,100.0	5,419.0	9,519.0
Southcentral	349.0	216.0	565.0
Southeast	72.2	0.0	72.2
Total	**4,521.2**	**5,635.0**	**10,156.2**

[1]Other products include pulp logs, fuelwood, house logs, etc.

Contracts Issued by Type and Area
CY 1991

	COMMERCIAL USE			PERSONAL USE		
	Fuelwood Sales	Saw log Sales	Beach log Salvage	Fuelwood Permits	House log Sales	Saw log Sales
Northern Region						
Fairbanks	14	15	0	645	10	0
Delta	2	2	0	118	2	2
Tok	1	1	0	108	0	0
Total	**17**	**18**	**0**	**871**	**12**	**2**
Southcentral Region						
Anchorage/Mat-Su	0	1	0	18	6	9
Kenai/Kodiak	0	1	0	25	2	0
Valdez/Copper River	0	0	0	14	0	0
Southwest (McGrath)	0	0	0	0	0	0
Total	**0**	**2**	**0**	**57**	**8**	**9**
Southeast Region						
Juneau	1	1	7	0	0	0
Haines	0	1	0	0	0	1
Ketchikan	0	0	4	0	0	0
Total	**1**	**2**	**11**	**0**	**0**	**1**
GRAND TOTAL	**18**	**22**	**11**	**928**	**20**	**12**

Special Services and Activities

Arbor Day

Each spring communities around the country set aside a time to celebrate the beauty and usefulness of trees by holding special tree planting ceremonies and activities. In Alaska, Arbor Day is the first Monday in May. Planting trees is but a starting point; Arbor Day gives us the opportunity to educate people about he value and importance of trees and their ecological and economic roles. The division supported and participated in the following Arbor Day activities in 1991:

- provided tree seedlings to the Society of American Foresters to distribute at shopping malls,
- sent 8,000 seedlings home with school children in Fairbanks, along with information about proper planting and care,
- DNR Commissioner Harold Heinze, State Forester Bob Dick and U.S. Forest Service Regional Forester Mike Barton led a tree planting ceremony on the University of Alaska campus in Fairbanks.

Smokey shows off his fire truck during a fire prevention program in the Mat-Su area.

Delta outdoor classroom

Five hundred fourth and seventh grade students attended an outdoor classroom in Delta, sponsored by the Division of Forestry, Department of Fish and Game and the Soil and Water Conservation Service. Forestry staff focused on measuring heights and diameters, and determining the volume of the measured trees. An increment borer was used to determine age. Both students and staff enjoyed their learning experience.

Earth Day 1991

Division of Forestry staff in Fairbanks sponsored a forestry booth for Earth Day, with the theme, "Forestry—the Initiator of Sustainable Living." They gave away tree seedlings and tips on planting and care, had a forest products display, and offered a number of hands-on tree activities.

Smokey Bear

As he does every spring, Smokey Bear emerged from hibernation and toured schools in Fairbanks. In addition to his "learn not to burn" message, he talked about the importance of trees and wood products in our daily lives. Smokey encouraged students to be good citizens of the earth by helping renew our forest resources and gave each student a Siberian larch seedling to plant at home.

Southwest Area staff made presentations in nine schools along the Kuskokwim River, teaching fire prevention and wise burning procedures to 378 students. Pamphlets and Smokey Bear educational materials were given to the students and teachers. These 30-minute programs covered:

- fire history in the local area
- how human-caused fires are started
- what to do when you spot a fire
- tips for making a safe campfire and burning trash
- nature-caused fires.

Mat-Su student interns

A crew of high school interns spent the summer working for the division in the Mat-Su area. The crew planted 9,863 seedlings in the Willer-Kash area near Willow. Planting was interrupted during fire season but completed by August 1.

The interns were assigned to two small fires for training and to one project fire at Galickson Creek in Takotna, where they spent 14 days. Their final projects for the summer were removing hazard trees in state parks and helping the Mat-Su Borough lay out a timber sale.

Homer Demonstration Forest

The Homer Demonstration Forest covers 360 acres of state-owned land just northwest of Homer. It was established in 1986 and is managed by the Division of Forestry.

In 1991 a draft framework plan was prepared by the USDA Soil Conservation Service based on guidance by the Division of Forestry, an interagency steering committee and members of the Homer Community. The plan provides a framework for the use and management of the forest.

The plan states that the Homer Demonstration Forest will be managed to provide areas where schools, interested organizations and the general public can:

- observe demonstrations and field trials of various ways to use and manage forests;
- learn first-hand about forest ecology;
- observe and learn about wildlife;
- recreate in ways that are compatible with other forest management objectives.

The forest will be managed so that:

- the quality of its soils, waters, plants, animals and air is maintained for future generations;
- the potential productivity of its reosurces is not diminished by their use.

The draft framework plan underwent public review late in the year and will be adopted by the steering committee in 1992. Detailed implementation plans will then be developed to specify exactly how the land used laid out in the framework plan are carried out.

Student intern cleans up slash near Big Lake.

Project Learning Tree

Project Learning Tree (PLT) is an environmental education program for kindergarten through 12th grade teachers. The goal of PLT is to help students develop the skills, knowledge and attitudes needed to make wise decisions regarding the use and management of natural resources and the protection of environmental quality.

PLT provides lessons, materials and activities for teachers, and training in how to use them in the classroom. PLT is cosponsored by the American Forest Foundation and the Western Regional Environmental Education Council. Alaska sponsors include the Alaska Forestry Association, Cooperative Extension Service, Department of Education, Forest Service, and the Division of Forestry. The PLT curriculum guides are being revised and made more appropriate for use in Alaska.

Dan Ketchum, the division's representative on the statewide Coordinating Committee, three other division employees and one Cooperative Extension employee attended a PLT workshop in October, which qualified them to conduct workshops for school teachers.

Alaska Board of Forestry

The nine-member Board of Forestry advises the state on forestry-related issues and regulations. Board members are appointed by the governor from groups and organizations that represent a wide range of forestry intersts.

Board members are Malcolm R. "Bob" Dick, state forester; Ralph Malone, non-governmental forestry representative; Andy Miscovich, mining organization representative; Loisann Reeder, recreational organization representative; John Sturgeon, Forest Industry Trade Association; William Thomas, native corporation representative; and Carl Yanagawa, non-governmental fish and wildlife biologist. There were two vacancies on the board in 1991.

WASF meets in Alaska

The Western Association of State Foresters and the Alaska Society of American Foresters held a joint annual meeting in Fairbanks in May. Presentations focused on Alaskan, as well as national, issues such as forest stewardship, public lands management and land ethics. A field trip highlighted the geologic history of the Fairbanks area, with visits to the permafrost tunnel, a large mining operation and several forest sites. Alaska State Forester Bob Dick was elected chair of the Western Association of State Foresters.

Tok tree-improvement workshop

The Alaska Reforestation Council sponsored a tree improvement workshop in Tok September 24-25, in cooperation with the University of Alaska Fairbanks. Cooperative Extension Service, Institute of Northern Forestry, U.S. Forest Service State and Private Forestry, and Division of Forestry. The workshop provided field foresters and technicians with elementary techniques for tree improvement applicable to Alaska.

Dr. Ed Packee, the workshop leader, gave presentations on silviculture and tree improvement, and led discussions on how silvicultural systems affect the future genetic value of stands, wood quality and seed zone maps. Dr. John Alden discussed basic tree genetics and gave a slide program on advanced tree improvement techniques used in Scandinavia.

The workshop included a tour of the Tok seed production area, where ideas for establishing seed production areas and superior tree selection were presented. Participants also visited a plantation of exotic tree species near Tok.

Training in 1991

Type	# of courses	Participants
Emergency	5	154
Wildfire for fire departments	5	112
Initial attack	15	99
Extended attack	15	38
Fire management	27	117
Administration	1	13
Supervision and management	9	11
First aid and safety	1	1
Computer management	8	21
Technical resource training	3	12
Forest management	8	26
Totals	**97**	**604**

Appendices

Fiscal Year 1991 Actuals

(in thousands)

Funding Sources	Forest Management	Fire Suppression
General Funds	$9,175.4	$27,531.2
Federal Funds	444.3	23,446.8
Other Funds	630.0	27.1
Totals	**$10,249.7**	**$51,005.1**

Positions		
Permanent Full-time	93	1
Permanent Part-time	138	0
Non-Permanent	17	950
Staff Months	1,970	2,012

Resource Management	Northern Region	Southcentral Region	Southeast Region	Central Office	Totals
Resource Management	699.7	363.4	448.7	259.0	1,770.8
State Forest Nursery				73.4	73.4
Board of Forestry				3.8	3.8
Firewood Access	24.0	14.0			38.0
HB331 Forest Practices		155.5	122.6	156.8	434.9
HB15, Sec 128 Cooper Landing Fuel Reduction Project		65.7			65.7
Subtotal	**$723.7**	**$598.6**	**$571.3**	**$493.0**	**$2,386.6**
Fire Management					
Pre-suppression	1,927.0	2,896.9	22.0	506.3	5,352.2
Rural Community Fire Prot/Fed				71.2	71.2
Anchorage School District Interns		56.0			56.0
Subtotal	**$1,927.0**	**$2,952.9**	**$22.0**	**$577.5**	**$5,479.4**
Forest Administration					
Federal Coop Forestry Assistance				358.1	358.1
Forest Administration	404.4	395.9	111.9	512.3	1,424.5
Unbudgeted RSAs				601.1	601.1
Subtotal	**$404.4**	**$395.9**	**$111.9**	**$1,471.5**	**$2,383.7**
Totals:					
Forest Management	**$3,055.1**	**$3,947.4**	**$705.2**	**$2,542.0**	**$10,249.7**
Fire Suppression					**$51,005.1**
Grand Total					**$61,254.8**

Fiscal Year 1992 Budget

(in thousands)

Funding Sources	Forest Management	Fire Suppression
General Funds	$9,560.5	$3,069.4
Federal Funds	705.3	5,350.0
Other Funds	33.8	0
Totals	**$10,299.6**	**$8,419.4**

Positions		
Permanent Full-time	88	2
Permanent Part-time	127	3
Non-Permanent	17	750
Staff Months	1,829	1,545

Resource Management	Northern Region	Southcentral Region	Southeast Region	Central Office	Totals
Resource Management	937.7	531.3	701.3	345.3	2,551.6
Forest Regeneration Center (nursery)				493.8	493.8
Board of Forestry				10.7	10.7
Subtotal	**$973.7**	**$531.3**	**$701.3**	**$849.8**	**$3,056.1**
Fire Management					
Pre-suppression	1,700.3	2,827.2	28.2	419.0	4,974.7
Rural Community Fire Prot/Fed				77	77
Anchorage School District Interns		58.4			58.4
Subtotal	**$1,700.3**	**$2,885.6**	**$28.2**	**$496.0**	**$5,110.1**
Forest Administration					
Federal Coop Forestry Assistance				628.3	628.3
Forest Administration	513.74	420.2	119.3	451.9	1,505.1
Subtotal	**$513.7**	**$420.2**	**$119.3**	**$1,080.2**	**$2,133.4**
Totals					
Forest Management	$3,187.7	$3,837.1	$848.8	$2,426.0	$10,299.6
Fire Suppression					$8,419.4
Grand Total					**$18,719.0**

Aircraft Utilization Report

Category	FLIGHT HOURS					FLIGHT COSTS				
		Contract		Rental			Contract		Rental	
	DOF FEP[1]	Fixed Wing	Rotor Wing	Fixed Wing	Rotor Wing	DOF FEP[1]	Fixed Wing	Rotor Wing	Fixed Wing	Rotor Wing
1. Detection	0	0	29.1	83.2	1.9	0	0	14,550	17,031	2,073
2. Air coordination	0	0	0	0	0	0	0	0		
3. Reconnaissance	524.4	0	0.2	50.7	41.6	0	0	100	10,555	40,440
4. Helitack	0	0	717	0	8.3	0	0	329,720	0	13,120
5. Retardant/bucket	0	170.3	29.6	0	28.2	0	358,501	14,800	0	45,368
6. Prepositioning	0	4.0	8.7	2.7	32.4	0	8,262	4,350	560	39,783
7. Cargo/paracargo	0	0	21.6	0.6	15.4	0	0	10,800	161	26,180
8. Fire Transport	0	296	118.2	1,472.1	970.8	0	29,598	58,950	997,568	1,637,102
9. Non-fire transport	0	0	10.4	10.2	2.4	0	0	5,200	11,159	1,140
10. Smokejumper delivery	0	0	5.3	0	0	0	0	2,650	0	0
11. Training/maintenance	35.2	0	7.4	15.7	0	0	0	3,700	830	0
12. Misc./medi vac	0	0	14.6	1.5	10	0	0	7,400	305	5,132
13. Totals	**559.6**	**470.3**	**692.1**	**1,636.7**	**1111**	**$367,910**	**$396,361**	**$452,220**	**$1,038,169**	**$1,810,336**
14. Passengers	0	403	8,016	1,799	9,556					
15. Retardant-gallons	0	377,840	0	0	0					
16. Water/foam-gallons	0	0	474,763	0	161,584					
17. Cargo (lbs)	0	17,?99	703,57?	290,834	862,505					
18. $ availability in excess of flight $						0	$494,984	$1,271,788	$20	$73,796
19. Fuel-gallons		45,388	24,807	0	14,691					
20. Fuel cost							0	$39,592	0	$16,099

Total Line 13	**$4,064,996**
Plus Line 18	**$1,840,588**
Plus Line 20	**$55,691**
Total Cost	**$5,961,275**

[1] Division of Forestry Federal Express Property

Division of Forestry Directory

Director's Office

3601 C Street, Suite 1058
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762-2501 fax: 561-2507

Director & State Forester
Malcolm R. "Bob" Dick

Deputy Director of Administration
George Hollett

Deputy Director of Operations
Dean Brown

Fire Management
Frenchie Malotte, Section Chief, 762-2505

Aviation Supervisor
Bud Graham, 762-2509

Fire Operations
Joe Stam, Fairbanks, 356-5529

Forest Practices
Michael S. Christy, Section Chief, 762-2131

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Joe Stehlik, Nursery Manager

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David Wallingford, Regional Forester

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762-2412
Fire information in summer
Christmas tree permits in December

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Ketchikan Area Office
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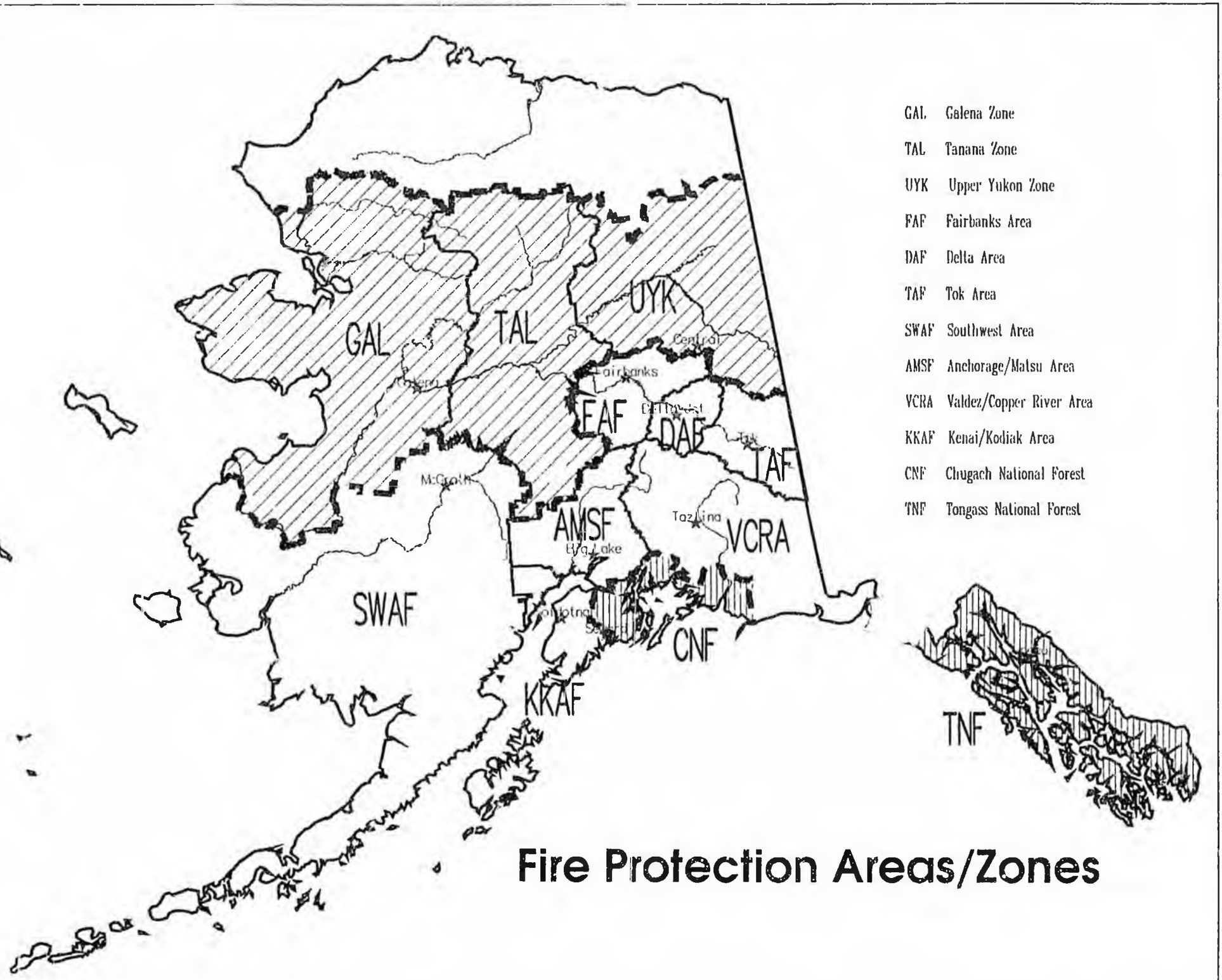
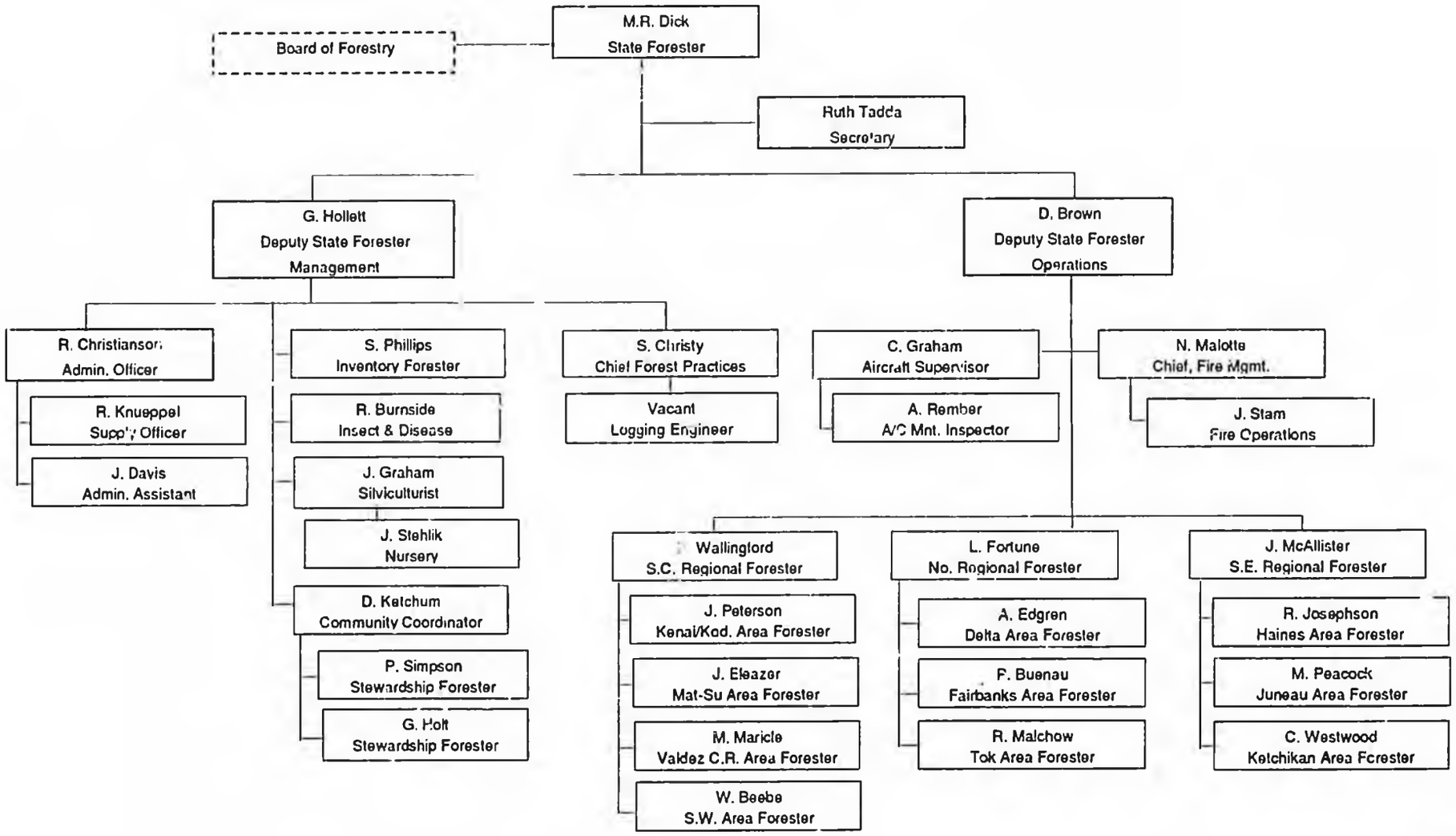
Ketchikan, Alaska 99901
225-3070
Chris Westwood, Area Forester



Fire Protection Areas/Zones

Department of Natural Resources
Division of Forestry
Organization Chart



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