ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672
7610 SENATE RESOURCES

General Advice

Careful planning is important for retail seafood counters handling fresh product. If too much is ordered, product quality will suffer and some fish may have to be dumped. If too little is ordered, however, you'll run out of product to sell.

Purchasing needs to be built around anticipated sales within the shelf life—how long a product can be held—of each seafood being handled. There is no standard for maximum shelf life of fresh seafood; storage time varies according to species and a long list of other variables.

Temperature can be your enemy or friend. The quality and shelf life of fresh products is directly related to holding temperatures. A fish kept at 50° F. spoils five times faster than one held at 32° F.

The temperatures of incoming shipments of fresh seafood should be checked by inserting a thermometer into the flesh. The best temperature range to maintain during shipment is 30-34° F. If the temperature of incoming product exceeds a shipping range specified by your store when purchasing, the transporter and supplier should be notified immediately.

Fresh seafood should be examined upon arrival for quality. (See the accompanying tips for determining fresh seafood quality.) Quickly move the seafood into a cool room kept at 30-34° F. until ready for display. **A fresh fish can be held twice as long at 32° F. as it can be at 37° F.**

Customers will evaluate your operation on how it looks and smells from the aisleway. Sanitation is important. Unsanitary display cases and work areas provide breeding grounds for bacteria, cause strong unpleasant odors and visually turn off customers.

Strong, consistent rotational policies for fresh seafood display cases are critical. Product should be periodically rotated, with the fresher seafood being positioned at the front of the case where shoppers stand. The first seafood into the display case should be the first taken out.

If you use wet ice in the display case, make sure meltwater isn't allowed to accumulate. Replace the ice as it melts. Remove ice discolored by blood or product fluids. To maintain a "fresh-caught" appearance in dry display cases, periodically mist the seafood with an atomizer filled with cold water.

Seafood should be carefully arranged on display trays. Whole fish should be placed in shallow pans with drain holes in the front to allow drainage of meltwater and product fluids. Steaks and fillets should be displayed in perforated trays. Shellfish can be placed in solid, deeper pans.

Customers find it easier to shop if you divide your display case into sections for whole fish, steaks and fillets, shellfish, and cooked and smoked products. Plan your display by sketching out the case and plotting product locations.

Product identification tags and price markers also aid shoppers. Spiked tags should be stuck in garnishes such as lemons rather than in the seafood. Puncture marks damage the product and allow easy access for bacteria.

Durable plastic parsley strips are useful in dividing rows of product.

Evaluate your work from the customer's perspective by moving to the other side of the display case.

How To Evaluate Fresh Fish

In evaluating fresh seafood, beauty truly is in the eye—and nose—of the beholder. Let your senses be your guide to selecting high quality fresh seafood. The only instruments needed to measure quality are your eyes, hands and nose.

These general guidelines for judging fresh seafood quality apply to most products. Base your determination of seafood quality on a combination of these factors; if a seafood passes most of the tests it probably is a good quality product.

1. Quality fresh fish should smell sea-fresh. Strong or objectionable odors signal quality problems.
2. The flesh of whole, fresh fish should feel firm and slightly springy or resilient. Some flatfishes, notably dover sole and arrowtooth flounder, naturally have softer flesh.
3. The gills of most finfish should be reddish in color. Gray, dull brown or white colored gills indicate quality problems.
4. The eyes should be bright and clear. Sunken or cloudy eyes may be a clue that quality has begun to deteriorate. This rule does not always apply to small-eyed fish such as salmon.
5. Whole fish should have a bright and shiny appearance, and most of the scales should be intact. The scales should adhere tightly to the skin.
6. Fillets and steaks should appear moist, firm and freshly cut. The flesh should be almost translucent so it seems as if you are looking into the flesh. There should be little evidence of bruising or reddening of the flesh from retention of blood.
7. Pre-packaged steaks and fillets should contain a minimum of liquid. Seafood stored in liquid deteriorates quickly.

Recommended Handling Practices

Receiving

Emphasize product quality when ordering fresh seafood. Buyers should specify preferred shipping temperatures to suppliers. The best shipping temperature is 30-34° F. Check the core temperature of incoming fish for compliance.

Time and temperature monitoring devices are tools to use in seafood shipments to signal potential temperature abuse.

An experienced inspector should evaluate all incoming product. Watch for damaged packaging, check core temperatures with a temperature probe, and evaluate overall product quality. If there are questions about the quality, the supplier should be contacted immediately.

Incoming shipments should be moved to a cool room as quickly as possible.

Holding

There is no standard maximum shelf life for fresh seafood as it varies according to species, season, holding temperatures, handling practices from time of harvest and a host of other factors. If you're uncertain about how long to hold a product ask your supplier for a recommendation.

A rotational plan for inventory is very important to safeguard against exceeding maximum shelf life. Proper rotation of product in and out of the cool room is simplified by pre-sorting incoming shipments according to quality.

The recommended cool room temperature is 30-32° F. Keep the temperature constant and periodically check the room temperature.

The best holding results for whole fish may be obtained through layer and belly icing. Provide drainage to prevent buildup of meltwater. If wet ice is not used, the seafood should be periodically misted by an atomizer filled with cold water.

Use flaked, shaved or crushed ice. Large pieces of ice make indentations in the fish and can bruise the flesh. Ice should be manufactured, handled, stored and used in a sanitary manner; it should not be re-used.

Check iced fish periodically and re-ice as needed. Ice prevents dehydration, rinses the flesh as it melts and keeps the seafood at a constant temperature.

If possible, position whole, dressed fish vertically with the head lower than the tail to allow better drainage of melting ice through the abdominal cavity.

The quality of steaks and fillets is best preserved by storing in plastic bags buried in ice. Some seafood should not be held for extended periods of time in an airtight environment; perforation of containers is advised.

Do not hold fresh seafood in meltwater or product fluids. Prolonged contact with fluids will leach color, flavor, aroma and nutrients from the flesh of seafood.

Handle seafood with care. Bruises and punctures hasten spoilage. Always use two hands when lifting fresh whole fish, steaks and fillets. Do not pick up a whole fish by the tail.

Take care to segregate cooked products from raw seafood to prevent cross-contamination.

Display

Fresh seafood should be displayed in an enclosed case that does not use a fan to circulate air. Most retail seafood display cases are cooled by gravity-fed coils; wet ice also is used in some of these cases. Other dislay cases are cooled exclusively with wet ice.

Fresh seafood display cases generally are equipped with drainage systems. Check the drains periodically for clear passages. If your display case does not have an automatic flushing system, you should periodically wash meltwater, product fluids and shreds of flesh down the drain.

For unrefrigerated cases, use a bottom layer of ice at least 8-10 inches deep.

Cubed ice works well for this purpose as it melts slowly. Seafood should be placed on display trays atop the bed of ice.

Fish should not be stacked for display unless ice is used. Fish stacked two or three deep in dry, refrigerated display cases will not cool evenly or maintain a stable temperature. If layer iced, fish can be stacked three deep.

Sprinkle some ice on top of the fresh seafood periodically to keep it rinsed, moist and evenly cooled. For dry cases, lightly mist the product periodically with an atomizer filled with cold water to prevent dehydration.

Stainless steel display trays and pans are preferred, although aluminum and plastic containers are acceptable. Display whole fish in shallow trays equipped with holes in the front (drill one if necessary) to allow drainage of meltwater and product fluids. Steaks and fillets should be placed in perforated trays, while shellfish can be displayed in solid pans wih no drainage holes.

Do not stick spiked price tags or product identification markers into the seafood. Punctures damage the product and allow easy access for bacteria. Prices may be spiked in lemons or other garnishes used to enhance visual appeal for the display.

Display cases should be equipped with an internal thermometer allowing easy checking of display temperature. Refrigerated display cases generally maintain a temperature of 30-34° F. The refrigeration unit probably needs to be adjusted if the temperature does not fall within this range.

A strict rotational policy followed by everyone behind the counter is the best guarantee of a first-in, first-out system. If the quality of a product is questionable, it probably should not be sold. The long-term goal of repeat sales should not be sacrificed for the short term gain.

Display cooked seafood separately from fresh products. The products should be positioned in the display case to avoid cross contamination. Cooked products may be lifted over raw seafood, but not vice versa. Wash your hands after handling each type of product.

Night and Weekend Care

Displays of fresh seafood should be stored overnight in a cool room. Do not leave any product in the display case overnight.

Display trays of steaks and fillets may be covered with a tight-fitting lid and moved to the cooler or the product may be transferred to plastic bags and buried in ice. Whole fish may be top iced on the display trays and stored in the cool room. The products should be examined for quality before being returned to the display case the next morning.

Deliveries should be planned so that the sales week starts with new product. Seafood left at the end of the week should be carefully examined for quality. Questionable products should be discarded rather than saved.

Make certain that any product kept over the weekend is thoroughly examined for quality when the store is reopened the following week. Product of questionable quality should not be returned to the display case.

CHAPTER THREE
Frozen Seafood

KEEP FROZEN SEAFOOD

COOL

Hold frozen seafood at 0° F. or colder.

CLEAN

Clean and sanitize seafood handling areas daily.

MOIST

Protect frozen seafood from dehydration and "freezer burn."

MOVING

Follow first-in, first-out rotation.
Put new product to the bottom and rear of display case.

General Advice

A key to retail success with seafood is to think QUALITY. Ignore the myths about the inferiority of frozen seafood, and sell your seafood on the basis of product quality.

Frozen seafood often is superior in quality to fresh products. Many seafood products are "flash frozen" within hours of being harvested, while it takes several days for the same fish to reach your store as "fresh."

The freezing technology and handling methods of the seafood industry in the 1980s allow the fresh-caught flavor to be captured for months, but the shelf life of fresh product is measured in days. Offer your customers a wide selection of high quality seafood products—fresh, frozen and canned—and work to make your counter **the quality seafood store.**

The key to preserving frozen seafood product quality is to maintain constant, very cold temperatures. Maximum shelf life is obtained by holding frozen seafood at −10° F. or colder, although a 0° F. or colder holding temperature protects product quality.

Move incoming frozen products into the freezer as soon as possible. Plan unloading operations to pass the incoming inventory very quickly from freezer vans to your cold storage.

There should be a rotation plan for frozen display cases. Product that has spent the longest amount of time in the case should be positioned where the customer is most likely to reach—upward near the front of the display case. Product also needs to be rotated in and out of the display case on a periodic basis so the optimum shelf life of any single package is never exceeded.

Slow thawing of frozen seafood is very important. Thawing can have a tremendous effect on flavor, texture, aroma and appearance. The best results are obtained when product is thawed at 32-35° F.

Careful planning is important when thawing at these temperatures to allow enough lead time. While most fillets and steaks will thaw sufficiently overnight, whole fish may take additional thawing time. Avoid quick thawing methods as improper defrosting can seriously damage seafood quality.

During thawing operations, the seafood should be placed in drain pans or other containers that prevent the buildup of meltwater and product fluids. The quality of seafood held in water deteriorates very quickly.

Recommended Handling Practices

Receiving

Thoroughly inspect incoming seafood for carton damage and signs of temperature abuse. Boxes with water marks may indicate that the product has been allowed to partially thaw during transit.

Do not accept thawed or partially thawed products. If you have any questions about the quality of incoming product, contact your supplier immediately.

Shipping temperatures can be checked by opening at least one carton to sample product core temperatures with a thermometer. If the temperature does not fall within guidelines specified by your store during purchasing, quickly notify the carrier and supplier. Re-package the seafood sample immediately upon inspection.

Transfer incoming product from delivery vans to cold storage as quickly as possible. Do not allow frozen seafood to stand at room temperature as thawing begins very quickly.

Never re-freeze thawed fish. Shipments that are accidentally thawed should be sold immediately as "previously frozen seafood" or discarded. The taste, texture, aroma and appearance of re-frozen seafood can be seriously impaired.

Storage

Maximum product shelf life can be obtained by storage at a constant −10° F. or colder, although a temperature of 0° F. or colder will protect product quality. Never store frozen inventory at temperatures above 0° F.

Cold storage temperatures should be checked periodically and monitoring thermometers should be calibrated on a regular basis.

Date codes should be displayed on each carton or item of frozen seafood to support a first in-first out stock rotation system.

Frozen seafood products should be protected from freezer burn or dehydration by a protective covering. This generally is done with a water glaze, vacuum packaging or moisture proof wrapping. Protect unboxed frozen product and reduce the time it is held in storage.

Cartons of frozen seafood should be stacked off the floor and away from the walls and ceilings in cold storage to encourage good circulation of cold air. Store on pallets and make sure the stacks are stable to prevent tippage.

Thawing

Thaw slowly in a cool room kept at 32-35° F. Never thaw at temperatures above 40° F. Thawing at higher temperatures causes excessive drip loss, reducing the net weight of the thawed product. Quick thawing also reduces shelf life and adversely affects taste, texture, aroma and appearance.

Avoid quick-thaw methods such as immersion in water, and forced air. These "short cuts" can severely damage product quality.

If it is imperative to shorten thawing time for small amounts of product on an emergency basis, an acceptable method is to seal the frozen seafood in a watertight plastic bag and immerse in very cold water. Never soak fish directly in water.

Immediately cool and sell the thawed product. Never re-freeze fish. Thawed seafood should be labeled so consumers are aware they are buying a processed product.

Display

Transfer frozen products from the cold store to the display case as quickly as possible to prevent partial thawing. If a product is accidentally defrosted, do not re-freeze. Sell the thawed seafood clearly labeled as a processed product or discard.

Except during defrost cycles and brief loading periods, the display case temperature should be maintained at 0° F. or colder. The best display temperature is −10° F. or colder. Check display case temperature frequently. Service doors should be closed immediately after removing products.

Stock by rotating product upward and to the front of the display case, while placing new packages on the bottom and to the rear.

Frozen display cases also should have a rotation scheme ensuring that the shelf life of individual packages is not exceeded. Code dates help ensure proper rotation. Maximum shelf life of seafood products varies according to species and a host of other factors, but a good rule of thumb is avoid holding in the display case for longer than one month.

Do not stack above the fill line in display cases. The refrigeration system is not designed to protect product above this point.

Remove torn, discolored or otherwise damaged packages from the display. Excessive ice crystals on a package are evidence that the product probably has been thawed and re-frozen. The quality of such products is questionable.

Display cases should be packed tightly without making it difficult for customers to remove packages. This reduces the risk of thawing.

If your display case has no automatic defrost cycle, defrost at regular intervals. More frequent defrosting is required in warm climates. Shorten your rotation schedule in warmer climates to compensate for the increased defrosting cycles.

Always transfer the contents of display cases to cold storage before starting the defrosting process. The temperature of consumer packages of frozen seafood can increase by 5° F. in as quickly as 10 minutes when exposed to room temperature.

Display cases should have an indicating thermometer measuring the internal display case temperature.

Most frozen seafood display cases come equipped with recommendations from the manufacturer for correct service of equipment during power failures. Read these instructions so you can react quickly during a blackout.

CHAPTER FOUR
Sanitation

General Advice

Clean seafood counters do not have strong unpleasant odors. Nothing will turn away potential customers faster than a strong "fishy smell." If your store has a strong odor, there's a gap in your cleaning efforts that must be quickly bridged.

Sanitation programs in retail seafood stores must be thorough and regular. Think of your store's seafood handling and display areas as a kitchen where meals will be prepared for your family and friends.

Specific sanitation schedules and methods may be subject to local, state and federal health standards. Every plan should be built around those regulations.

Choose cleaning compounds and sanitizers from a list provided by the federal government and follow the recommended instructions and restrictions on use. The list may be obtained by writing for the "List of Proprietary Substances and Non-food Compounds," Miscellaneous Publication Number 1419, from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20401.

Receiving

Delivery vans and containers should be kept clean and free of odors. If sanitation problems are detected, the carrier should be notified as soon as possible.

Clean and sanitize shelves, dollies, tubs and other containers used in moving seafood daily or following each use. Keep these materials and containers in good repair.

Display

Scales, wrapping surfaces and other seafood handling areas should be cleaned and sanitized daily or more often. Equipment and surfaces must be made of a non-porous material, preferably stainless steel.

Clean and sanitize all glass surfaces daily or more frequently. Shoppers will view a dirty glass display case as a bad sign.

Display cases should be emptied, cleaned and sanitized two or three times weekly, although the best schedule would be daily. Display cases must be cleaned and sanitized at least once a week.

Display case drains should be kept clean and unobstructed.

Display trays should have holes for drainage and be constructed of a non-porous material. The best display trays or pans are stainless steel. Clean and sanitize after each use.

Floors should be cleaned and sanitized daily, walls weekly and ceilings once every three months. All surfaces in retail seafood handling, display and storage areas should be constructed of non-porous material.

Refrigerated Storage

Refrigerated seafood storage areas should not be used for storing other foods to avoid mixing noncompatible odors.

Clean and sanitize ducts, blowers, grills, condensation drip trays and overhead coils monthly.

Make ice from chlorinated, potable water. Ice should be stored in covered containers to prevent contamination. Use clean utensils to transfer ice.

Discard ice that has come in contact with seafood products or any contaminated surfaces.

Employee Practices

All seafood handlers should wear clean hats, aprons or coats. Hands should be washed and dried before and after handling seafood, and between handling raw and cooked products. Minimize hand contact with seafood whenever possible.

Seafood handlers should have a food handler's card. Employees who are ill or have open cuts and sores on their hands should not handle seafood.

There should be no smoking or drinking in seafood handling areas.

Cleaners and Sanitizers

Use approved detergents and sanitizers to clean seafood contact surfaces. Fish blood and slime may require the use of a chlorinated alkaline detergent.

Sanitizers containing phenols, such as Lysol and Pinesol, should never be used on seafood contact surfaces.

This seafood quality primer was produced by the Alaska Seafood Marketing Institute in the belief that product quality is one of the most important ingredients in the long-term success of retail seafood counters. It was written for Alaska's most important sales representative —— the person behind the counter.

Alaska Seafood

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A FOOD SERVICE GUIDE TO SEAFOOD QUALITY

FRESH SEAFOOD

PURCHASING

There is no magic formula for judging freshness. The quality of some seafood ten days from the fishing grounds can be just as high as other product only two days old. Some seafood can be held longer than others and there are a host of other variable factors that influence quality.

Emphasize product quality when talking to suppliers. If you are able to physically inspect product when purchasing, let your eyes, hands and nose be your guide. The flesh of high quality fresh seafood is firm and resilient, and the skin is shiny. The gills of most finfish should be blood red. High quality fish have bright and clear eyes. The scales should adhere closely to the skin and be largely intact. Odors should be pleasant and minimal.

Specify shipping conditions. Tell your suppliers to pre-chill all fresh seafood before packing; the ideal shipping temperature is 30-32° F. Carefully plan purchases of fresh seafood to minimize holding time and reduce disposal of old product.

Learn as much as you can about the fresh products you are handling: special visual clues to quality; seasonal variations affecting quality; timing of fishing seasons and periods, etc.

RECEIVING

Inspect all incoming shipments of fresh seafood for quality. Your eyes, hands and nose should check for the basic clues of seafood quality: odor, resilience, scales, eyes, gills and overall appearance or physical condition. If any problems are detected, notify the supplier immediately.

Check core temperatures with a bi-metal thermometer. Fish held at 40° F. will spoil five times faster than a fish held at 32° F. If a shipping temperature was specified and the product delivered fails to fall within the acceptable range, both the supplier and carrier should be contacted immediately.

Watch for broken containers which can signal that the seafood has been physically damaged. Check for cleanliness of delivery vehicles.

Grade the incoming seafood according to quality. Use the older and warmer seafood first in your operation. Thoroughly rinse with ice cold water all incoming product covered with blood, slime or other sources of nutrients for bacteria.

STORAGE

Fresh seafood should be kept cool and moist. Maximum holding times vary according to species, temperature and intrinsic quality. Fresh seafood held in storage should be periodically checked for quality by experienced personnel. A strong policy for rotating fresh seafood in storage and disposing of old product is very important.

The best storage method is to gently place fresh whole fish on a bed of flake ice. Each single layer of fish should be covered with a layer of ice. The combined depth of ice and fish should never exceed three feet.

Fresh whole fish stored in ice should be protected against meltwater by using storage containers with drain holes. Steaks and fillets should not be stored in ice or held in any other method allowing direct contact with fluids. Seafood held in water or product fluids deteriorates very quickly.

Product quality also can be maintained by holding fresh seafood in a cold room kept at a constant 30-32° F. Avoid piling fresh seafood held without ice to eliminate "hot spots" which contribute to accelerated deterioration of quality. Minimize dehydration by periodic misting or other methods of moistening fish held in dry cold storage.

OTHER ADVICE

Fresh seafood should be handled with care. The delicate flavor, aroma and texture that make good seafood so special all are directly related to product quality. Blood seepage into the flesh from bruising damages the appearance of seafood as well as creating a strong "fishy" aroma and taste.

Fresh fish should not be picked up by the tail as this can separate the vertebrae in the backbone and allow blood to seep into the flesh. Make it a general practice to lift whole fish gently with two hands.

Sanitation is particularly important with fresh seafood. Bacteria and enzymes are present in all seafood; cooling it down to 32° only slows down the activity and the inevitable spoilage. When the seafood is taken out of cold storage for preparation, the bacteria and enzymes will go to work quickly breaking down the flesh, reducing its nutritional value and creating off odors. Don't allow fresh seafood to sit around at room temperature—take it out of the cold room as needed.

FROZEN SEAFOOD

PURCHASING

RECEIVING

THAWING

OTHER

Alaska Seafood
MARKETING INSTITUTE

One of the most significant trends of the 1980s has been America's obsession with health and fitness. The lifestyles of millions of Americans have been profoundly affected by the interest in diet and exercise.

A 1983 Gallup Poll by the National Restaurant Association showed that half of Americans are ordering more nutritious meals when dining out. The biggest beneficiary of the switch is seafood, according to Gallup.

The success of foodservice operators in taking advantage of this opportunity will depend on more than the cooking abilities of individual chefs. Careful product selection, proper holding temperatures and gentle handling are every bit as important as preparation. After all, the best chef in the world can't restore lost product quality.

The Alaska Seafood Marketing Institute has been actively working with the foodservice industry to broaden the demand for Alaska seafood. ASMI wants you to succeed in attracting a loyal following of diners who can't get enough of your seafood. That's why we prepared this short collection of seafood handling tips.

The spoilers of seafood quality—bacteria, enzymes, dehydration, oxidation, contamination and physical damage—will strike whenever they are given an opportunity. These spoilers can be beaten if everyone in the seafood delivery chain from fishermen to chef makes quality their business.

Fundamental to seafood quality is the understanding that seafood must be treated differently than beef, pork, lamb and other meat products. Fish and shellfish lack the tough muscular fiber of land animals and their natural environment and body temperatures are much cooler. Consequently, seafood must be handled gently while being kept cool and moist.

Carefully plan purchases to avoid prolonged holding and focus on product quality rather than "fresh" or "frozen." [illegible]

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TALK PAPER

FOOD AND DRUG ADMINISTRATION
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FDA's Seafood Safety Program

FDA has been receiving inquiries about the safety, quality and labeling of seafood, as a result of the announcement of articles on the subject in February's Consumer Reports magazine.

The following can be used to answer public inquiries:

While we agree with Consumers Union, which publishes the magazine, that there is room for improvement in the handling, labeling and sale of seafood at retail, we believe, as a 1991 National Academy of Sciences (NAS) report concluded, that the overwhelming preponderance of seafood, as sold, is safe to eat. FDA believes that Consumers Union's warnings to consumers not to eat certain species are unfounded, particularly when based on just 113 seafood samples, as stated in the article.

FDA agrees that consumers should eat a variety of foods, including seafood, and avoid eating excessive amounts of any particular food item. Consumers should also heed state advisories that address local contaminant problems.

Fish and shellfish can be an important part of a healthy diet, but they also are highly perishable products that can spoil or lose quality at any point from harvesting to consumption. Like other flesh foods, fish and

shellfish begin to decompose as soon as they are harvested. Preservation methods can slow the process but not arrest it entirely. For the most part, however, the degree of decomposition found on seafood being sold affects its marketability, smell and taste, but not its safety.

Consumer Reports is correct in stating that, by the time most seafood reaches retail, it is nearing the end of its normally brief shelf life. Consumers should examine seafood before purchasing it and consume it shortly thereafter.

There are some 3,852 processing plants, 1,830 wholesale plants and 300,000 retail seafood outlets in the United States. FDA administers a $40 million program to inspect seafood processing and wholesale plants and train state inspectors to ensure safety and quality of seafood at the retail level. The budget for this longstanding program was increased 60 percent in the past year.

The agency has endorsed and is responding to recommendations NAS made for strengthening government regulation and enforcement, particularly to encourage the use of a Hazard Analysis Critical Control Point (HACCP) plan to assure seafood safety and quality. The HACCP plan identifies the critical points at which problems are most likely to occur, and concentrates preventive efforts there.

The Consumer Reports article focuses on problems resulting from poor sanitation and fish handling practices at the retail level. These are problems being addressed by FDA and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) through a pilot HACCP program started last October in retail stores. Twenty-five supermarkets operated by 13 chains in 12 states are participating. The program calls for each participant to put into practice a HACCP plan that is designed to ensure that seafood products being offered for sale are safe.

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percent of the seafood consumed in the United States is imported. Samples to be analyzed are selected carefully from countries with a history of problems so as to be most likely to catch any violations.

Among the special projects completed last year was FDA's analysis of 220 cans of domestic and imported tuna for methyl mercury. All of the samples were below the FDA's action level of 1 part per million. The 220 samples averaged 0.17 ppm. Fifty samples showed only trace or undetectable levels, and 39 others had less than 0.10 ppm.

FDA's increased emphasis on enforcement has resulted in more than 50 recalls of adulterated seafood products and 23 actions against firms for misbranding during fiscal years 1990 and 1991. The adulteration problems were principally microbiological--problems that cannot be detected by visual inspection alone. The misbranding cases ranged from undeclared ingredients to unsupported health claims and the illegal substitution of a cheaper species of fish for a more costly one. Since the start of fiscal year 1992 on Oct. 1, 1991, FDA has issued 16 warning letters to the seafood industry, 11 for misbranding and 5 for adulteration.

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(For further information, see FDA Backgrounder on Seafood Safety, May 1991, FDA press release PJ91-10, March 28, 1991; and FDA Talk Paper, T91-11, March 7, 1991).

COMPARISON OF REQUIREMENTS OF THE U.S. "CONSUMER SEAFOOD SAFETY ACT OF 1991" AND STATE OF ALASKA INSPECTION PROGRAM

REQUIREMENTS OF PROPOSED ACT	PRESENT STATE PROGRAM	ACTION NEEDED TO UPGRADE
1. Administration of a comprehensive shellfish safety program in compliance with the National Shellfish Sanitation Program (NSSP) requirements.	Growers, harvesters, transporters or processors of bivalve shellfish must comply with the FDA administered National Shellfish Sanitation program. The State of Alaska shellfish program is currently certified by the FDA. Certified Alaskan operations are listed in the monthly Interstate Shellfish Shippers Listings.	No additional changes are needed in the certified program. Limited additional sampling is being done for the marine toxin, domoic acid. However, additional laboratory staffing/equipment is needed to conduct a comprehensive domoic acid sampling program, as well as, increase analysis of seafood products for contaminants such as PCBs, heavy metals, Listeria and Vibrio.
2. Develop health-based standards for safety and sanitation in handling and processing of fishery products (based on Hazards Analysis Critical Control Point (HACCP) at shore based facilities or on board processing vessels. Standards must be established for contaminants such as: bacteria, chemicals, parasites, and toxins. Processors must provide training for employees in sanitation and quality control. The state must have an inspector training program. Appropriate legal authorities must be available for the state inspection program. Plants must be registered with the regulatory agency.	The basic elements of the Alaska inspection plan are: a HACCP based plant inspection plan, plant plant registration, plan of operations (QA plan), enforcement and detention. Both shore based and and floating processors are routinely inspected based on public health risk. Contaminant levels exist for shellfish and marine toxins based on NSSP standards. Other existing federal standards are applied where appropriate (i.e. PCBs, pesticides, domoic acid, etc). Operations are inspected and training performed at the retail level to ensure that retail food store employees handle seafood products properly. Adequate legal authority is provided.	Processor's employee training program needs to be identified and evaluated for equivalency to a state training program. A formal state training program would need to be developed in coordination with processors and other appropriate agencies. Enhance the existing retail inspection and employee training program to ensure that fisheries products are properly handled at the retail level.
3. If it is determined that no practicable alternative exists for ensuring the safety of fishery products, develop standards for handling, storage and transportation of fishery products on board fishing vessels and tenders.	ASMI has developed basic guidelines for handling fishery products on board vessels but no vessel vessel inspection program currently exists.	A vessel inspection program, if adopted, could improve seafood quality by reducing product adulteration and encouraging better handling practices which will extend shelf-life. If a vessel inspection program were required for state certification, a program similar to the Canadian inspection program could be implemented.
4. Develop and administer a system to monitor fish growing areas and fishing grounds to identify areas where contaminated fish are likely to be caught and conduct research to determine relationship between polluted waters and seafood contamination.	Limited monitoring is presently being conducted for contaminants through product sampling. Intensive monitoring of shellfish growing/harvesting areas is conducted according to NSSP requirements.	Develop a formal product sampling program to evaluate possible product contamination. Work cooperatively with other agencies such as National Marine Fisheries (NMFS), Food and Drug (FDA), Alaska Sea Grant and other DEC program to identify locations where contaminations might occur and could pose a threat of contamination. Develop appropriate sampling.

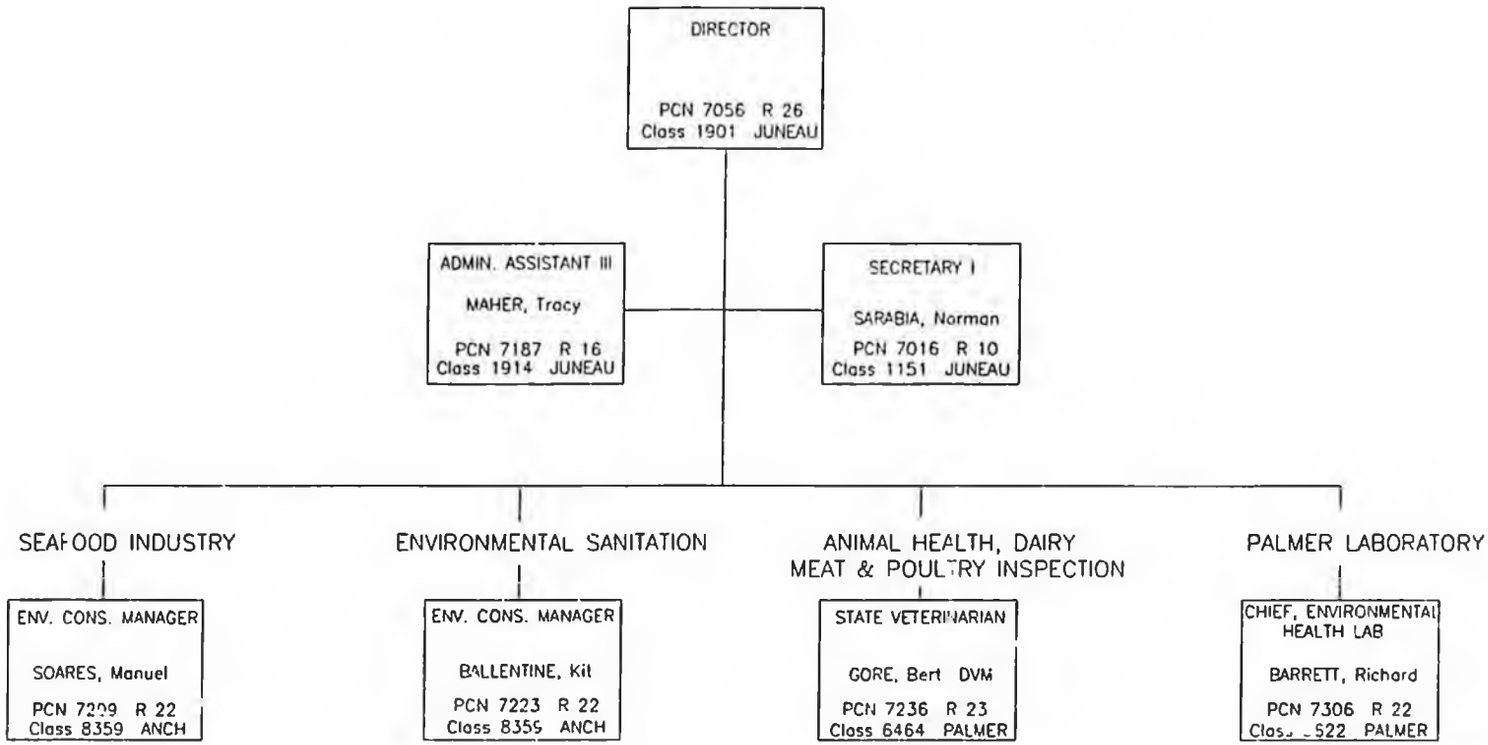
(OVER)

REQUIREMENTS OF PROPOSED ACT	PRESENT STATE PROGRAM	ACTION NEEDED TO UPGRADE
5. Implementation of procedures and requirements to ensure safety of imported fisheries products.	Bivalve shellfish product imported into Alaska from domestic or foreign markets are monitored for bacterial contamination but no other state monitoring program is in place. DEC works closely with FDA to remove any potentially contaminated products from Alaskan markets.	Continue existing shellfish monitoring surveillance and coordination with FDA to identify contaminated products. Participate in product recalls and market audits.
6. Establishment of a surveillance system regarding health risks associated with human consumption of fishery products including commercial compared to noncommercial products, Alaskan vs. imported products, and contamination of products prior to vs. after sale to the consumer.	Foodborne illnesses which are specifically identified are investigated by the state epidemiologist. This office also maintains statistics on reportable human diseases botulism and PSP.	In cooperation with H&SS and other appropriate agencies develop a surveillance system to collect information regarding health risks associated with consumption of fishery products.
7. Develop public education and advisory program which provides information and improves public awareness of state standards and promotes public understanding and acceptance of such standards and requirements; advice to recreational and subsistence harvesters regarding health hazards associated with fish they may harvest and precautions to safeguard themselves from harm; information to health professionals regarding persons at risk; that they may advise at risk individuals; health advisories concerning seafood safety.	No specific public education program exists but several state agencies provide information to the public regarding seafood safety. DEC issues public health alerts when health concerns such as elevated PSP toxin levels are identified.	DEC will work with other state and federal agencies such as ASMI, Alaska Marine Advisory, H&SS, NMFS, etc to develop information regarding seafood safety. Explore establishment of a consumer 1-800 Hotline to provide information regarding seafood safety.
8. Design/implement seafood related research such as relationship of contaminated growing sites to human illness, improved sanitation and quality control, and development of methods for determining and detecting the presence of harmful contaminants in fishery products.	Various state and federal agencies are conducting research in these areas.	Inventory existing on going research and identify additional research needs. Work through Alaska Marine Advisory Program, NMFS, etc. to implement required research.

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL HEALTH

REVISED 11/1/91

DIVISION OF ENVIRONMENTAL HEALTH
DIRECTOR'S OFFICE

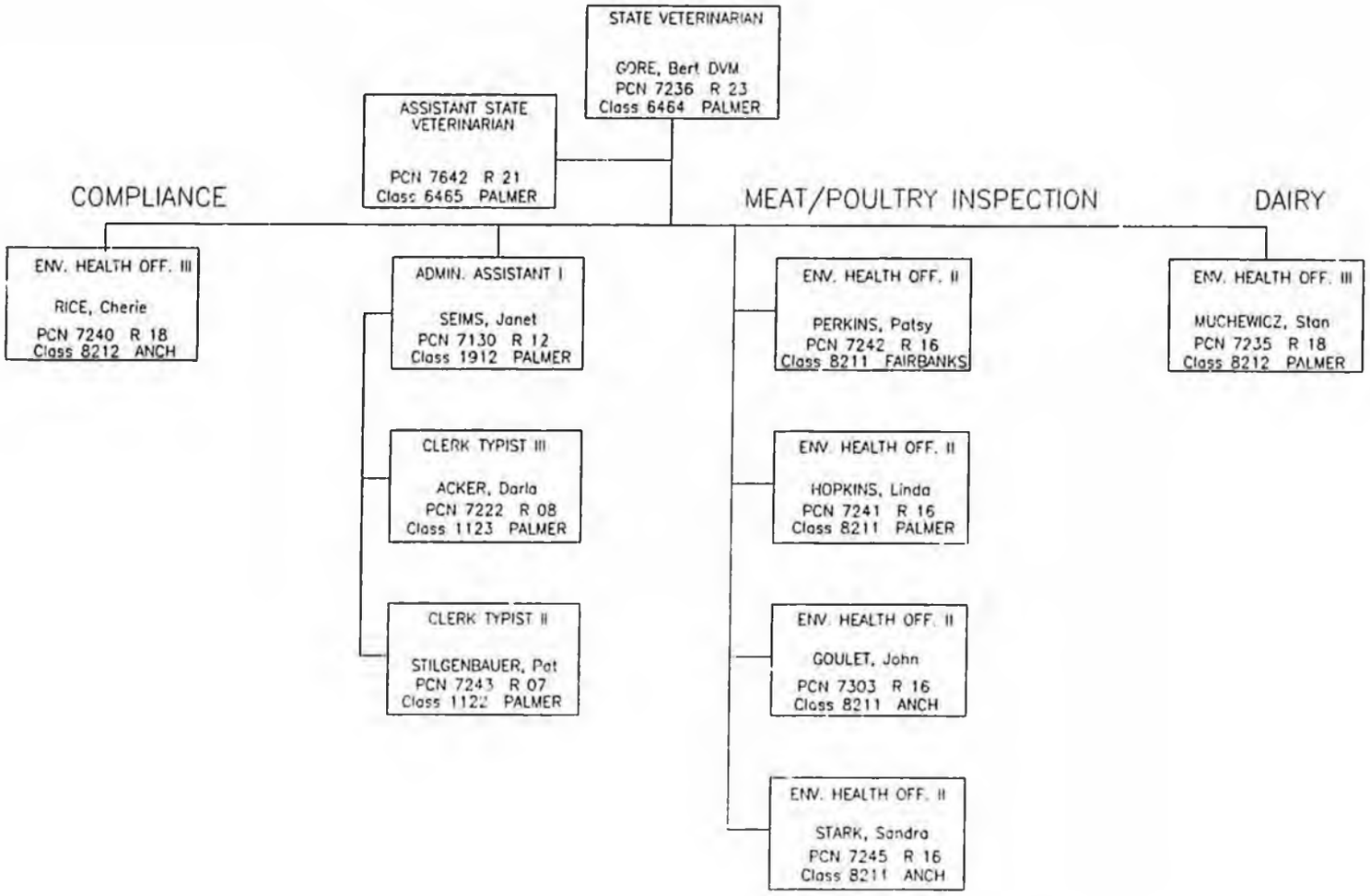


Approved _____
Director Date

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL HEALTH

MEAT & POULTRY INSPECTIONS
ANIMAL HEALTH
DAIRY

REVISED 11/1/91

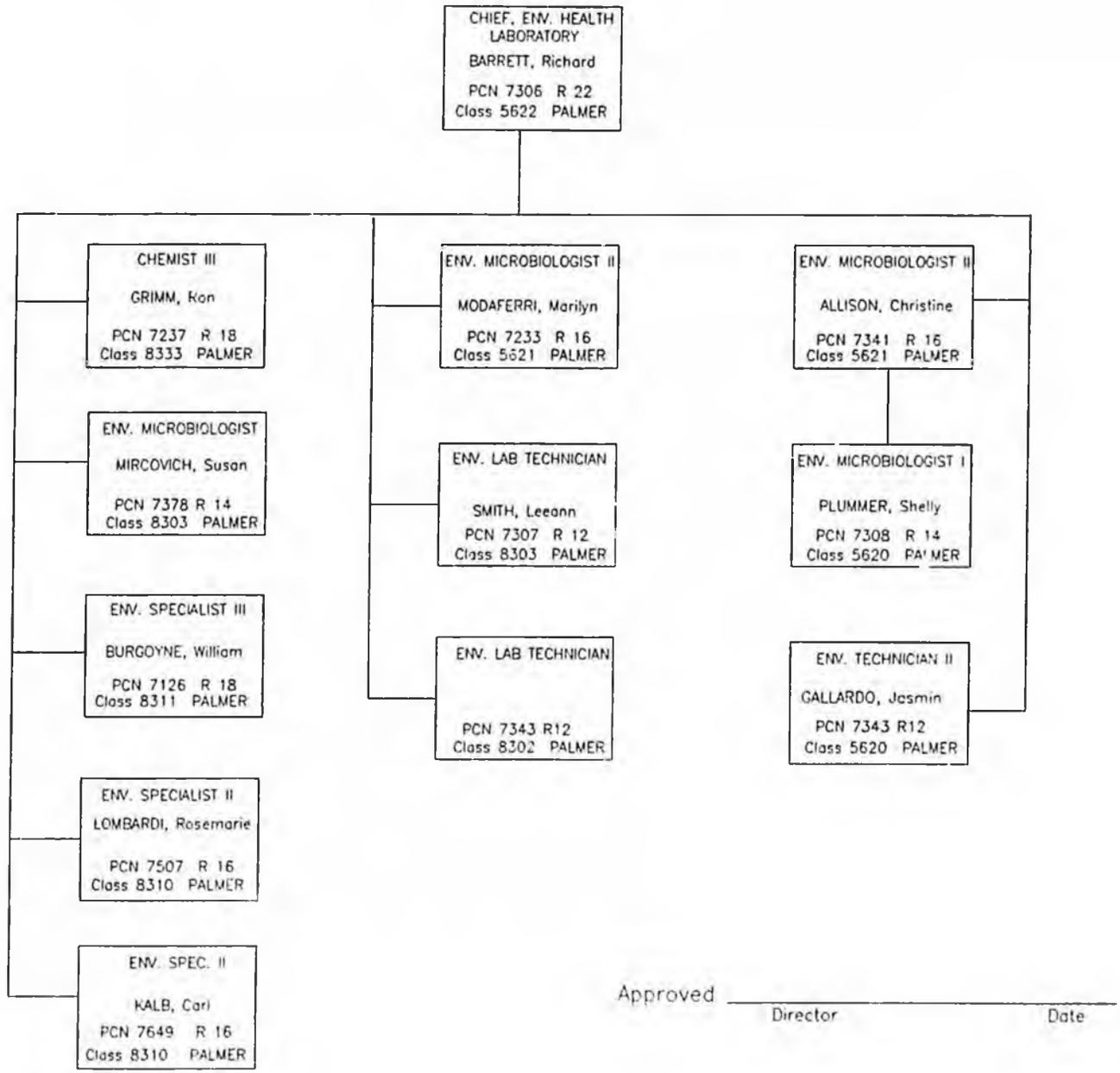


Approved _____
Director Date

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL HEALTH

REVISED 11/1/91

PALMER LABORATORY

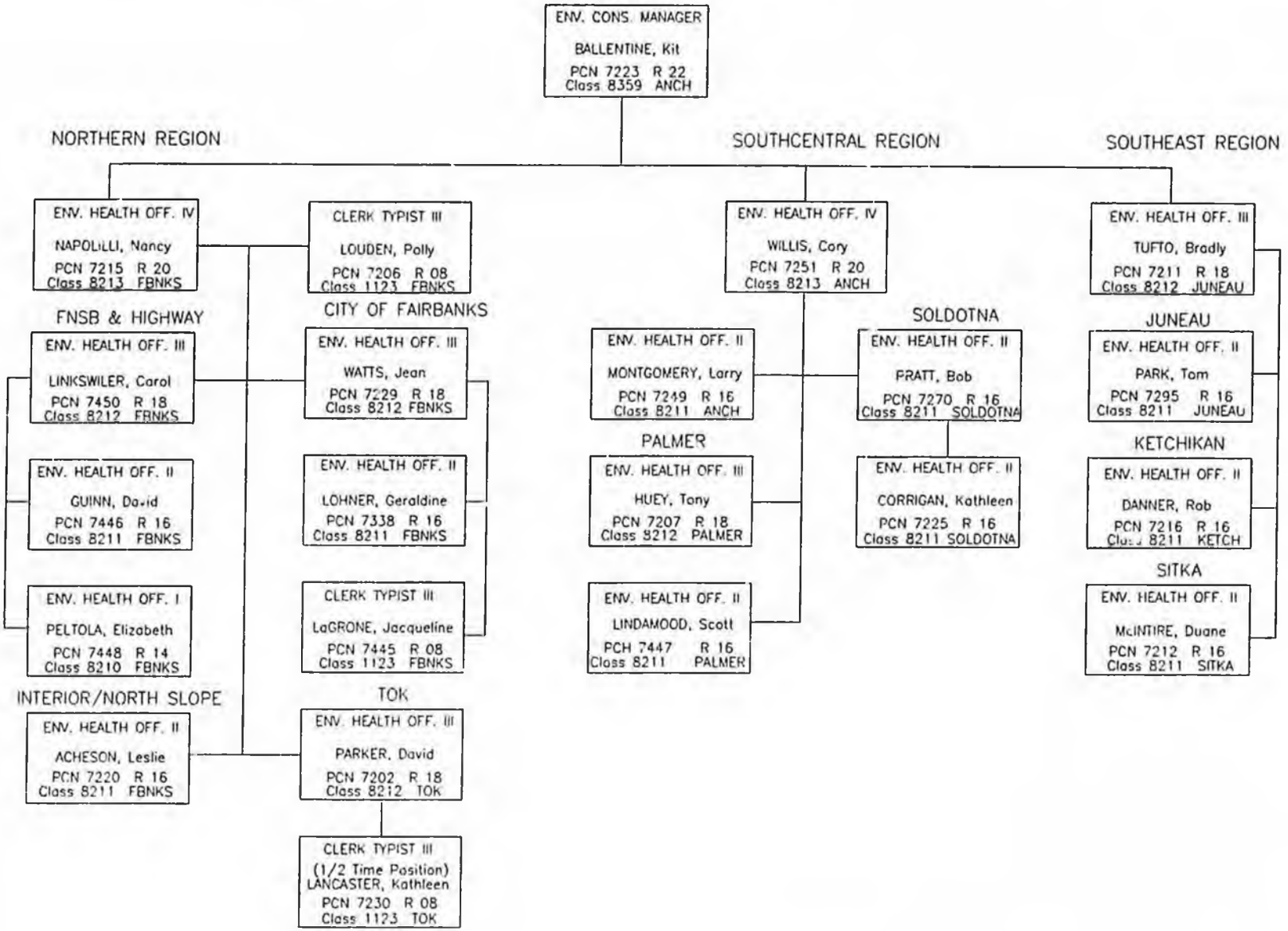


Approved _____
Director Date

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL HEALTH

ENVIRONMENTAL SANITATION

REVISED 11/1/91

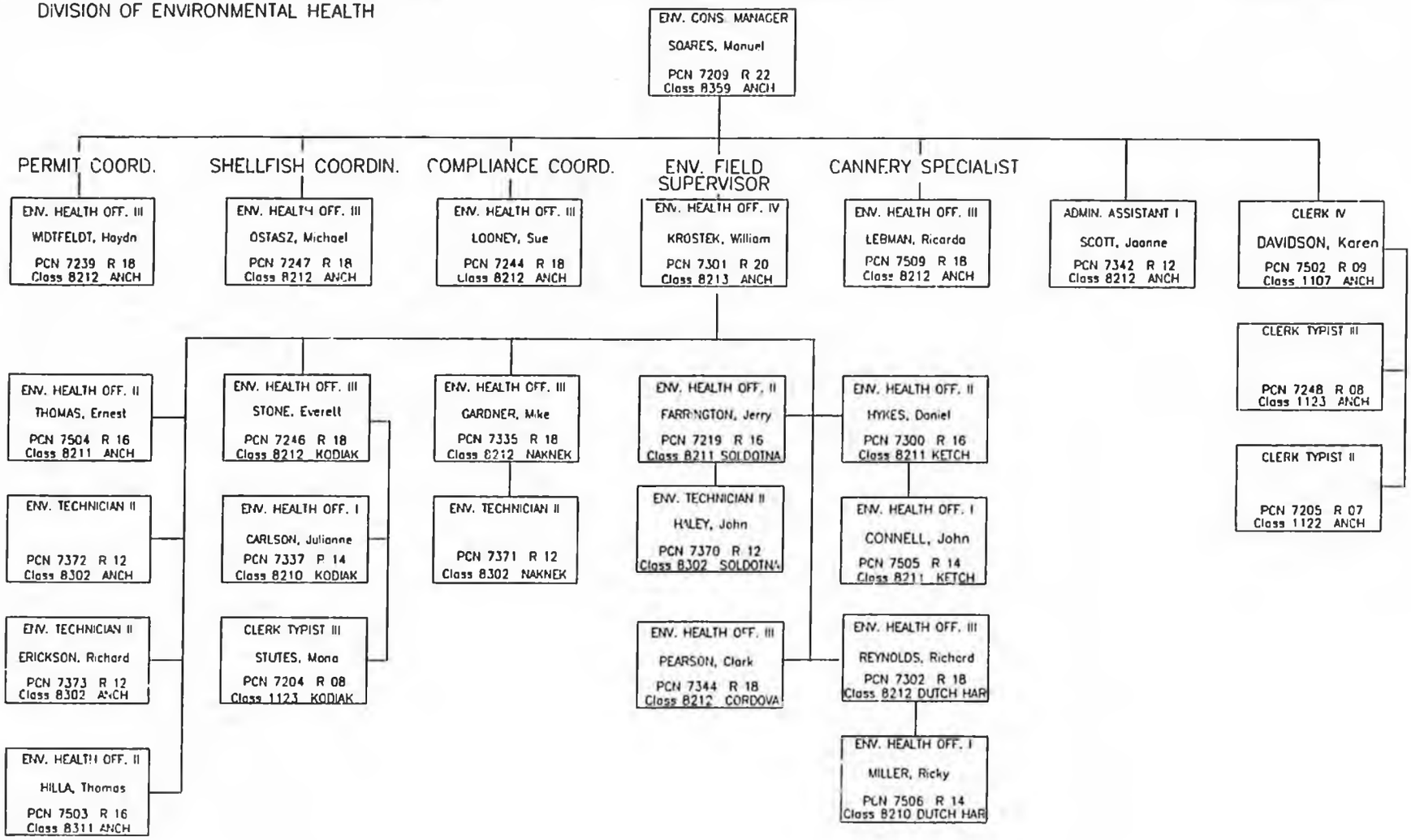


Approved _____
Director Date

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL HEALTH

SEAFOOD PROGRAM

REVISED 11/1/91



Approved _____
Director Date

Goal To manage the proper and safe use of pesticides to prevent adverse effects on human health, wildlife and the environment in order to insure the integrity of the public health, prevent environmental contamination and comply with State Regulations and FIFRA.

Program Background

Congress in 1976 passed the Toxic Substances Control Act (TSCA), which set up a premanufacturing review process that also regulates the manufacture, processing, distribution and use of all new chemicals. The act is designed to regulate the risks posed by the more than 65,000 existing chemicals and the thousands of new chemicals created yearly. Nationally, Americans use about 3 billion pounds of pesticides yearly. Improper use can cause the chemicals to pollute soil, kill vegetation and animals and contaminate the nation's and state's groundwater supplies. The Alaska Department of Environmental Conservation (DEC) since the mid 1970s has carried out Environmental Protection Agency (EPA) regulations on pesticides.

Issues

The major issue is for the state to set up programs to train commercial applicators of the proper methods of pesticide and herbicide use. The chemicals are used by the Alaska Railroad and Alaska Department of Transportation and Public Facilities for vegetation control, while other forms of chemicals, biocides, are used extensively at Prudhoe Bay by the state's oil industry. The goals are to enforce regulations on the chemical use to protect the state's citizens, wildlife and environment. Since 1975 there has been only one pesticide-related fatality in Alaska, and few of a "serious" nature.

Major Features

The Pesticide Program:

- Certifies roughly 1,825 pesticide applicators a year in proper use of the chemicals. DEC in FY 90 offered 39 training courses for chemical users where 341 people were involved. The state issues about 12 new permits each year and last year investigated 66 cases of alleged misuse of pesticides.
- Conducts about two dozen marketplace inspections yearly and several dealer inspections.
- Inspects food processing businesses, restaurants, service establishments and seafood processing plants for proper use of a range of chemicals, from pesticides to sanitizers.
- Provides technical assistance to applicators, answers public inquiries about pesticides, issues permits for aquatic applications, and monitors use to prevent injury and aerial contamination.
- Inspects greenhouses, research stations and mosquito and biting fly control programs.

Progress to Date

The program so far has been successful in preventing any medical injuries as a result

of improper application-use of pesticides during the past four years.

Activities in FY 93

ENFORCEMENT

* Conduct enforcement activities required to protect the public, workers, endangered species, habitats and groundwater sources.

* Fulfill all compliance monitoring activities required by the General Guidance and expand monitoring of commercial pest control operators and TBT anti-fouling paint dealers/applicators.

* Incorporate cancellation/suspension inspections in all compliance monitoring activities.

* Ensure the inspection program continues to educate private and commercial pesticide users in the proper use, storage and disposal of pesticide products and in pollution prevention.

GROUNDWATER, WORKER PROTECTION & ENDANGERED SPECIES

* Finalize the Worker Protection and Groundwater Implementation Strategies, reproduce EPA developed educational/training materials, and distribute those materials to the public and regulated community.

* Continue development of the necessary infrastructure among agencies and communities to develop and implement management plans for Groundwater, protection plans for Endangered Species And to promulgate the Worker Protection Standard.

* Initiate outreach/communication programs to notify both the agricultural community of the new Worker Protection Standards, and the public and responsible agencies of the Groundwater Protection Implementation Strategy.

* Develop generic and chemical specific Groundwater State Management Plans as required.

* Continue to monitor, assess and compile data on pesticides in groundwater.

PROGRAM BENEFITS

The state's pesticide program works to prevent environmental damage to vegetation, crops, wildlife or humans from the improper use of pesticides.

Fact Sheet: Division of Environmental Health
Meat/Poultry/ Animal Health and Dairy Program

Goal

Protect human health by regulating the purity of meat and poultry and the sanitation of dairy products produced in Alaska.

Program Background

Before Statehood, the U.S. Department of Agriculture was responsible for programs that monitored the health of Alaska's livestock and poultry farms and inspected the purity of its dairy industry. Since, the Alaska Department of Environmental Conservation (DEC) was created in 1971 those programs have been assigned to the Department. The Legislature in spring 1990 also allocated funding to permit a reindeer meat inspection program to be conducted.

Major Features

The major features of the program include:

Animal Health
-- Monitors the import and export of domestic animals and controls animal-to-animal diseases.
-- Provides for quarantines and/ or compliance with laws calling for disposal of diseased livestock.

Dairy Sanitation
-- Oversees the producers and processors of milk and frozen desserts, inspects the sanitation conditions and equipment at the state's dairy farms and its milk processing plant.
-- Samples to ensure the wholesomeness of Alaska milk products.

Meat and Poultry
-- Inspects all state slaughter houses and processors to make sure they meet state and federal sanitation standards in the processing of meat and chicken and samples for wholesomeness.

Activities in FY 93

During FY 1993 the program will:

-- Adopt import and change of ownership regulations for pseudorabies in swine
-- Maintain a state "Equal to Federal Inspection" program to enable state-inspected meat products to enter wholesale commerce.
-- Regulate interstate shipment of reindeer for farming purposes
-- Bring two additional reindeer slaughter facilities under inspection in Nome and White Mountain and increase inspections at Bering Sea Reindeer Products in Mekoryuk

Program Benefits

The program protects public health and an Alaskan industry by assuring the wholesomeness of Alaskan-raised meat, poultry and dairy products. It also assures the health of imported and exported farm animals and horses -- an important factor in their sale.

Fact Sheet: Division of Environmental Health, Laboratory

Goal

Protect public health and support all DEC Environmental Health Division programs by performing scientifically complex tests to check for a wide range of illness or forms of environmental contamination.

Program Background

When the Department of Environmental Conservation (DEC) was created in 1971, meat and dairy inspections were handled by a laboratory run since 1965 by the state Division of Agriculture. That lab continued to support DEC programs for the first 10 years of the Department's life. In 1981, however, the state took over operation of the laboratories, the Palmer facility specializing in microbiological tests, with another Department lab in Douglas concentrating on chemical analysis.

Issues

The Palmer lab is involved in most every major health issue that affects the public's health and safety in Alaska. It performs chemical-biological tests on all meat raised in the state, on state dairy products, all state fish and shellfish stocks and even on Alaskans' pets. It performs a host of chemical checks on questionable samples, searches for the cause of outbreaks of illness, monitors the quality of water testing labs and deals with diverse health issues from human illness to brucellosis in cattle.

Major Features

The major features of the Laboratory Monitoring Operating Program include:

-- For Seafood: It conducts basic inspections, plus routine random chemical, bacteria and microbiological tests on all finfish in the state. For bi-valve shellfish, like clams and oysters, it conducts microbiological tests and checks for the presence of the toxin PSP that causes **Paralytic Shellfish Poisoning**. For crab and shrimp the lab also conducts organic testing programs. The lab also tests for **parasites**.
-- For animals: It conducts a wide range of routine testing programs, many needed for breeders to receive international health certificates for sale or shipment of animals from Alaska. For cattle it tests for **brucellosis**, while it tests for **EIA (Equine Infectious Anemia)** in horses, especially those intended for interstate sale. It also tests pets, especially dogs, intended for shipment from the state. The program also tests for **mastitis**, **TB** and other illnesses.
-- For dairy animals: It screens for milk quality,

microbiologically and chemically.

-- For water, it tests the performance of 25 private laboratories that screen water for microbiology and bacteria problems.
-- The lab also tests everything from animal feed to fertilizer and pesticides, not counting a wide range of microbiological, serological and chemical tests on samples submitted by the public.

Progress to Date

The program, which has a staff of three microbiologists, two environmental technicians, one chemist and the laboratory director, in FY 1990 is conducting multiple tests on 15,000 samples, including some 5,000 seafood samples, 3,700 resulting from potential contamination caused by the Exxon Valdez oil spill. The lab conducted 6,231 animal tests in FY 1989, tested 126 animals bound for export from the country, conducted 922 seafood processor inspections, tested 1,744 seafood samples for PSP, conducted 1,619 water samples, and handled 173 consumer complaint tests.

Activities in FY 91

In Fiscal Year 91 the lab will continue its regular sampling program. It also:

-- Develop and implement a domoic acid sampling program for shellfish and other seafood products.
-- Will complete development of a sampling program for **listeria**, a type of bacteria that is beginning to appear in Alaska seafood stocks. The bacteria is somewhat similar to salmonella in its effect.
-- Initiate sampling program for heavy metals, PCB and Listeria in seafood products.
-- Continues certification of drinking water testing labs.

Program Benefits

The laboratory testing program is essential if the other program elements of the Environmental Health section are to carry out their missions to protect the public from illness and health problems.

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Water

Resources

Brd. Mtg.

2-26-92

ALASKA WATER RESOURCES BOARD
Agenda
February 25-27
Centennial Hall
Hammond Room

Tuesday February 25

1:00 Call to order, introduction of New Board Member
1:10 Election of new Chairperson

Department of Natural Resources Report

1:30 Harold C. Heinze, Commissioner, Department of Natural Resources

Department of Environmental Conservation

2:00 John A. Sandor, Commissioner, Department of Environmental Conservation

2:30 Break

Hazardous Waste

2:45 Carl Reller, Alaska Health Project

Department of Natural Resources, Division of Water

3:30 Ric Davidge, Director, Division of Water
- Water Summit
- Water Management Council
- Western States Water Council
- Amendments to Water Management Regulations
- Water Rights Application Fees

Public Comment Session

7:00 Centennial Hall, Hammond Room

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 3
To Terry Otness	From Dan Allison
Co. Dept. of Natural Resources	Co. Water
Dept.	Phone #
Fax # 465-3922	Fax #

Wednesday February 26

8:30 Coffee

Alaska Power Authority

9:00 Video on Bradley Lake

Drinking Water

9:20 Bill Gissell, EPA, Juneau

Glaciers

9:45 Advancement of the Taku Glacier
Roman Motyka, Division of Geological and Geophysical Surveys

Wetlands Update

10:15 Ira Winograd DEC

10:25 Ric Davidge - WET FORCE

10:40 Break

Reauthorization of the Clean Water Act

11:00 Mike Menge, Department of Environmental Conservation

11:30 Gary Prokosch - DNR, Division of Water

12:00 Lunch

Meet with the Senate Resources Committee

1:30 Senate Resources Committee Room

Meet with the House Resources Committee

3:00 Current Water Issues and pending legislation

Thursday February 27

DNR Conference Room

8:30 Meet

Meeting with the Governor

9:00 Walter J Hickel, Governor

Legislation Review

10:00 Ric Davidge, Director, Division of Water

Consolidation of Boards

11:00 Tuckerman Babcock, Director, Boards and Commissions

Board Work Session

1:00

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER

WALTER J. HICKEL, GOVERNOR

3601 C. Street
P.O. Box 107005
Anchorage, Alaska 99510-7005
Phone: (907) 762-2575

February 14, 1992

Senator Lloyd Jones
Senate Standing Committee
Resources
Room 30, Capitol
Juneau, Alaska 99811

Dear Senator Jones:

The Department of Natural Resources, under the authority of AS 46.15.020, proposes to adopt, amend or repeal regulations in Title 11 and 93 of the Alaska Administrative Code. Enclosed is a copy of the proposed regulations for your review.

Comments on the proposed regulations may be sent to Ric Davidge, Director, Division of Water, P.O. Box 107005, Anchorage, Alaska, 99510-7005 and must be received by March 20, 1992.

Sincerely:

Gary J. Prokosch
Chief, Water Management

TITLE 11. NATURAL RESOURCES

Part 1. Office of the Commissioner (11 AAC 03--11 AAC 06)

PART 1. OFFICE OF THE COMMISSIONER.

Chapter
---
05. Fees for Department Services (11 AAC 05.010--11 AAC 05.900)

CHAPTER 05. FEES FOR DEPARTMENT SERVICES.

Section
010. Fees

11 AAC 05.010(a)(8)(A) and (a)(8)(C)--(D) are amended and are adopted, to read:

11 AAC 05.010. FEES. (a) Non-refundable fees to apply for authorizations, and fees to obtain publications or services from the department, are as follows:

---

(8) water management

(A) water rights application,

(i) $50 for proposed use of 5,000 gallons a day or less;

(ii) $100 for proposed use of more than 5,000 gallons a day, but less than 30,000 gallons a day; [OR]

(iii) $200 for proposed use of 30,000 gallons a day or more, but less than 100,000 gallons a day;

(iv) $300 for proposed use of 100,000 gallons a days or more, but less than 500,000 gallons a day;

(v) $500 for proposed use of 500,000 gallons a day or more, but less than 1 million gallons per day;

(Vi) $1000 for proposed use of 1 million gallons of water per day or more;

CHAPTER 93. WATER MANAGEMENT.

ARTICLE 1. STATE WATER POLICY

Section
10. STATE WATER POLICY

11 AAC 93.15.010 is adopted to read:

11 AAC 93.010. State Water Policy. It is the policy of the State of Alaska to efficiently manage and conserve its water resources for the maximum use and benefit of its citizens, consistent with the public's int rest. In so doing, the state's goal is to maximize public benefits by improving the quality of life of its residents; conserving the natural environment; facilitating and encouraging economic development; and protecting life and property. To further this policy, the following principles will guide the management of Alaska's water resources:

(1) The state is the conservator of the public's water resources;

(2) The state will permit the broadest possible access to and common use of state waters, consistent with the public's best interests, except that the legislature may by general law regulate and limit such access for other beneficial uses or public purposes (Constitution of Alaska, Article VIII, Sections 3 and 14);

(3) Whenever occurring in a natural state the state shall reserve all surface and ground water resources to the people for common use. Such use and priority for use is subject to prior appropriation rights; except for public water supply, an appropriation of water shall be limited to stated purposes and subject to preferences among beneficial uses, concurrent or otherwise, as prescribed by law; and subject to the general reservation of fish and wildlife (Constitution of Alaska, Article VIII, Sections 3 and 13) and (AS 46.15.030);

(12) The state shall systematically collect, record, store, evaluate, and distribute water resources data to determine the quality, quantity, location, and use of the state's water resources. Such activities are in the public's interest and are necessary for the orderly domestic and industrial development of the state (AS 41.08.017); and

(13) State agencies shall ensure that regulatory processes involving the state's water resources are efficient and that, to the extent feasible, regulatory or jurisdictional duplication among state agencies is avoided or eliminated wherever found. (Eff. / /92, Register ;)

Authority: AS 46.15.020.

ARTICLE 2. APPROPRIATION OF WATER

Section
---
100. Exemption to Notice.
---
11 AAC 93.100., is amended to read:

11 AAC 93.100. Exemption to Notice. An application to appropriate 5,000 gallons of water per day (gpd) or less is exempt from the notice provisions of 11 AAC 93.080 and AS 46.15.133, except that the Department of Fish and Game will be notified of an application for a water right <u>for a quantity of water of more than 1000 gpd</u> from an anadromous fish stream listed in the Alaska Department of Fish and Game Catalog of Water Important for Spawning, Rearing, or Migration of Anadromous Fishes or a stream identified as supporting fish in the ADF&G Habitat Regional Guides. However, in an area where the total amount of water available appears to the department to be limited with respect to the number of potential users of the same source, or upon the request of another state or federal agency or a municipality as defined by AS 29, or to protect the public interest, the commissioner will, in his or her discretion, require public notice as provided by 11 AAC 93.080. (Eff.12/29/79, Register 72; am 11/7/90, Register 116; am / /92, Register)

Authority: AS 46.15.020
AS 46.15.133

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY

TITLE 11. NATURAL RESOURCES

Part 1. Office of the Commissioner (11 AAC 03--11 AAC 06)

PART 1. OFFICE OF THE COMMISSIONER.

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(ii) $100 for proposed use of more than 5,000 gallons a day, but less than 30,000 gallons a day; [OR]

(iii) $200 for proposed use of 30,000 gallons a day or more, but less than 100,000 gallons a day;

(iv) $300 for proposed use of 100,000 gallons a days or more, but less than 500,000 gallons a day;

(v) $500 for proposed use of 500,000 gallons a day or more, but less than 1 million gallons per day;

(Vi) $1000 for proposed use of 1 million gallons of water per day or more;

(Vii) $1500 for proposed use of 1 million gallons of water per day or more, where the water will be used outside of the hydrologic unit from which it was removed. A hydrologic unit is based on the USGS Hydrologic Unit Map of Alaska-1974.

(Viii) $20 for proposed use of 1000 gallons per day or less for single family domestic water use;

(iX) $500 for proposed use of any quantity of glacier ice;

(B) application for reservation of water, $500;

(C) extension of permit to appropriate water, $50 for 5,000 gallons a day or less, or $100 for more than 5,000 gallons a day, but less then 30,000 gallons per day,$200 for 30,000 gallons per day or more;

(D) application for a temporary water use permit and the extension of a temporary water use permit, the same fee as for a water rights application and permit extension apply;

[(I) $50 FOR PROPOSED USE OF 5,000 GALLONS A DAY OR LESS;]

[(II) $100 FOR PROPOSED USE OF MORE THAN 5,000 GALLONS A DAY BUT LESS THAN 30,000 GALLONS A DAY; OR]

[(III) $200 FOR PROPOSED USE OF 30,000 GALLONS A DAY OR MORE;]

Authority: AS 46.15.020
AS 44.37.025

CHAPTER 93. WATER MANAGEMENT.

ARTICLE 1. STATE WATER POLICY

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(1) The state is the conservator of the public's water resources;

(2) The state will permit the broadest possible access to and common use of state waters, consistent with the public's best interests, except that the legislature may by general law regulate and limit such access for other beneficial uses or public purposes (Constitution of Alaska, Article VIII, Sections 3 and 14);

(3) Whenever occurring in a natural state the state shall reserve all surface and ground water resources to the people for common use. Such use and priority for use is subject to prior appropriation rights; except for public water supply, an appropriation of water shall be limited to stated purposes and subject to preferences among beneficial uses, concurrent or otherwise, as prescribed by law; and subject to the general reservation of fish and wildlife (Constitution of Alaska, Article VIII, Sections 3 and 13) and (AS 46.15.030);

(4) No person shall be involuntarily divested of his right to the use of waters, or improvements affecting that use, except for a superior beneficial use or public purpose and then only with just compensation and by operation of law (Constitution of Alaska, Article VIII, Section 16);

(5) The state shall manage its water resources to ensure that adequate supplies of water are available for public water supplies; the protection of fish and wildlife habitat, migration, and propagation; recreation and park purposes; navigation and transportation purposes; and sanitary and water quality purposes, if found to be in the public interest (AS 46.15.080(b));

(6) State water quality standards shall be judiciously and uniformly enforced among all users;

(7) The state shall maintain, or improved to minimum water quality standards the quality of its water resources when feasible and prudent, so that current and future generations will have access to good quality water with which to meet their basic needs;

(8) Water resources planning is integral to wise water management. The state shall conduct the necessary water resources planning to ensure wise use and management of its waters. The state shall also solicit public participation in the planning and management of its water resources;

(9) The state will encourage water conservation and public education in its management of water resources;

(10) The state shall provide for the regulation, supervision, and periodic inspection of privately owned and state-owned dams, reservoirs, and appurtenant works in order to ensure that the design, construction, and removal of dams and reservoirs is consistent with the protection of life and property (AS 46.17.010);

(11) The state shall work cooperatively with the public and other state, local, and federal agencies to administer water rights, to conduct navigability determinations, to collect water resources data, to assure water quality standards are upheld, and to provide scientific and technical assistance as requested;

(12) The state shall systematically collect, record, store, evaluate, and distribute water resources data to determine the quality, quantity, location, and use of the state's water resources. Such activities are in the public's interest and are necessary for the orderly domestic and industrial development of the state (AS 41.08.017); and

(13) State agencies shall ensure that regulatory processes involving the state's water resources are efficient and that, to the extent feasible, regulatory or jurisdictional duplication among state agencies is avoided or eliminated wherever found. (Eff. / /92, Register ;)

Authority: AS 46.15.020.

ARTICLE 2. APPROPRIATION OF WATER

Section
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100. Exemption to Notice.
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Authority: AS 46.15.020
AS 46.15.133

ARTICLE 4. TEMPORARY WATER USE.

Section
210. Temporary water use
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11 AAC 93.210 (a) is amended, and a new 11 AAC 93.210(c) is adopted to read:

11 AAC 93.210. TEMPORARY WATER USE. (a) Simplified procedures to authorize the temporary use of water, as provided in 11 AAC 93.220, will be followed if the amount of water is [NOT] a significant amount as defined by 11 AAC 93.970(14), the use continues for less than five consecutive years, and the water applied for is not otherwise appropriated.

(c) Upon the commissioner's receipt of a written request from the permittee, a temporary water use permit will, in the commissioner's discretion, be extended for a period of time not to exceed five years. The request for a temporary water use permit extension must be accompanied by the fee prescribed by 11 AAC 05.010. (Eff. 2/8/67, Register 23; am 12/29/79, Register 72; am 11/7/90, Register 116; am / /92, Register)

Authority: AS 46.15.020
AS 46.15.040
AS 46.15.133

ARTICLE 8. GENERAL PROVISIONS.

Section

970. Definitions

11 AAC 93.970(14) is amended, and a new paragraph (38) is added to read:

11 AAC 93.970. DEFINITIONS. Unless the context indicates otherwise, in this chapter

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(14) " significant amount of water" means any use of more than 5000 gallons of water in a single day from a single source, or the regular daily or recurring [SEASONAL] use of more than 500 gallons of water per day, for more than 10 days [OR MORE] per calendar year from a single source, or the nonconsumptive use of more than 30,000 gallons of water per day (0.05 cfs) from a single source,[OR ANY USE OF WATER FROM A SOURCE OR SOURCES LISTED IN THE ALASKA DEPARTMENT OF FISH AND GAME " CATALOG OF WATERS IMPORTANT FOR THE SPAWNING, REARING OR MIGRATION OF ANADROMOUS FISHES,"] or any water that might adversely affect the water rights of other appropriators or the public interest;

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(38) "unduly affect" means that a prior appropriator loses the ability to reasonably acquire an adequate quantity of water to fulfill the purposes of the appropriation from the water source from which the water right is permitted or certificated, except that a prior appropriator has not been unduly affected if water can reasonably be obtained by installing more efficient diversion works for the withdrawal of water or by performing effective routine repair and maintenance of diversion works or water well equipment in order to allow for the full development of the water resource. (Eff. 2/8/67, Register 23; am 12/29/79, Register 72; am 9/11/83, Register 87; am 11/7/90, Register 116; am / /92, Register)

Authority: AS 46.15.020
AS 46.15.040
AS 46.15.050
AS 46.15.080
AS 46.15.133
AS 46.15.145

Water Quality Standards

Hrg. 5-4-92

STATE OF ALASKA

DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

WALTER J. HICKEL, GOVERNOR

PLEASE REPLY TO:

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May 1, 1992

Senator Lloyd Jones
Chairman, Senate Resources Committee
State Capitol, Room 30
Juneau, Alaska 99801-1182

Re: State Water Quality Standards and Clean Water Act National Pollutant Discharge Elimination System Permitting

Dear Senator Jones:

In preparation for the oversight hearing on the relationship of the state water quality standards to the Clean Water Act National Pollutant Discharge Elimination System (NPDES) permitting process to be held before the Senate Resources Committee on May 4, 1992, you requested the Attorney General to prepare a written response to a number of questions contained in your letter dated April 27, 1992 to John Sandor, Commissioner of the Department of Environmental Conservation (DEC). We reviewed the Amendments to the Water Quality Standards Regulation to Establish the Numeric Criteria for Priority Toxic Pollutants Necessary to Bring All States into Compliance with Section 303(c)(2)(B), 56 Fed. Reg. 58,420-78 (1991), proposed by the United States Environmental Agency (EPA), also known as the "National Toxics Rule" (proposed rule). We also reviewed related statutory and regulatory provisions, in particular, the Clean Water Act, 33 U.S.C.A. §§ 1251 et seq. (1986 & Supp. 1991) and 40 C.F.R. Pts. 121-131 (1991). Our answers to your questions requesting a legal opinion follow.

1. Question No. 5. Socio-Economic Impacts of Proposed Rule on Permittees.

By statute, the Attorney General is the legal advisor to the governor and other state officers, AS 44.23.020, and consequently, would rely upon DEC or other state agencies to evaluate the socio-economic impacts of the proposed National Toxics Rule.

From a legal standpoint, there are two reasons why the proposed rule may result in greater costs to industry than state-adopted water quality standards for toxic pollutants. First, subject to EPA approval, the state may adopt standards less stringent than the proposed rule. 56 Fed. Reg. 58,433, 58,436. Second, procedural mechanisms such as variances and the site-

specific criteria process that are available under state regulations will not be available for the toxic pollutants subject to the proposed federal standards without additional federal rulemaking on a case-by-case basis. Id. at 58,433. The preamble to the proposed rule states:

> EPA cautions States and the public that promulgation of a Federal rule removes most of the flexibility available to States for modifying their standards on a discharger-specific or stream-specific basis. For example, variances, site-specific criteria and schedules of compliance actions pursuant to State law for federally promulgated criteria are precluded. Each of these types of modifications would require federal rulemaking on a case-by-case basis to change the Federal rule for that State.

Id. These procedures, along with mixing zones and the adjustment of designated uses, are legal mechanisms by which socio-economic considerations can be factored into the permitting process. See, e.g., Id. at 58,441.

2. Question No. 8. Application of Proposed National Toxics Rule to Preliminary Draft Permits.

The proposed National Toxics Rule has not as yet been formally adopted by EPA. Therefore, it has no legal effect and cannot provide a legal basis for the pulp mill permit requirements. 5 U.S.C.A. § 553 (1977). EPA's preamble to the proposed rule acknowledges as much: "Formally adopted standards form the legal basis for including water quality-based effluent limitations in NPDES permits to control toxic pollutant discharges." 56 Fed. Reg. 58,421. The proposed rule, once adopted, will become effective 30 days after publication in the Federal Register. See 5 U.S.C.A. § 553(d).

3. Question No. 10. Promulgation of Proposed National Toxics Rule.

We reviewed EPA's legal justification for promulgating federal water quality standards for priority toxic pollutants for the State of Alaska. In general, as explained below, we agree with EPA's analysis that it has statutory authority to adopt these standards for the state. Please refer to our response to question no. 16 for comments on 56 Fed. Reg. 58,476-77, the section pertaining to the State of Alaska.

Under section 303(c)(2)(B) of the Clean Water Act, the state is required to adopt numeric criteria for all pollutants on

the section 307(a) list of priority toxic pollutants for which section 304(a) EPA criteria recommendations ("Gold Book" recommendations) are available, the discharge or presence of which could reasonably be expected to interfere with designated uses. 33 U.S.C.A. § 1313(c)(2)(B). Section 303(c)(2)(B) requires the state to adopt numeric toxic pollutant criteria whenever the state reviews its water quality standards, which under section 303(c)(1) must occur at least once every three years beginning October 18, 1972. The Clean Water Act was amended in 1987, and therefore, in the state's first triennial review occurring after 1987, the state is required to adopt numeric criteria for priority toxic pollutants. As the state has not completed this triennial review, section 303(c)(4)(B) provides EPA the statutory authority to adopt water quality standards to meet the requirements of the Clean Water Act.

After the promulgation of the National Toxics Rule, if the state adopts standards for toxic pollutants which receive EPA approval, removal of the state from the National Toxics Rule will require federal rulemaking procedures. If the state adopts standards no less stringent than the federal rule, EPA will withdraw the federal rule without a notice and comment rulemaking. If, on the other hand, the state adopts standards that are less stringent than the federal rule, EPA will propose to withdraw the rule with a notice of proposed rulemaking and provide for public participation. 56 Fed. Reg. 58,433.

You also asked about the differences between designated and existing uses. Water quality standards consist of the designated uses of the navigable waters involved and the water quality criteria for those uses. "Designated uses" include water supply; water recreation; growth and propagation of fish, shellfish, other aquatic life, and wildlife; and harvesting for consumption of raw mollusks or other raw aquatic life; regardless of whether the use is attained. See 33 U.S.C.A. § 1313(c)(2); 40 C.F.R. § 131.3; 18 AAC 70.020. "Existing uses" are "those uses actually attained in the water body on November 28, 1975, whether or not they are included in the water quality standards." 40 C.F.R. § 131.3(e). EPA selected November 28, 1975 as an index date because it promulgated its original water quality standards regulation on that date. EPA, Introduction to Water Quality Standards 5 (Sept. 1988). An existing use cannot be modified unless uses are added that require more stringent criteria; designated uses, however, may be changed by means of a procedure known as a "use attainability analysis." 40 C.F.R. § 131.10(g).

Your remaining questions regarding the designation of the state's waters and the stringency of the classification of the state's waters fall within DEC's expertise, and will be addressed in its response.

4. Question No. 11. Moratorium on Federal Regulations.

The President's 90-day moratorium on new federal regulations began on January 28, 1992 and concluded on April 27, 1992. Memorandum from the President for Certain Department and Agency Heads 2-3 (Jan. 28, 1992) (President's January 1992 Memorandum). On April 29, the President extended the moratorium for another 120 days. The White House, Office of the Press Secretary, Fact Sheet on the President's Regulatory Reform Initiative (Apr. 29, 1992) (Apr. 1992 Fact Sheet). The moratorium applies to all federal regulations except those subject to a statutory or court-ordered deadline. A number of other exceptions are also listed in the President's January 1992 Memorandum, none of which appear applicable to the proposed National Toxics Rule.

It is arguable whether the proposed rule is subject to the moratorium. On the one hand, the 1987 amendments did not set a specific deadline for federal action if the states failed to adopt standards for priority toxic pollutants. It can be argued that without a clear statutory deadline for the promulgation of federal standards, the President's moratorium ought to preclude adoption of a final rule. On the other, section 303(c)(4) of the Clean Water Act requires the EPA to adopt any new standard it publishes under that section within 90 days of publication. This statutory provision may provide the requisite statutory deadline to exempt the proposed National Toxics Rule from the moratorium. EPA has requested an exemption from the Office of Management and Budget (OMB). Telephone conversation with Barry Allen, EPA Office of Policy, Planning, and Evaluation (May 1, 1992).

The proposed National Toxics Rule was transmitted to OMB for formal clearance on April 16, 1992. Typically, OMB requires 10 to 30 working days to review a regulation; although, given the controversial nature of the proposed rule, additional time may be required. Telephone conversation with David Sabock, EPA Office of Science and Technology (Apr. 28, 1992). Whether the socio-economic impacts of the proposed rule will play a role in determining whether the rule is subject to the moratorium is unclear. OMB previously waived regulatory (economic) impact analysis for the proposed National Toxics Rule. 56 Fed. Reg. 58,440. However, the President has "requested that all federal agencies prepare a thorough cost-benefit analysis of each major rule issued during the moratorium period." Apr. 1992 Fact Sheet. See also, "Federally Imposed Toxic Pollution Limits Said Unlikely to Be Affected by Moratorium," BNA Environmental Reporter 2374 (Feb. 14, 1992).

DEC will answer the remainder of your questions on this matter.

5. Question No. 12. Interpretation of State Water Quality Standards.

You asked whether the state or the EPA's interpretation of the state's water quality standards is entitled to primacy. We found no court decisions that squarely address this question.

The Clean Water Act expressly recognizes the primacy of the states in control of water pollution:

> It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator [of EPA] in the exercise of his authority under this chapter [the Clean Water Act].

33 U.S.C.A. § 1251. In Miners Advocacy Council v. State, 778 P.2d 1126, 1133 (Alaska 1989), cert. denied, 493 U.S. 1077 (1990), the Alaska Supreme Court reviewed the legislative history of the Clean Water Act and concluded that the states have broad power and discretion in the prevention and control of water pollution. The court also quoted the following passage from Mobil Oil Corp. v. Kelley, 426 F. Supp. 230, 234 (S.D. Ala. 1976):

> A review of the legislative history of the [Clean Water Act] reinforces the plain meaning of the Act itself to the effect that Congress intended the states to play a paramount role in the certification of potential polluters.

778 P.2d at 1133.

The preamble to the proposed National Toxics Rule also recognizes the primacy of the states. For example, the preamble states, "EPA has demonstrated extensive deference to State primacy and a willingness to provide broad flexibility in their adoption of State standards for toxics." 56 Fed. Reg. 58,431; see also, Id. at 58,430 (referring to "the principle of State primacy"); Id. at 58,433 ("[T]he water quality standards program has been established with an emphasis on State primacy . . . EPA prefers that States maintain primacy . . . .").

Given the statutory policy of state primacy and an administrative policy of deference to the states with respect to

water quality standards, and given that the state prepares, reviews, and revises its water quality standards, the state should be given deference in its interpretation of its standards and regulations, so long as its interpretation is consistent with the Clean Water Act. To the extent EPA finds a standard to be ambiguous or susceptible to an interpretation that would be inconsistent with the Clean Water Act, it has the opportunity to disapprove the standard within 90 days of the state's submission of the standard to EPA for approval. 33 U.S.C.A. § 1313(c)(3). Based on the above authorities, it would appear that if EPA has approved a state standard, and its subsequent interpretation is at odds with the state's interpretation, EPA's interpretation should not be accorded deference, unless the state's interpretation is plainly inconsistent with the Clean Water Act.

However, in two recent decisions, the United States Supreme Court emphasized the primacy of the federal government in the NPDES permitting process. United States Dep't of Energy v. Ohio, ___ U.S. ___, 60 U.S. 4325 (Apr. 21, 1992); Arkansas v. Oklahoma, ____ U.S. ___, 112 S.Ct. 1046, 117 L.Ed.2d 239, 60 U.S.L.W. 4176 (Feb. 26, 1992). The Ohio opinion, for example, begins with the statement that Section 402 of the Clean Water Act "gives primary authority to issue such permits to the United States Environmental Protection Agency . . . ." 60 U.S.L.W. at 4326.

In the Arkansas decision, the Court had occasion to address EPA's interpretation of Oklahoma's state water quality standards, but did not reach the question you have asked. Nonetheless, it may prove helpful to summarize some of the Court's observations. Because state standards are promulgated by the states with substantial guidance from EPA and are approved by EPA, the Court characterized state water quality standards as part of the federal law of water pollution control, at least insofar as interstate water pollution is concerned. 60 U.S.L.W. at 4181. Whether the Court would reach the same conclusion for coastal waters or wholly intrastate waters is not clear. Because the Oklahoma standards affected another state and therefore had a "federal character," the Court concluded that "EPA's reasonable, consistently held interpretation of those standards is entitled to substantial deference." Id. The Court found EPA's interpretation of Oklahoma's standards both reasonable and "consistent with the purposes and principles of the Clean Water Act," and its application of the standards, sound. Id. Further, Oklahoma did not dispute EPA's interpretation of its state standards. Id. The Arkansas decision indicates that a state's interpretation of its water quality standards is to be considered, and that EPA's interpretation of the state's standards is to be evaluated to determine whether it is reasonable, consistently held, and consistent with the purposes and principles of the Clean Water Act.

6. Question No. 16. Compliance with Section 303(c)(2)(B) of the Clean Water Act.

Please refer to our response to question number 10. We do not agree with the statement that "Alaska is included in today's proposal because although the State had previously adopted all section 304(a) criteria by reference, the State Attorney General has decided that the adoption by reference is invalid." 56 Fed. Reg. 58,476. The filing of a certified copy of a regulation with the Lieutenant Governor's Office raises a rebuttable presumption that the regulation was duly adopted. AS 44.62.100(a)(1). Since the filing of the regulation, our office has not determined the validity of the adoption of the section 304(a) criteria. Nonetheless, adoption by reference of the section 304(a) criteria would not fully meet the requirements of section 303(c)(2)(b), and thus the state would still be subject to the National Toxics Rule.

Please do not hesitate to contact me if I can be of further assistance with respect to this matter.

Sincerely,

CHARLES E. COLE
ATTORNEY GENERAL

By: Marie Sansone
Marie Sansone
Assistant Attorney General

cc: Hon. John Sandor, Commissioner
Alaska Department of Environmental Conservation

Hon. Paul Rusanowski, Director
Division of Governmental Coordination
Office of the Governor, State of Alaska

Paul Fuhs, Legislative Liaison
Office of the Governor, State of Alaska

Hon. Dana Rasmussen, Administrator
United States Environmental Protection Agency

MS:lmk

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Senate Resources Committee

April 27, 1992

Mike Barton, Regional Forester
U.S. Forest Service
P. O. Box 21628
Juneau, AK 99802

Dear ~~Mr.~~ Mike Barton:

The Senate Resources Committee requests your presence or that of your representative who has background and policy authority in this area on May 4, 1992 to testify at an oversight hearing on the relationship of State Water Quality Standards to the Clean Water Act National Pollutant Discharge Elimination System Permitting (NPDES) process. This relationship is an issue of concern to the Committee because of the impact on Alaska from the approach taken by the Environmental Protection Agency (EPA) in its November 19, 1991 proposed rulemaking entitled "Amendments to the Water Quality Standards Regulation to Establish the Numeric Criteria for Priority Toxic Pollutants Necessary to Bring All States Into Compliance with Section 303(c)(2)(B) (hereinafter "EPA proposed rule"). By this proposed rulemaking, EPA seeks to set water quality standards for Alaska for all the priority toxic pollutants for which EPA has issued section 304(a) water quality guidance criteria that have not already been promulgated by Alaska. While this regulation is still in draft and has just recently been received by the Office of Management and Budget in Washington, D.C., EPA Region 10 seems to have already begun applying it as seen by the appearance of human health criteria at 10^{-6} imposed in the preliminary draft permits for two pulp mills.

I am concerned that if the toxics regulation is applied to the NPDES permits of the two pulp mills that the impacts will be so devastating that the mills will not be able to continue in operation. I have asked the Environmental Protection Agency (EPA) and the Department of Environmental Conservation (DEC) whether they have considered the socio-economic implications of mill closures in this situation. We will find out at the hearing what is the case.

As I see it, it is critical to get the Forest Service view on this subject. The Committee would appreciate either you or your representative appearing at the hearing, prepared to describe to the Committee the impacts of the pulp mills' closures on both the public and private timber operations in Southeast Alaska.

Thank you for your cooperation. I look forward to seeing you, or your representative, at the May 4, 1992 hearing.

Yours very truly,

Lloyd

Senator Lloyd Jones, Chair

cc: The Honorable Dana Rasmussen
U.S. Environmental Protection Agency

The Honorable John Sandor
Commissioner, Alaska Department of Environmental Conservation

The Honorable Charles Cole
Attorney General, State of Alaska

Paul Rusanowski
Division of Governmental Coordination, State of Alaska

United States Department of Agriculture | Forest Service | Alaska Region | P.O. Box 21628 Juneau, AK 99802-1628

Reply to: 1960

Date: MAY 01 1992

Honorable Lloyd Jones
Alaska Senate
Juneau, AK 99811

Dear Senator Jones:

This is in response to your April 27 request that I testify before the Senate Resources Committee at an oversight hearing on Monday, May 4, on the relationship of State Water Quality Standards to the Clean Water Act National Pollutant Discharge Elimination System Permitting (NPDES) process.

Your letter of invitation expresses your concern that a recent proposed rule of the United States Environmental Protection Agency (EPA) could, if applied to the NPDES permits of the two pulp mills in Southeast Alaska, result in "impacts [that] will be so devastating that the mills will not be able to continue in operation." Your letter specifically asked me to "describe to the Committee the impacts of the pulp mills' closures on both the public and private timber operations in Southeast Alaska."

Unfortunately, neither I nor my Deputy can be present at Monday's hearing. I hope that the information provided in this letter will serve as an acceptable substitute for an appearance by me or a member of my staff.

I defer to EPA for comment on its proposed rule, and offer no opinion as to whether implementation of it would lead to a closure of the pulp mills.

If the two pulp mills were to close, the first question would be whether any buyers could be found to purchase the existing facilities and either modify or rebuild them to comply with the NPDES permits as modified by the proposed rule. Such a result would be possible, but it is difficult to judge how likely it would be. Assuming that pulp operations did not resume, the next question would be whether the existing sawmills operated by the pulp mill owners would continue to be operated. This too is not a simple question. The most reasonable assumption, however, seems to be that the sawmills would also be closed, due to the fact that the economic viability of sawmill operations in Southeast Alaska has been demonstrated to be very dependent upon the pulp mills as an outlet for the considerable amount of harvest volume that is not suitable for lumber production. Although some might argue that the export of wood chips could replace pulp as such an economic use of utility volume, the amount of such exports would have to rise to roughly twice the highest level achieved to date in order to accomplish that result. We assume, therefore, that the sawmills would also be closed permanently if the pulp mills were to cease their operations.

With these three assumptions--that closure of the pulp mills would be permanent, that they would not be replaced, and that such action would lead to irreversible closure of the three operating sawmills in Southeast Alaska--it is clear that closure of the two pulp mills would substantially reduce the wood products industry in Southeast Alaska. The pulp companies are the largest single employers in the region's wood products industry. In 1990, Ketchikan Pulp Company employed 530 people at its pulp mill and sawmill in Ketchikan and an additional 105 at its sawmill in Metlakatla. At that time, Alaska Pulp Corporation employed 375 people in its pulp mill at Sitka and 168 people at its sawmill in Wrangell. Therefore, in the event that the two companies ceased operations, an estimated 1,178 jobs would immediately be lost in these three communities. An additional 750 logging jobs also would be lost, exacerbating the adverse employment effects on logging companies from declining harvest levels on private land in Southeast Alaska. These losses represent over half the current level of employment in the region's wood products industry.

In addition to the direct employment effects discussed above, job losses would also be realized in construction, marine transport, and numerous retail and service industries throughout Southeast Alaska. In total, a permanent shutdown of the two pulp mills and the associated sawmills would result in a loss of some 2,513 jobs and over $91 million in personal income.

Additional analysis of the timber industry, including employment and income effects, is included in the Timber Supply and Demand Report, published annually by the Forest Service. I am enclosing 20 copies of the most recent report, published last year and covering 1990.

I hope you will find this information helpful. If there is anything else we can do to assist the Committee, please let me know.

Sincerely,

M E Chelstad

for MICHAEL A. BARTON
Regional Forester

Enclosures (20)

cc:
CCC
PAO
LMP
WO (1510, 2500)

United States
Department of
Agriculture

Forest Service

Alaska Region
R10-MB-156

Timber Supply and Demand

1990

Alaska National Interest Lands Conservation Act
Section 706(a), Report Number 10

PREFACE

Section 706(a) of the Alaska National Interest Lands Conservation Act (ANILCA) states that the Secretary of Agriculture will monitor timber supply and demand in Southeast Alaska and report annually on the ability of the Tongass National Forest to meet a timber supply rate of 4.5 billion board feet per decade as specified in Section 705[1]. This report is submitted to the Committee of Energy and Natural Resources of the U.S. Senate and the Committee on Interior and Insular Affairs of the House of Representatives.

The report to follow describes the developments in the timber market during fiscal year 1990.[2] It is based on information gathered by the USDA Forest Service from federal agencies, published reports, trade journals, etc. This is the tenth such report prepared by the USDA Forest Service in consultation with the State of Alaska, affected Native corporations, the Alaskan timber industry, commercial fishing interests and the Southeast Alaska Conservation Council in accordance with Section 706(c) of ANILCA. Comments on the report were solicited from the ANILCA cooperators and other industry experts, consultants and researchers.

As in previous years, this report includes references to the forest resources and timber industry's activities in Southcentral Alaska. Although the Southcentral region exhibits the potential for an enlarged role in the Pacific Rim marketplace, initial attempts at large scale operations have suffered financial difficulties. At present the Southcentral timber industry is considerably smaller than that of Southeast and its future remains uncertain.

1 The current Tongass Land Mangement Plan (TLMP) specifies an ASQ of 4.5 billion board feet per decade. Changes to this ASQ are being considered as part of the on-going TLMP Revision.

2 The 1990 federal fiscal year began October 1, 1989, extending through September 30, 1990. The Tongass Timber Reform Act (Public Law 101-626) was passed on November 28, 1990 (prior to publication of this report) and has significant implications for the long-term contracts and timber management on the Tongass. In particular, the requirement to meet a timber supply rate of 4.5 billlion feet per decade in Section 705 was replaced with a requirement to "provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle". Because this report is intended to be a review of the FY 1990 timber market, the implication of this legislation has not been addressed. The scope of the next supply and demand report will include any changes in the supply and demand situation related to the new act.

EXECUTIVE SUMMARY

Tongass National Forest Harvest Reaches Decade High

Timber harvest on the Tongass National Forest reached a decade high of 471 million board feet in fiscal year 1990 (October 1, 1989 - September 30, 1990). Of this total, some 48 percent was used in the production of lumber and cants, 39 percent in pulp production, and the balance consisted of cedar exports. Stumpage prices for Tongass timber sales also hit a record high of $120.9 per thousand board feet, more than a four fold increase over a two-year span. Timber sale operators responded by accelerating the harvest of volume under contract, dropping the level of timber sales under the short-term sale program to one-fourth that of fiscal year 1989.

At 1.09 billion board feet, the total timber harvest in Southeast Alaska was only slightly below the banner harvest level of fiscal year 1989. Timber harvested on National Forest lands accounted for 43 percent of the total while the volume removed from private lands accounted for 56 percent. Approximately 93 percent of the estimated 614 million board feet harvested on private lands was exported in the round.

Strong Export Market for Alaskan Wood Products

With respect to market conditions over the last ten years, fiscal year 1990 was an outstanding year for the Alaskan forest products industry. The average value of log exports increased 17 percent over fiscal year 1989, reaching a decade high of $578 per thousand board feet. The increased price more than compensated for a slight reduction in trade volume and boosted the total dollar value of log exports from Alaska to over $350 million. The total value of exported lumber and cants increased to $85.3 million, driven by a 24 percent increase over the volume exported in fiscal year 1989. The volume of Alaskan pulp exports remained close to the record high of fiscal year 1989, although an 8 percent price drop reduced the total dollar value to $203 million.

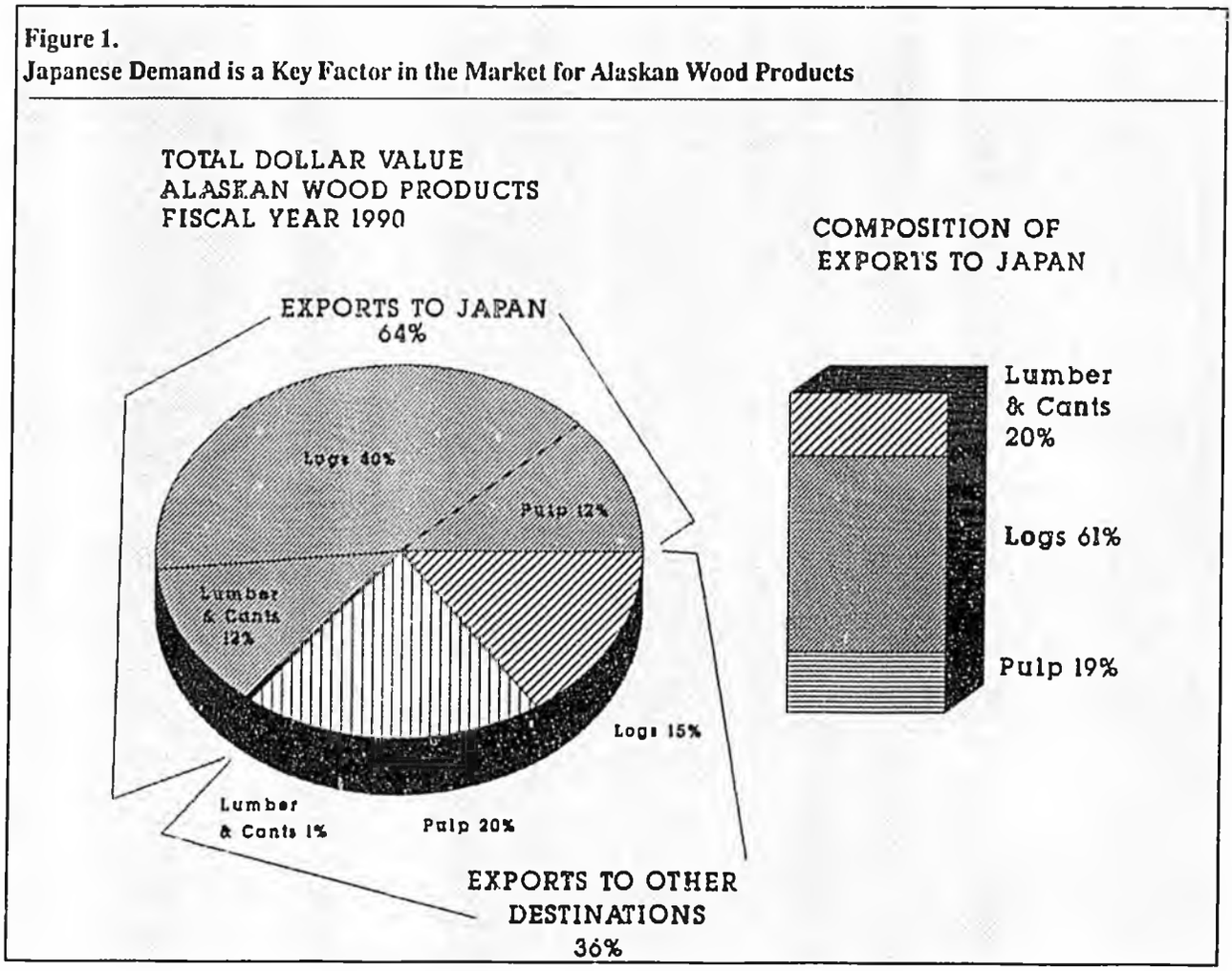
Timber Industry Employment Continues to Grow

A major objective of the Alaska National Interest Lands Conservation Act (ANILCA) was to maintain timber supply availability for the Southeast Alaska timber industry, thereby stabilizing employment in local communities and diversifying the region's economic base. To a large extent, the employment objective was met again in fiscal year 1990. Logging , sawmill, and pulpmill employment reached a peak of 3543 jobs, a 30 percent increase relative to fiscal year 1981. Economic linkages with other industries supported an additional 2570 jobs. Because of the mandate to process National Forest timber within Alaska, most of the 1399 jobs provided by sawmills and pulpmills are linked to timber supplies from the Tongass.

Japan Dominates Market for Alaskan Timber

Japan remained the primary destination for Alaskan wood products, and accounted for over 64 percent of the total export value of wood-based commodities in fiscal year 1990. The uncommonly high level of economic activity in Japan and favorable yen/dollar exchange ratio throughout fiscal year 1990 kept demand for Alaskan wood products high. Approximately 97% of Alaska's lumber and cant exports were shipped to Japan along with 37% of the exported pulp and 72% of the exported logs (Figure 1).

Figure 1.
Japanese Demand is a Key Factor in the Market for Alaskan Wood Products



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INTRODUCTION

Covering 16.9 million acres, the Tongass is the largest Forest in the National Forest System and contains an important share of the nation's renewable and nonrenewable natural resources. Planning and on-going management of the Tongass present challenges of equal scale and complexity. As part of its mission, the Forest Service administers programs of timber management and forest renewal intended to further the national objective of ecosystem sustainability while providing commodity resources that stabilize employment and income in local communities. Timber harvest in Southeast Alaska dates back to the early 1900's, and the wood products industry is well-integrated into the economies and lifestyles of many communitites. Over the years, the timber industry has survived the fluctuations of a cyclical market, expanded international exports to include some thirty nations, and employed technological advances to maintain market share in the face of increased competition.

The sections to follow continue a ten-year series of reports documenting the role of the Tongass National Forest in the Alaskan wood products industry. First, the significance of the Tongass as a supply source for the wood products industry is examined. Second, timber and wood products flows and values for FY 1990 are presented, along with a discussion of the primary sources of demand for Alaskan wood-based commodities. Finally, the influence of the timber industry on the socioeconomic structure of Alaskan communitites is discussed.

ANILCA Section 706(a)

TIMBER SUPPLY

National Forest Contributions to Timber Supply

The Forest Service offered 334 million board feet (MMBF) for sale in Alaska during fiscal year (FY) 1990. This is 4 percent more than the volume offered in FY 1989. National forest timber harvest in fiscal year 1990 increased by 6 percent over 1989. Timber sale operators harvested 399 MMBF of sawtimber and 72 MMBF of utility grade logs, to result in a decade high harvest volume of 471 MMBF. Of this total, some 48 percent was used as sawlogs, 39 percent as pulp logs, and the remaining 13 percent was exported.

The FY 1990 short-term sale program on the Tongass demonstrated a fairly typical response to a rapid increase in stumpage prices. The volume sold was only 25 percent of the previous year's sales, dropping to a ten-year low of 22.7 MMBF. The volume harvested, however, reached a high of 149 MMBF. The difference came from the harvest of timber under contract, reducing timber backlog to the lowest point in a decade (Table 1). The volume offered under the short-term sale program was 40 percent less than that of FY 1989.

The volume offered under the two remaining long-term sales increased by 19 percent to 287 MMBF. Harvest under the long-term sales remained at the previous year's level of about 250 MMBF.

Total Timber Harvest

The total volume of timber harvested in the State of Alaska dropped by 2 percent in FY 1990, reversing the trend of increased harvest observed since 1985 (Table 2). Total timber harvest in Southeast Alaska was 992.2 MMBF while harvest in Southcentral Alaska was 107.1 MMBF.

Private timber harvest (including that of the Southeast Alaska Native corporations organized under the Alaska Native Claims Settlement Act) fell by 5 percent in comparison with last fiscal year and accounted for 56 percent of the total harvest. The sawlog harvest from private timberlands in Alaska was approximately 547 MMBF and the pulp log harvest roughly 67 MMBF. Of this total, some 93 percent was exported and the remaining 7 percent was used as pulp logs.

Table 1. Volume of Timber Offered, Sold and Harvested on the Tongass National Forest, Fiscal Years 1988-90 (all volumes in MMBF, net sawtimber)

		1988	1989	1990
Short-Term Sales				
	Volume Offered	82	79	47
	Volume Sold	62	82	23
	Volume Harvested	83	126	149
Long-Term Sales				
	Volume Offered (Prepared)	255	242	287
	Volume Sold (Released)	234	172	263
	Volume Harvested	249	251	250
Total Volume Offered		331	321	334
Total Volume Sold		296	254	286
Total Volume Harvested		332	377	399

Note: The activities related to the long-term contracts are somewhat different than those of the short-term sale program. The following clarifications are provided in reference to the figures reported above.

Volume Offered- Under the short-term contracts, this refers to advertised volume. The volume fully prepared and available is reported here as a comparable measure for the long-term contracts.

Volume Sold- Under the short-term contracts, this refers to the volume awarded to purchasers. The volume formally released to contract holders is reported here as a comparable measure for the long-term contracts.

Table 2. Timber Supply in Southeast and Southcentral Alaska
Harvest and Import by Source and Type of Timber, Fiscal Years 1982-1990 1/

	1982	1983	1984	1985	1986	1987	1988	1989	1990
	(In million board feet, log scale)								
Southeast									
Public									
Tongass N.F.									
Sawtimber	326.6	220.0	226.7	162.5	251.4	282.0	331.5	377.0	399.0
Utility[2/]	43.8	30.0	34.0	69.5	39.1	54.2	64.7	67.6	72.0
State of Alaska[3/]									
Sawtimber	30.1	21.8	16.9	4.2	12.2	19.5	16.8	11.4	11.1
Utility	0.0	0.1	0.5	0.5	0.2	0.3	0.0	0.1	1.0
BIA	2.8	3.1	1.1	0.1	0.0	0.0	0.0	3.5	0.0
Private[4/]									
Export Sawlogs	137.0	249.3	202.3	225.3	295.9	286.1	286.4	419.8	441.7
Pulplogs	19.6	54.3	88.0	61.0	58.8	124.8	121.3	109.9	67.4
SE AK Sawlog Harvest	496.5	494.2	447.0	392.1	559.5	587.6	633.2	811.7	851.8
SE AK Total Harvest	559.8	578.6	569.5	523.1	657.7	766.9	819.3	989.2	992.2
Imports									
Sawlogs	3.1	21.1	5.7	7.8	24.4	5.7	0.1	1.8	1.2
Pulpwood logs	0.0	2.0	38.0	11.9	22.1	5.1	6.8	1.9	0.0
Wood chips[5/]	0.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0
SE AK Wood Supply	562.9	601.7	628.8	542.8	704.2	777.7	826.2	992.9	993.4
Southcentral									
Public									
Chugach N.F.	0.4	1.1	0.5	0.7	0.8	0.7	1.0	1.1	1.0
State of Alaska									
Sawtimber	1.4	0.8	0.8	0.5	1.0	1.1	0.5	0.5	0.4
Utility	0.8	27.8	2.3	1.8	0.8	0.8	1.6	1.6	0.6
Private									
Export Sawlogs	21.2	ne	ne	ne	ne	44.2	79.2	120.0	105.1
Pulplogs	ne	ne	ne	ne	ne	0	6.4	0.0	0.0
Southeast and Southcentral Alaska									
Harvest Sawtimber	519.5	496.1	448.3	393.3	561.3	633.6	713.9	932.4	958.3
Harvest Total	583.6	608.3	573.1	526.1	660.3	813.7	908.0	1112.4	1099.3
Wood Supply	586.7	631.4	632.4	545.8	707.3	824.5	914.9	1116.1	1100.5

1/ The Federal Fiscal Year extends from October 1st to September 30th of the following year.

2/ The Forest Service requires the harvest and removal of utility volume which is in addition to the 450 MMBF Allowable Sale Quantity (ASQ) calculated in the Tongass Land Management Plan (TLMP). The ASQ is based on net sawlog volume.

3/ Based on new information, State harvest totals have been updated for all years. The adjusted figures reported here supersede the figures displayed in previous year's reports.

4/ Estimate. Sources were not found for certain years or ownerships and are not estimated (ne). Some of the private harvest reported in fiscal years 1982-86 for southeast Alaska originated from southcentral Alaska, but data were not available to separate the two regions from the estimated total.

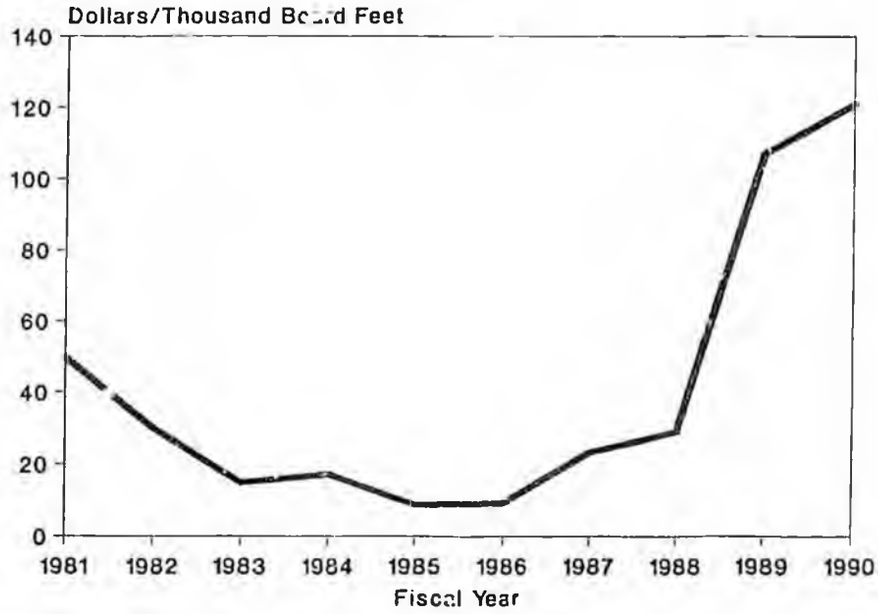
5/ Compiled from official statistics of the U.S. Department of Commerce. Commerce reports pulpwood imports and wood chips imports in short tons. Cords are converted to log scale at a ratio of 2 cords per thousand board feet(MBF). Wood chips are converted to log scale at a ratio of 2.7 short tons per MBF.

Harvest from other public lands (both federal and State) remained at 13 MMBF. The bulk of this timber is used as pulp logs.

There are four sources of timber for processors in Southeast Alaska: The Tongass National Forest, private timberlands, other government timberlands, and timber (and chip) imports (Table 2). The largest volume of the timber harvested in Southeast Alaska goes into the export market as logs, while the second largest use is for pulp. The sawlog market is the third largest market. Federal timber is used to make dimension lumber and dissolving pulp. A small volume (about 60 million board feet in FY 1990) of federal timber, mostly western red cedar and Alaskan yellow cedar, is sold as log exports. Timber from private timberlands is exported as logs or sold to the local pulp mills.

Finally, stumpage prices for National Forest sales (all convertible products but excluding long-term sales) in Alaska continued to rise in FY 1990 reaching their highest level in more than a decade (Figure 2). A contributing factor was the general increase in stumpage prices in the Pacific Northwest during the spring and early summer of 1990. These increases were attributed to supply restrictions associated with new plans for some of the National Forests in the Pacific Northwest along with numerous attempts to define and implement a conservation strategy for the Northern spotted owl, discussed later.

Figure 2.
Stumpage Prices for National Forest Timber Sold in Alaska



DEMAND FOR ALASKAN TIMBER AND WOOD PRODUCTS

Importance of Export Trade to Alaskan Economy

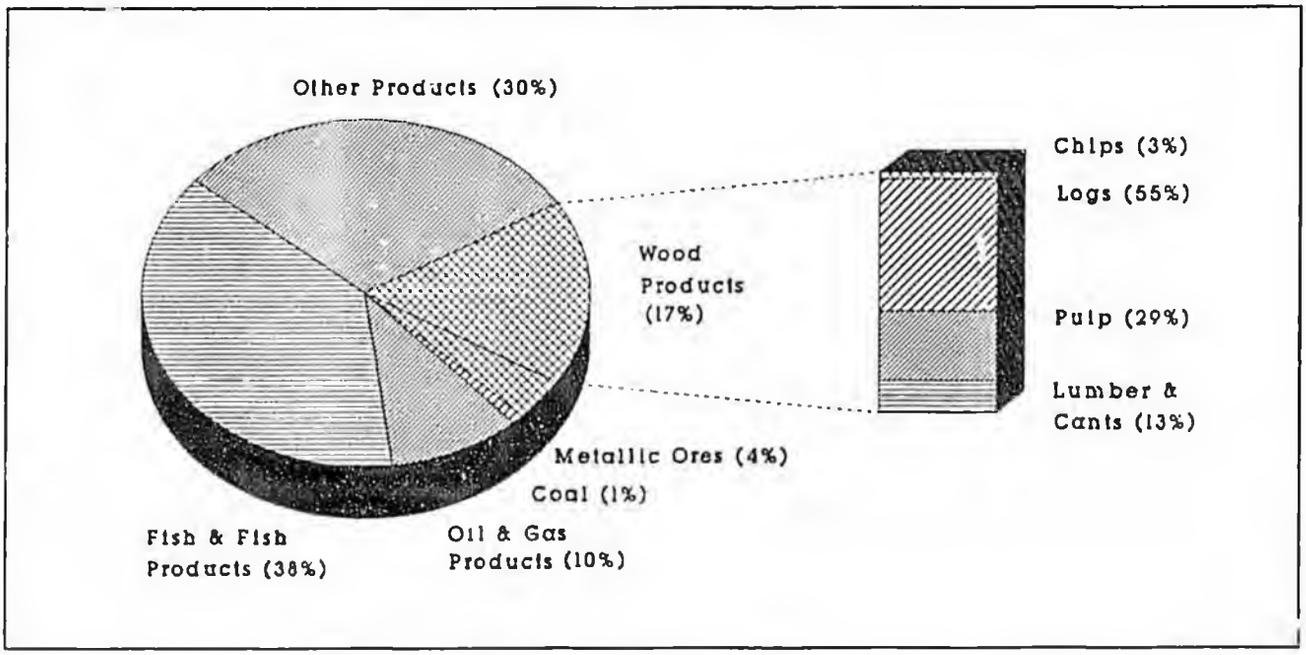
The abundance of natural resources and minimal industrial development in Alaska contribute to a reliance on export trade for the State's larger industries. Alaska exports a larger share of its total production relative to the United States as a whole. In 1986, the dollar value of the total output of goods in services in Alaska was $19.6 billion[1]. Commodity exports represented 6.6 percent, or $1.3 billion. In comparison, commodity exports represented 5.4 percent of the total United States production. It is important to note that Alaska is even more reliant upon dollars from outside the State than these figures would suggest. The sale of North Slope oil to the rest of the United States and income accruing from both international and domestic tourism activity are significant trade components as well.

The value of international exports from Alaska exceeded $3.3 billion in 1990. The greatest dollar value of international trade was generated from the export of fish and fish products (38%) followed by wood products (17%), oil and gas (10%), metalic ores (4%), and coal (1%) (Figure 3).

Alaska plays a significant, although far from dominant, role in world markets for wood products. Exclusive of Canada-United States trade, Alaska accounts for about six percent of the softwood logs moving into Pacific Rim markets (Haynes and Brooks 1990), and about five percent of the softwood lumber. Both percentages have been static for several years, with exports of Alaskan logs and lumber keeping pace with (roughly) a 25-percent increase in Pacific Rim supply and consumption. The market for Alaska's dissolving pulp is global and represents about 22 percent of the export trade to major consuming countries, including states in the Lower 48 (Haynes and Brooks 1990).

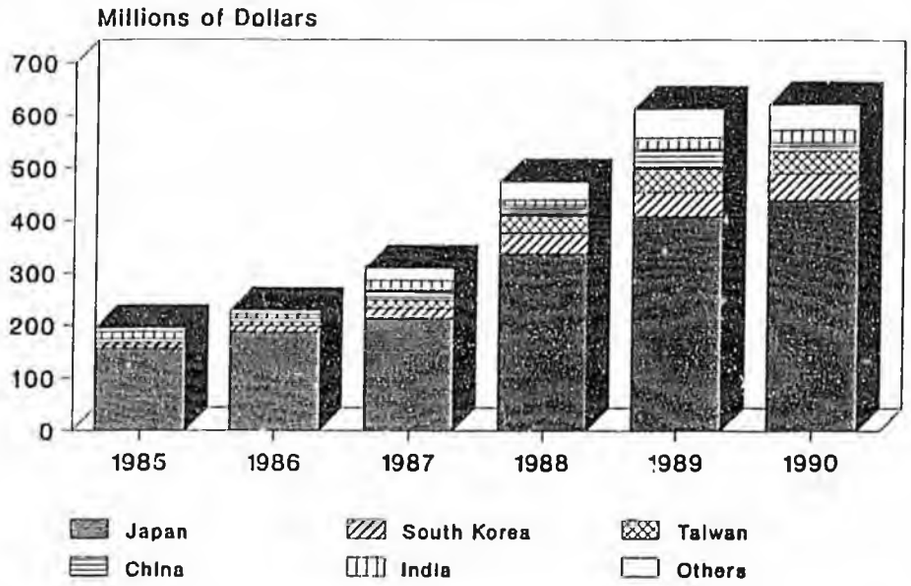
Overall, most of Alaskan pulp production and virtually all of the lumber manufactured go overseas, with some thirty nations represented among the purchasers (Figure 4). National Forest logs provide most of the basis for these flows, as private logs move largely into offshore markets as roundwood.

Figure 3.
Value of Alaskan Exports in 1990 (Percent Distribution)



1 The gross market value of the goods and services attributable to labor and property located in a state is referred to as Gross State Product (GSP). Annual estimates of GSP for each state are reported by the Bureau of Economic Analysis (BEA). As more recent data has not yet been released by BEA, the 1986 estimates were used in this report.

Figure 4.
International Export of Alaskan Wood Products by Primary Destination



The 1990 Market for Alaskan Wood Products

FY 1990 was a time of relatively strong demand for Alaskan wood products, despite a leveling in the growth rate of construction activity in Japan and the lowest activity in U.S. housing since the deep recession of 1982. Although log exports dropped by 4 percent, total volume still exceeded 600 million board feet; more than a four-fold increase in a ten-year span (Figure 5). Total exports of lumber and cants from Alaska in 1990 reached a decade high of 225 million board feet, about a 25-percent increase relative to 1989 (Figure 6). The market for pulp, however, was not as strong and the volume exported dropped by nearly 15 percent (Figure 7).

Figure 5.
International Export of Alaskan Softwood Logs

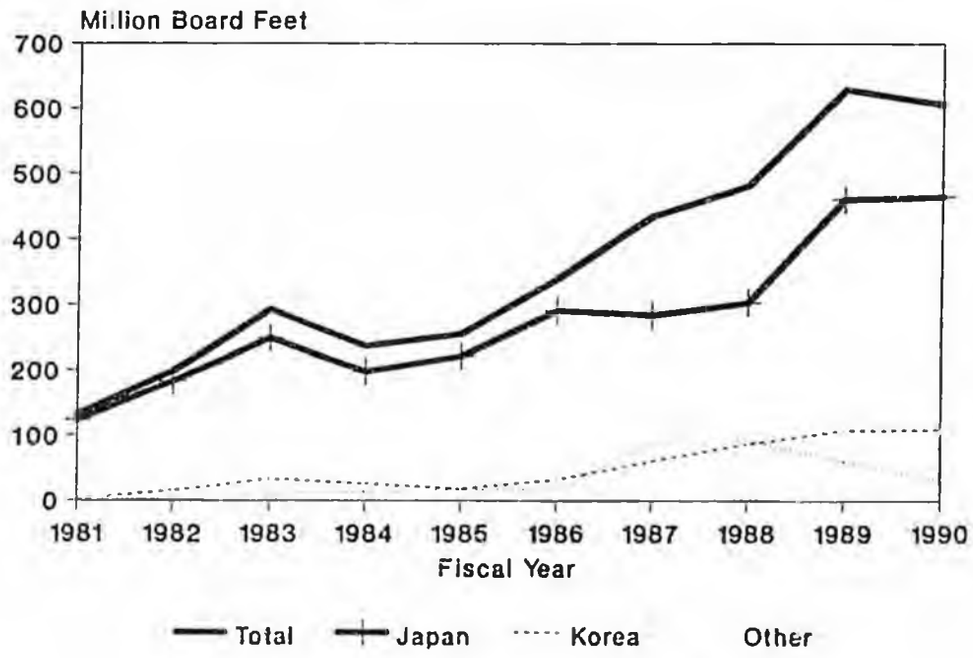


Figure 6.
International Export of Alaskan Lumber and Cants

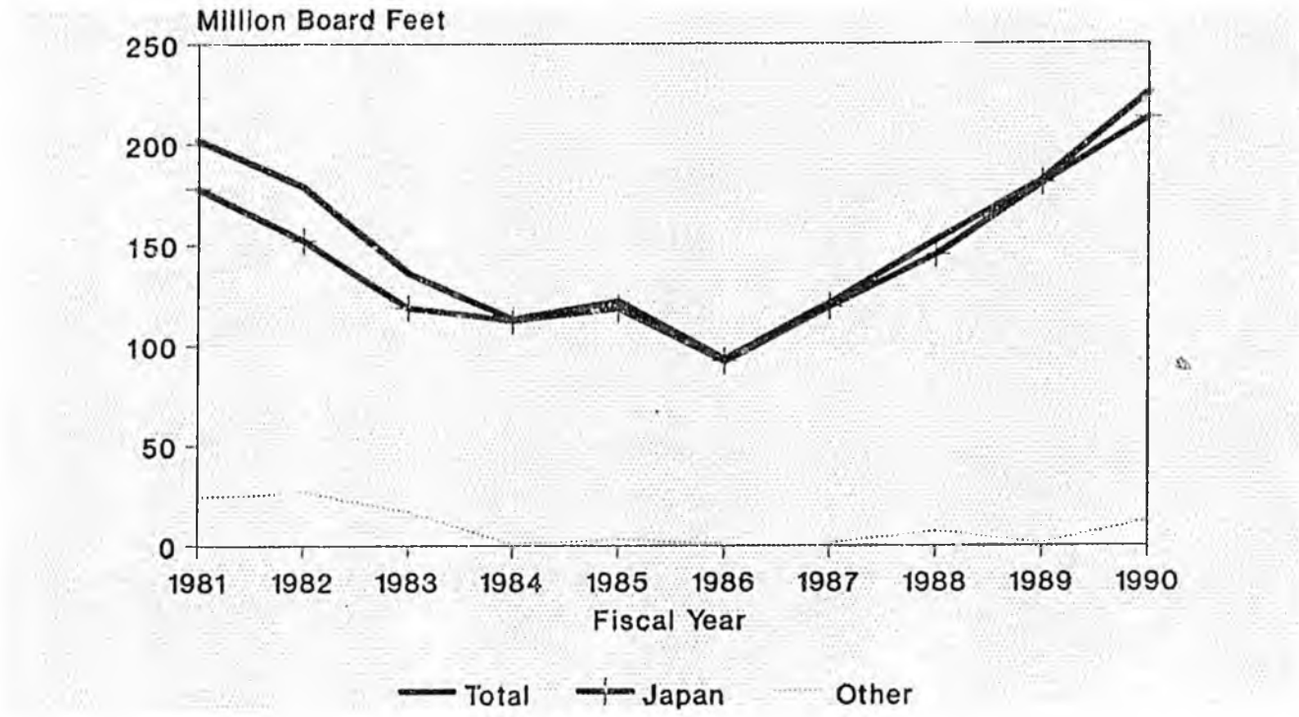
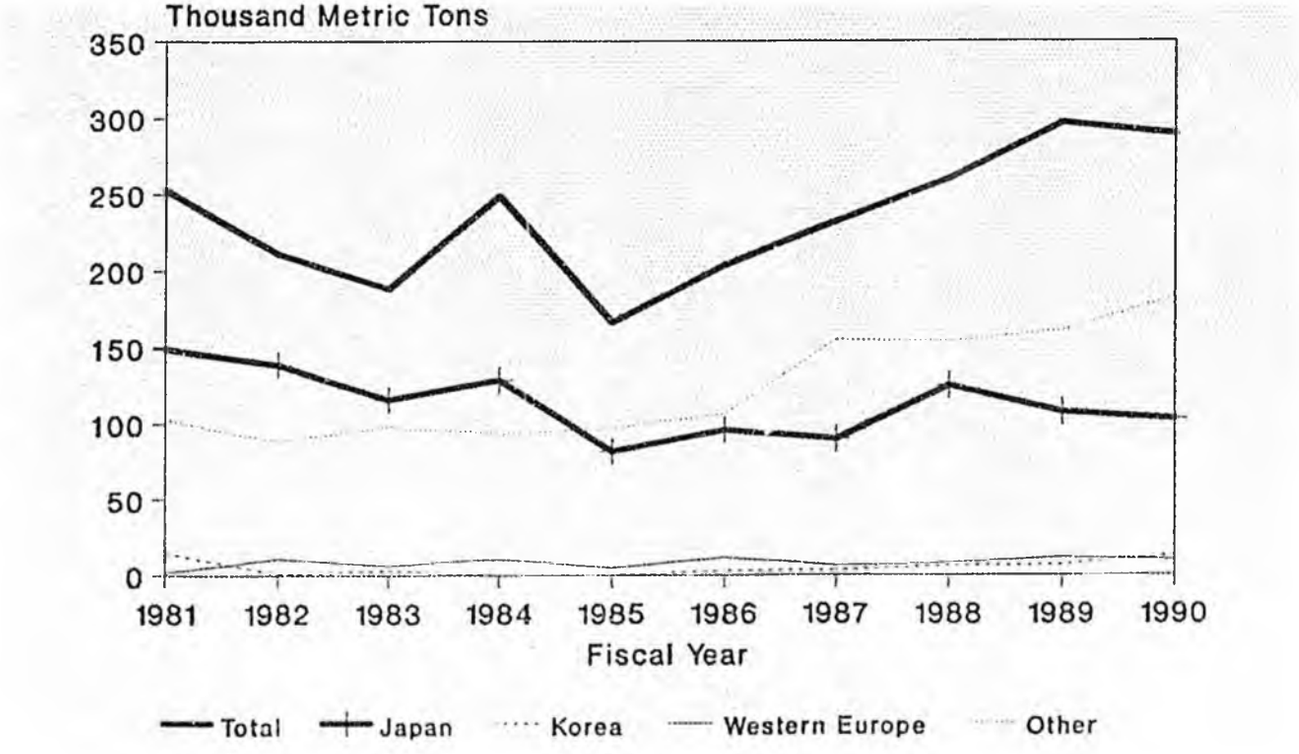


Figure 7.
International Export of Alaskan Pulp



The combined value of all exported Alaskan wood products was over 600 million dollars for the 1990 fiscal year. At $578 per thousand board feet (log scale), the average value of Alaskan softwood log exports was 17 percent above 1989 prices. Export values for lumber and cants remained strong at $378 per thousand board feet (lumber tally), dropping only 3 percent from the record prices of 1989. The value of exported pulp dropped 5 percent from 1989 prices to an average of $703 per metric ton for the fiscal year (Table 3).

Following a period of decline at the start of the year, prices for exported Alaskan lumber increased during the fourth quarter of FY 1990. The increase presumably reflected the rising value of the yen and scarcity factors in North America. Average prices of exported Alaskan logs increased throughout most of the fiscal year but fell slightly in the last quarter; the drift downward corresponding to an overall reduction in economic activity. Log prices rose by about ten percent early in the year and then receded by about five percent.

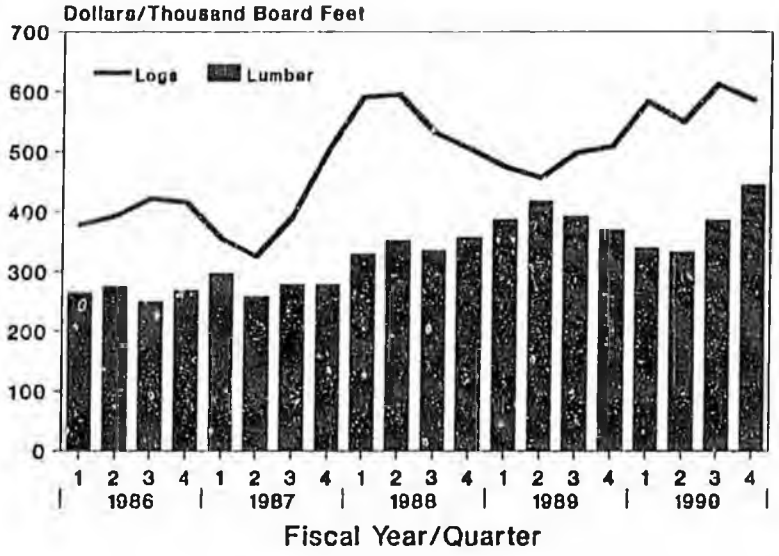
Table 3. International Exports of Alaskan Wood Products Fiscal Years 1981-1990

Product/Unit[1]	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
					Softwood Logs					
Volume (MMBF)	130.1	197.5	292.6	237.6	258.6	340.3	436.1	482.2	629.6	606.6
Value ($millions)	68.4	95.4	128.3	97.1	99.6	137.9	179.6	261.6	310.3	350.9
Unit Value ($/MBF)	526	483	439	408	385	405	412	543	493	578
					Lumber and Cants					
Volume (MMBF)	202.5	178.6	136.0	113.3	122.0	93.5	121.0	152.5	182.3	225.5
Value ($millions)	60.3	62.5	45.5	32.2	32.5	24.7	33.9	52.1	71.0	85.3
Unit Value $/MBF	298	350	334	284	266	264	280	342	389	378
					Woodchips					
Volume (Mton)	60.5	84.8	19.0	10.5	4.5	0	0	10.4	77.9	18.2
Value ($millions)	5.5	6.4	1.3	.3	.4	0	0	.6	3.6	1.4
Unit Value ($/ton)	90	75	66	32	98	0	0	54	46	78
					Woodpulp					
Volume (Mton)	252.9	211.0	188.5	249.2	166.5	203.8	232.0	260.4	296.9	289.3
Value ($millions)	135.7	113.3	94.8	127.3	72.0	85.4	113.9	160.4	227.7	203.4
Unit Value ($/ton)	537	601	503	510	433	419	492	616	767	703
TOTAL VALUE ($millions)	269.9	277.6	269.9	256.9	204.5	248.0	327.4	474.7	612.7	641

[1] Volumes exported are reported as millions of board feet (MMBF) or thousands of metric tons (Mton). Values are free along ship (FAS) in millions of nominal dollars. Unit values are dollars per unit.

Source: Compiled from official statisitics of the U.S. Department of Commerce (1990).

Figure 8.
Quarterly Average Prices of Exported Alaskan Logs and Lumber

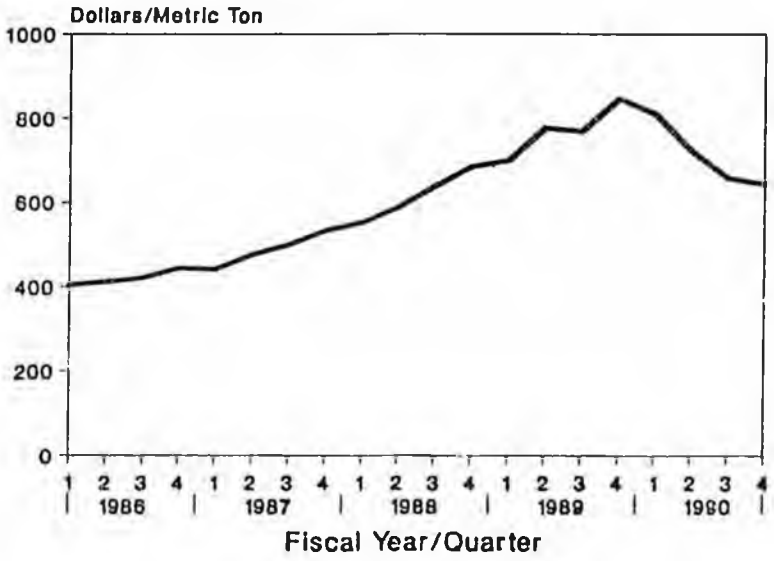


Five-Year Trends

Figure 8 tracks quarterly price averages for exported Alaskan logs and lumber, since 1986. The upward trend, about 50 percent for logs and about 40 percent for lumber over the period, substantially exceeded the average rate of inflation-based price increases for other U.S. producer goods. During these five years on the uphill side of an economic cycle, solid-wood products became more valuable in Alaska and more costly to offshore purchasers, at least in terms of U.S. dollars.

The average price of dissolving-grade pulp leaving Alaska increased by about half over the five-year span (Figure 9). The increase is attributable to growing demand for rayon and acetate fabrics and for paper-grade pulps (Durback, USDA Forest Service 1989). The former change presumably reflected changing consumer tastes in clothing materials as well as rising consumer affluence; the latter trend coincided with an upward economic cycle.

Figure 9.
Quarterly Average Prices of Exported Alaskan Pulp



Japan, Major Destination

Japan remains the principal customer for Alaskan wood products. As shown in Table 4, 72 percent of logs and 95 percent of lumber exports were purchased by Japan in FY 1990. The Japanese share of pulp exports was 38 percent; this was the largest single foreign destination (Table 5).

Table 4. Alaskan Log and Lumber Exports
Value by Destination and Fiscal Year
(Thousands of dollars)

	1986	1987	1988	1989	1990
Softwood Logs:					
Australia	0	0	0	35	150
Canada	1,707	1,564	9,840	9,313	8,625
China	745	0	3,775	3,229	3,735
Germany	0	0	0	17	0
Israel.	0	0	37	0	0
Japan	91,415	126,466	148,874	211,393	252,323
South Korea	5,778	9,613	16,595	33,833	41,315
Taiwan	0	293	529	3,778	4,335
Turkey	0	0	0	246	0
World	137,935	179,645	261,643	310,348	350,873
Lumber and Cants:					
Japan	24,290	33,506	48,385	70,309	80,178
South Korea	315	61	2,754	559	732
World	24,657	33,704	52,116	70,985	82,898

Source: Compiled from official statistics of the U.S. Department of Commerce.

General economic activity was uncommonly high in Japan during FY 1990. Gross national product was 5-1/2 percent above the previous year. Industrial production rose 2 percent, to the highest level since World War II.

For the year as a whole, housing starts in Japan were at the third highest level in the nation's history in 1990, exceeding the U.S. level by half. However, the Japanese rate was peaking, with the all-year rate 2.7 percent above 1989's, while the first six months were more than four percent above the same period of 1989. By late 1990, the world recession was being felt, with housing starts several percentage points below late 1989.

Table 5. Alaskan Pulp Exports
Value by Destination and Fiscal Year
(Thousands of dollars)

	1986	1987	1988	1989	1990
Argentina	1,326	1,239	1,341	0	0
Austria	0	103	0	0	0
Bangladesh	0	795	0	0	845
Belgium/ Luxemburg	1,725	2,032	1,198	4,307	2,479
Bulgaria	531	246	0	0	0
Canada	0	0	354	0	68
China	7,572	14,436	16,842	33,929	18,928
Czechoslovakia	0	0	47	302	3,790
Egypt	5,343	3,122	5,621	7,563	11,216
France	0	0	0	377	200
Germany	1,610	931	2,171	3,276	3,122
Hong Kong	0	372	0	0	0
Hungary	0	0	0	38	0
India	6,837	18,401	9,043	21,192	25,214
Indonesia	1,500	3,500	2,433	1,998	6,366
Japan	42,677	45,340	77,010	82,079	76,686
Netherlands	117	112	0	0	0
Poland	0	1,394	4,294	6,780	4,279
South Korea	1,103	1,418	3,282	4,684	7,061
Soviet Union	3,271	4,015	5,247	10,472	7,186
Spain	1,571	0	1,271	773	1,034
Switzerland	0	0	0	9	0
Taiwan	8,180	16,946	28,880	40,237	32,439
Thailand	2,210	1,912	2,579	5,859	2,320
Turkey	0	0	0	0	25
United Kingdom	0	0	0	73	133
World	85,363	113,924	160,397	227,713	203,391

Note: Alaskan pulp is also shipped to buyers in the Lower 48 states. Traditionally, this market has accounted for 5-10% of total production.

Source: Official statistics, U.S. Dept. of Commerce

The value of the yen, relative to the U.S. dollar, changed markedly during FY 1990, first falling and then rising. The changes added to the instability of markets and uncertainty for Alaskan sellers. The yen declined about 12 percent during the first six months of FY 1990, followed by a rise of about 23 percent. These changes contributed to a rise in yen prices of North American lumber, followed by a slight decline. However, the price movements coincided with a buildup and decline in log inventories in Japan, so the specific importance of currency values cannot be deduced clearly.

South Korean Potential

South Korea is becoming an important customer for Alaskan roundwood. In FY 1990, 18 percent of Alaskan log exports were bound for South Korea. The volume increased by 3-1/2 times relative to FY 1986.

The diversity of South Korea's wood quality needs is similar to the range of Alaskan offerings. Like Japan, South Korea produces pianos and other goods using Alaska's high-quality spruce (Kim and others [in press]). At the other end of the spectrum, South Korea is well-known for its imports of low-grade softwoods, exemplified by "K-sort" logs from the Pacific Northwest and packaging-grade radiata pine from Chile. Whether South Korean interest will shift to lumber as (exportable) private log supplies diminish in Alaska, is not yet clear.

South Korea's economy grew by 9 percent in 1990, one of the world's fastest growth rates, suggesting sustained strong demand for softwood products. Over the course of a single generation, South Korea has moved from an agrarian subsistence-level country to a newly-industrialized society with a per-capita income of $5,000. National income has doubled, in real terms, in just seven years. The country now has one of the largest economies in Asia. Much of that growth has been founded on manufactured exports, with most imported wood exported as finished goods and packaging. With rising incomes, South Koreans have begun enjoying amenities, including wood-based housing.

Demand and Timber Quality

The broad spectrum of Alaska's timber values is rivaled only by British Columbia's. Timber in Southeast Alaska ranges from large, knot-free Sitka spruce (Picea sitchensis (Bong.) Carr.) whose premium logs are valued at several thousand dollars per thousand board feet; to construction-grade spruce and hemlock (Tsuga heterophylla (Raf.) Sarg.) trees of small size, many with internal decay. Within this range lie many marketing options and challenges, the latter because of competing sources abroad (Brooks 1989, Flora and others 1991 a and b, Flora and McGinnis 1989, Flora and Vlosky 1986). Because of opportunities to avoid defects and select product dimensions, sawmilling tends to raise the quality of products, giving additional meaning to the phrase "value-added". Thus a small tree with substantial taper, typical of southeast Alaska's northern reaches and upper elevations, may yield highly valuable tight-grained lumber. In this respect, Alaska's fine-grained smaller trees compete in Japan with Soviet logs; and because federal timber cannot be exported in round form, Soviet logs tend to displace Alaskan national-forest cants from small trees.

The majority of Alaska's timber exports, lumber and logs, are in the middle grades, termed "performance grades" here and elsewhere (Flora and McGinnis 1989, Haynes and Brooks 1990). Performance-grade logs are characterized by substantial length, small knots and little defect; they compete with number 2 sawlogs from the Pacific Northwest. Lumber from such logs, both spruce and hemlock, faces competing supplies from British Columbia and the Pacific Northwest. Nonetheless, because of its prominence in Alaska's inventory and the paucity of competition in this class outside North America, most of Alaska's 1990 log exports represented performance grades. Alaska's lumber exports were at this quality level or above.

MARKET DYNAMICS

This report is concerned primarily with Alaskan timber circumstances in FY 1990. However some supply and demand factors evolving in 1990 will bear heavily on Alaska's markets in the near future.

The prominence of Southeast Alaska's old-growth forests in the world timber economy was increased in 1990 by two circumstances elsewhere in North America. First, attempts by Federal agencies to develop strategies to ensure survival of the northern spotted owl are likely to restrict timber management activities within the old-growth forests of Oregon, Washington and California. In addition, replanning of private and public cutting are already underway in these areas. The Pacific Northwest Research Station has estimated that the replanning and the emphasis on owl protection are likely to result in a price increase of 137 percent for export logs in the short run. It was estimated that export softwood lumber prices would rise about 116 percent. The above figures assume an 18 percent harvest reduction in the Douglas-fir region of Washington and Oregon from replanning and a 35 percent harvest reduction directly related to owl habitat provisions.[1] (Flora and McGinnis, 1991).

The second matter, also bearing on old-growth timber, was British Columbia's late-1989 return to a strict interpretation of its long-standing prohibition of log exports. During weak markets of the 1980s, certain locales and species had been exempted from the embargo. By late 1990, log exports from British Columbia had fallen by more than half, with the remainder largely attributable to harvests arranged earlier but not yet completed.

A third event was a Congressional embargo on log exports from most States in the West. Excepted were Alaska and one-fourth of Washington's harvests from State-owned lands. Although it was not to take effect until the start of 1991, the embargo was widely anticipated, causing market impacts well in advance.

Anticipation of all three developments probably produced larger inventories of North American logs abroad, and higher prices, than would otherwise have occurred in 1989 and 1990. The Canadian decision, for instance, could reasonably have been expected to raise prices of Canadian export lumber in 1990. There was also rapid growth in softwood lumber exports from the Northwest in 1986-90, based partly on growing Japanese reliance on cants from federal lands, the principal remaining source of old-growth timber. However sharp reductions in Canadian lumber exports to the United States, because of reduced housing demand, undoubtedly damped price movements. In any event, prices of Canadian lumber fell during 1990, prices of Pacific Northwest export lumber remained roughly constant, and Alaskan lumber followed the trajectory shown in Figure 8.

The possibility of a continuing world recession in demand for wood products has been raised by a number of analysts. 1989-90 has been widely seen as a cyclic peak in world wood-based construction activity. High interest rates in Japan, a lower-valued yen, and a trough in housing starts there may coincide to suppress demand for Alaska wood products of all kinds.

Meanwhile, competition from Soviet timber, mentioned earlier with respect to Japan, may be developing. During 1990, several U.S. firms were aggressively surveying timber prospects in the Soviet Far East and eastern Siberia, attempting to secure timber opportunities in especially favorable situations of timber quality and access, while dealing with profound uncertainties about regulatory and ownership circumstances, as well as the likelihood of competition from other countries aiming at developing Soviet resources. Several Pacific Rim countries tentatively plan wood-products investments in the Soviet Union.

U.S. involvement was complicated in 1990 by concerns about the possibility of introducing Soviet forest pests into North America, a matter that came under intensive inter-agency federal study. Whatever the outcome, increased shipments to the Pacific Rim of Soviet timber, whether as logs, lumber or plywood, would have some impact on markets for lower-grade timber everywhere, via a domino effect. Possible effects on prices and U.S. shipments are described elsewhere (Flora and others, 1991a).

Equally uncertain are the prospects for competition for Alaskan wood products from radiata pine (Pinus

1 In mid-1991 the USDI Fish and Wildlife Service expanded by three million acres the area of forest land viewed as habitat critical to maintenance of owl populations in the Pacific Northwest. A great deal of uncertainty persists as to the location and type of timber management activities to be permitted within designated habitat areas. As a result, the impacts of implementing owl strategies are speculative. In particular, the effect on the market for Alaskan wood products will depend on how such environmental actions are perceived internationally. The possibility of similar environmental actions in Alaska could reduce the State's appeal as a source of timber to replace that no longer available from the Pacific Northwest.

radiata) originating in Chile and New Zealand (Brooks 1989, Flora and others 1991a, Haynes and Brooks 1990). In Chile, harvests increased by half in the three years ending in 1988. Together, the two countries may double harvests in the decade after 1990 (Haynes and Brooks 1990). In the late 1980s, their joint harvest was about 23 million cubic meters annually, or about four billion board feet. A key question is whether pine lumber and logs, with the especially wide growth rings associated with fast growth, will compete in the same markets as Alaska's construction-grade timber. Meanwhile, Japan, Korea and China are significant importers of radiata pine.

During 1990, China increased significantly its capacity to import wood products. Although Alaska did not participate significantly in that market, U.S. softwood log shipments to China were at the annual rate of one-half billion board feet in the last quarter of FY 1990. This was about half the level of 1988, but almost twice the level of third-quarter 1989. China's foreign exchange was growing rapidly at the end of 1990, suggesting further improvement in markets there for basic construction materials. Developments in China may have been among the most dynamic market features of Pacific Rim softwood demand in 1990.

TIMBER AND THE ALASKAN ECONOMY

Employment in the Wood Products Industry

A relatively strong market for Alaskan wood products in FY 1990 resulted in record employment for the industry in Southeast Alaska (Table 6). Total industry employment was estimated to be 3543 jobs. Employment in both logging and sawmills increased in comparison to 1989, although at a slower rate than in previous years. Pulp mill employment declined slightly, dropping back down to the 1988 level.

Economists sometimes use a multiplier to help express the effect that a firm or industry has on a the economic activity of a region. The actual size of the multiplier varies depending upon the availability of the goods and services required by the industry to operate and the portion of the total payroll that is actually spent in the area. Multipliers for Southeast Alaska are smaller than those of metropolitan areas with greater industrial capacity and a larger resident labor force. Nevertheless, when the multiplier concept is applied, the total number of jobs related to timber harvesting is significantly more than the employment reported for the wood products industry alone. An estimated 2570 additional jobs are indirectly supported in other industries such as construction, towing, stevedoring and numerous retail and service outlets.

Table 6. Employment in the Wood Products Industry of Southeast Alaska Fiscal Years 1981-1990.

EMPLOYMENT	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Logging	1047	991	1010	946	1004	1239	1545	1981	2113	2144
Sawmills	605	540	429	395	363	331	375	468	478	500
Pulpmills	1081	975	854	700	580	772	861	892	925	899
Total Direct Employment1/	2733	2506	2293	2041	1947	2342	2790	3341	3516	3543
Indirect and[2/] Induced Employment	2125	1950	1800	1600	1500	1825	1950	2350	2550	2570
TOTAL	4858	4456	4093	3641	3447	4167	4740	5691	6066	6113

1/ Source. Alaska Department of Labor and USDA-Forest Service, Alaska Region

2/ These estimates were generated with the computer simulation model IPASS, developed for the Forest Service to analyze the effects of agency management initiatives and investments on employment and earnings in Southeast Alaska. The distinction between direct and indirect employment is a function of the Standard Industrial Classification (SIC) system underlying the collection and grouping of the Federal economic statistics embedded in the model. In this context, the term "direct employment" refers to the number of jobs reported for each industry under its corresponding SIC code. The term "indirect employment" refers to the number of jobs reported under the SIC codes corresponding to the industries from which purchases are made throughout the production process. "Induced employment" refers to the additional number of jobs that are supported when the wages and salaries of these employees are spent locally. Direct employment provides the best indication of the growth of an individual industry while the sum of all three categories is a better indication of the significance of any one industry to the region's economy.

Private timberlands are not subject to the requirement for primary manufacture that restricts the export of most logs from the Tongass. Therefore, almost all of the private timber harvested moves directly into the international market for softwood logs. As a consequence, most of the 1399 jobs provided by the pulp mills and sawmillls in Southeast Alaska are linked to timber supplies from the National Forest. Figure 10 shows that timber cut from lands open to log exporting generates about 3.5 jobs per million board feet harvested annually. This includes the indirect employment as described above. For timber cut on the Tongass, the number of jobs supported per million board feet of annual harvest is estimated at 8.7. The mandate for domestic processing generates 2-1/2 times as much employment per unit of wood in comparison to logs exported in the round.

As illustrated in Figure 11, logging employment is at a decade high but it is subject to wide fluctuations that are closely linked to changes in annual harvest volume. Over the last five years, the number of logging jobs has more than doubled with the resurgance of harvest on National Forest lands and the continued high level of harvest on timberlands owned by the Native corporations. It is not likely that employment will remain at this level because harvest on private timberlands is expected to decline considerably over the next few years (ADOL, "Alaska Economic Trends", June 1991). Because of the remote location of logging operations and the mobility of the work force, the secondary impacts of changes in logging employment are smaller in relation to other components of the wood products industry.

Figure 10.
Total Employment Estimates
National Forest vs Export-Oriented Harvest

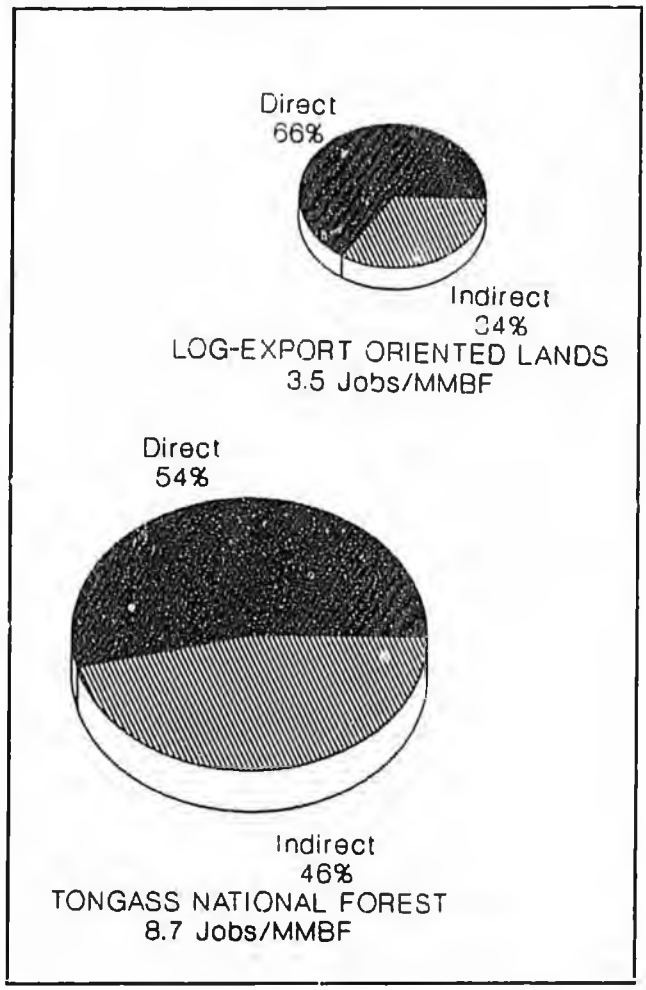
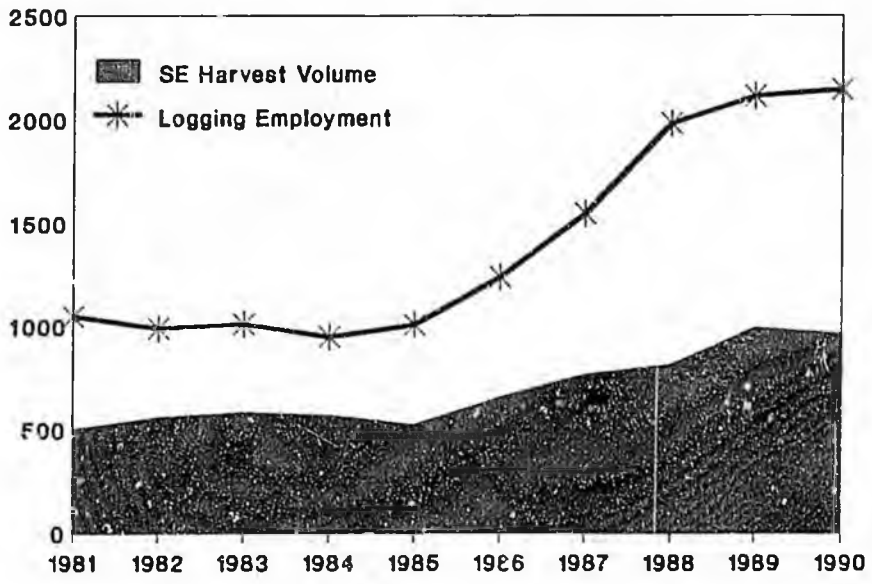


Figure 11.
Timber Harvest and Logging Employment
Southeast Alaska 1981-1990



Pulp Production in Alaska

Two pulp mills, one operated by Alaska Pulp Corporation in Sitka and the other by Ketchikan Pulp Company in Ketchikan, were built in the 1950's. Long-term timber sale contracts guaranteed a supply of raw materials and helped to attract new industry to Southeast Alaska. The effort was initiated by the Federal Government and the Territory of Alaska to promote greater economic stability in the region.

> *"During the 1940's the region's economic base was all but wiped out. Gold mining was terminated in 1942. After decades of serious over exploitation, the salmon resource crashed -- average annual salmon harvests declined from 31 million fish in 1945-49 to 19 million fish in 1950-1976 and bottomed out at 8 million fish for 1977-79.*
>
> *The creation of the new forest products industry in 1954, therefore, was something of a rescue mission for the region's economy. The provisions of the fifty year contracts guaranteeing timber supply were essential to induce the substantial private investment required. The initial investment was over one hundred million dollars and further substantial investments were made for increasing capacity and modifying the processes. This made it the largest private investment in Alaska since the Morgan-Guggenhiem investment in copper and a railroad in the first decade of the century. (Rogers, 1989)"*

The two firms continue to dominate the wood processing endeavors of Southeast Alaska and have employed a number of techniques to survive the economic fluctuations of the 1980's:

The same characteristics that provide for stable employment make it difficult for the pulp mills to be responsive to market shifts. The extensive capital investment represents a fixed cost that cannot be altered in the short-term. Also, the nature of production is such that it cannot be adjusted incrementally; the plant must be run continuously or shutdown. The shutdown of either of the mills would have significant impacts on the communities in which they are located. The Ketchikan Pulp Company is ranked as the number ten firm in the State with regard to the number of people employed, and Alaska Pulp Corporation ranks twenty-second. Both are the single largest employers in their respective communities. Some flexibility is achieved by directing more logs to lumber production when the return on processing will be higher. The automated mill constructed at Ward Cove for KPC is illustrative of this symbiotic relationship; Wrangell Forest Products serves the same function for APC.

The pulp mills in Alaska were originally designed to produce high grade dissolving pulp, although they can produce paper grade pulp if market conditions warrant. Given the higher prices that dissolving grade pulp has traditionally commanded, and the availability of raw material which is suited to the production of dissolving pulp, there has been limited production of paper grade pulp to date.

In the world market, the Alaskan mills are at a competitive disadvantage for a number of reasons. Profit margins are reduced by the high costs of harvesting Alaskan timber. When viewed from a global perspective, United States regulations for environmental protection further increase operating costs. Finally, lawsuits threaten the continued availability of an adequate timber supply to maintain a consistent level of pulp production. The plans covering the current operating periods for both the APC and KPC contracts have been in litigation since they were approved by the Forest Service. Harvesting of a portion of the volume has been blocked by court order at various times in the lawsuits. Continued uncertainty as to the availability of raw materials may erode the confidence of world trade partners in the reliability of the Alaskan pulp supply.

FINANCIAL ANALYSIS OF THE TONGASS TIMBER SALE PROGRAM AND THE ECONOMIC IMPACTS OF THE TIMBER SALE PROGRAM ON SOUTHEAST ALASKA

Harvest and processing of timber from the Tongass National Forest provides employment in Southeast Alaska. Revenues from the Tongass timber sale program are shared by the federal government and the State of Alaska. The State of Alaska uses these shared revenues for schools and roads.

The Tongass Timber program is part of a long-term cooperative effort among the federal government, the State of Alaska and local government to provide greater economic diversity in Southeast Alaska and more year-long employment. The Forest Service established requirements to process National Forest timber in Alaska, including the construction and operation of pulpmills via long-term, 50-year timber sale contracts. Maintaining timber supply opportunities for the Southeast Alaska timber industry was a major objective of the Tongass Land Management Plan and the Alaska National Interest Lands Conservation Act. To a large extent the employment objective was met again in fiscal year 1990 -- logging, sawmill, and pulpmill employment in Southeast Alaska is now 30 percent greater than it was in fiscal year 1981 (Table 3).

Clearly, a constant supply of Tongass timber alone cannot assure the maintenance of ANILCA's timber employment objectives. Other controlling factors include exchange rates, the overall Pacific Rim demand for wood fiber and the competitiveness of timber suppliers outside the Tongass National Forest. But, it is certain that with an internationally competitive United States dollar and stable domestic economic growth, the demand for timber from the Tongass National Forest and other ownerships in Southeast Alaska has increased over the past three fiscal years. It is equally clear that Alaskan producers of wood products can survive, prosper and create new jobs in a positive macroeconomic environment which promotes exports from the United States. The Alaska Department of Labor has noted the success of Alaska's manufacturing sectors, and especially the wood products industry, to continue competing abroad and expanding employment.

"During the good market years of 1986 and 1987, the timber industry posted double digit percentage employment gains. This is strong growth under any circumstances, but especially considering the poor performance of the economy as a whole. In 1986, seafood processing was the only other industry to register any employment gains. Outside of the manufacturing sector, no other major industry groupings posted employment gains during 1986 or 1987. Without the strength of the manufacturing industry, the state's most recent recession would have been even worse."(Rae, 1988)

Timber Sale Program Information Reporting System

TSPIRS, which stands for Timber Sale Program Information Reporting System, is an information system developed by the Forest Service for evaluating the performance of timber sale programs on individual National Forests. Congress directed the Forest Service to develop and implement a timber sale cost accounting system. This request was in response to concerns about the efficiency of timber sale programs on the National Forests, especially those sale programs where costs were believed to exceed revenues. These are commonly called below-cost timber sale programs. At Congressional request, the Forest Service developed TSPIRS cooperatively with the General Accounting Office (GAO).

Presented in this section are the *Statement of Revenues and Expenses, Economic Account and Employment, Income, and Program Level Account* from TSPIRS for FY 1990 for the Tongass National Forest. A number of technical reports are available to Congress and the public which describe TSPIRS (GAO 1986, GAO 1987, USDA Forest Service 1987). Provided below is a brief description of the how the findings in TSPIRS are calculated and what the numbers mean. This description of TSPIRS is adapted in part from Schuster and Jones, 1989.

How the TSPIRS numbers are calculated.

The Statement of Revenues and Expenses, is an annual financial statement. It matches timber-related costs against the revenues received from the timber harvested on the Tongass in fiscal year 1990. The cost of current and previous investments are included. The calculation of revenues and costs are based on "generally accepted accounting principles" for government as established by GAO. Revenues include cash and assets received from timber sale activities on the Tongass, including stumpage receipts, purchaser road credits established and associated charges such as deposits for brush disposal. Costs for the sale of timber on the Tongass are reported in two broad categories, payments to states and

controllable expenses associated with timber harvesting. Controllable expenses include annual costs such as sale administration, general administration and depreciation on agency-funded facilities. Also counted as controllable expenses are allowances from two cost pools.

GAO defines cost pools as deferred-cost asset accounts. One pool accounts for long-term timber development or investment costs (the growth activity pool) and the other deals with short-term or temporary sale operation costs (the sale activity pool). Each pool consists of costs in specified categories accumulated over several years, including fiscal year 1990. Costs are not discounted but enter the pool at current value. The sale activity pool includes multi-year costs attributable to specific timber sales, for example, timber sale preparation. The growth activity pool includes costs which cannot be assigned to an individual timber sale but serve the whole timber sale program or support timber sales in a region or complete drainage. Arterial or main-line roads are a good example of a cost item serving a number of timber sales over many years, and therefore, an item entered as a cost in the growth activity pool.

A percentage of each cost pool was counted as an expense in fiscal year 1990. For example, the percentage of the sale activity pool charged as a current expense is based on the ratio of volume harvested to the sum of volume under contract plus volume harvested. In sum, the Statement of Revenues and Expenses shows that the Tongass experienced a net gain of $2.8 million on its timber sale program in fiscal year 1990.

The Economic Account, displays current and future long-term benefits and costs from the acres receiving timber treatments in fiscal year 1990. Unlike the single-year time frame of the Statement of Revenues and Expenses, the Economic Account has an infinitely long time horizon. Future costs and benefits are discounted to fiscal year 1990.

The purpose of the Economic Account is to display the net present value of the acres affected by timber harvest in fiscal year 1990. Net means positive or negative. Present is defined as discounted costs or benefits. And finally, value refers to the monetized worth of the output produced through the timber sale program. Desirable outputs such as increased hunter-days are considered positive effects while undesirable outputs such as increased sedimentation are assessed as negative effects.

The money spent to establish a new stand of trees is counted as a cost today. Future returns to the government of selling the timber and costs of management are discounted. This is to say the future dollars are compared with dollars invested today which would earn a four percent return on investment after inflation. For example, if an investment yields an eight percent annual return but inflation averages four percent, then the investment, in fact yields a four percent return net of inflation.

The TSPIRS Economic Account for the Tongass National Forest finds that the program of forest management established for the acres harvested in fiscal year 1990 will yield a positive present net value of $19.6 million.

The Employment, Income, and Program Level Account supplements the findings displayed in the Statement of Revenues and Expenses, and the Economic Account with information such as the local economic impacts of the timber sale program. Also reported are general data on the timber sale program such as volume and acres harvested, acres of young stands receiving silvicultural treatments and a display of the miles of road built to support the timber sale effort.

Impacts of the timber sale program on the local economy are estimated using an economic model of Southeast Alaska (McHugh et.al. 1989). Reported are the economic impacts of the harvest and processing of timber from the Tongass National Forest in fiscal year 1990. The employment levels supported by the timber sale program are reported in full-time equivalents. For example, one full-time equivalent in logging may actually represent two timber-felling jobs where each employee is working only six months per calander year due to weather conditions in Alaska.

TABLE 7. Revenues and Expenses Tongass National Forest
Fiscal Years 1989 and 1990

	FY 1989	FY 1990
1. REVENUES		
Timber Sales	3,573,281	16,105,341
Purchaser Road Credit	17,194,336	20,175,165
Associated Charges	270,954	236,225
Interest and Penalties	72,885	113,242
TOTAL REVENUES	21,111,456	36,624,973
2. EXPENSES		
Sale Administration	3,192,144	5,081,695
Sale Activity Allowance	4,916,827	9,014,615
Growth Activity Allowance	3,044,602	5,321,195
Facilities Depreciation	538,974	538,974
General Administration	3,200,577	4,964,118
TOTAL OPERATING EXPENSES	14,893,123	24,920,080
Gain/[Loss] Before Payments to State	6,218,332	11,709,892
3. PAYMENT TO STATE	4,989,178	8,888,674
Net Gain/[Loss] From Timber Sales	1,229,154	2,821,218
4. VOLUME HARVESTED (Board Feet)	444,606,000	471,634,000