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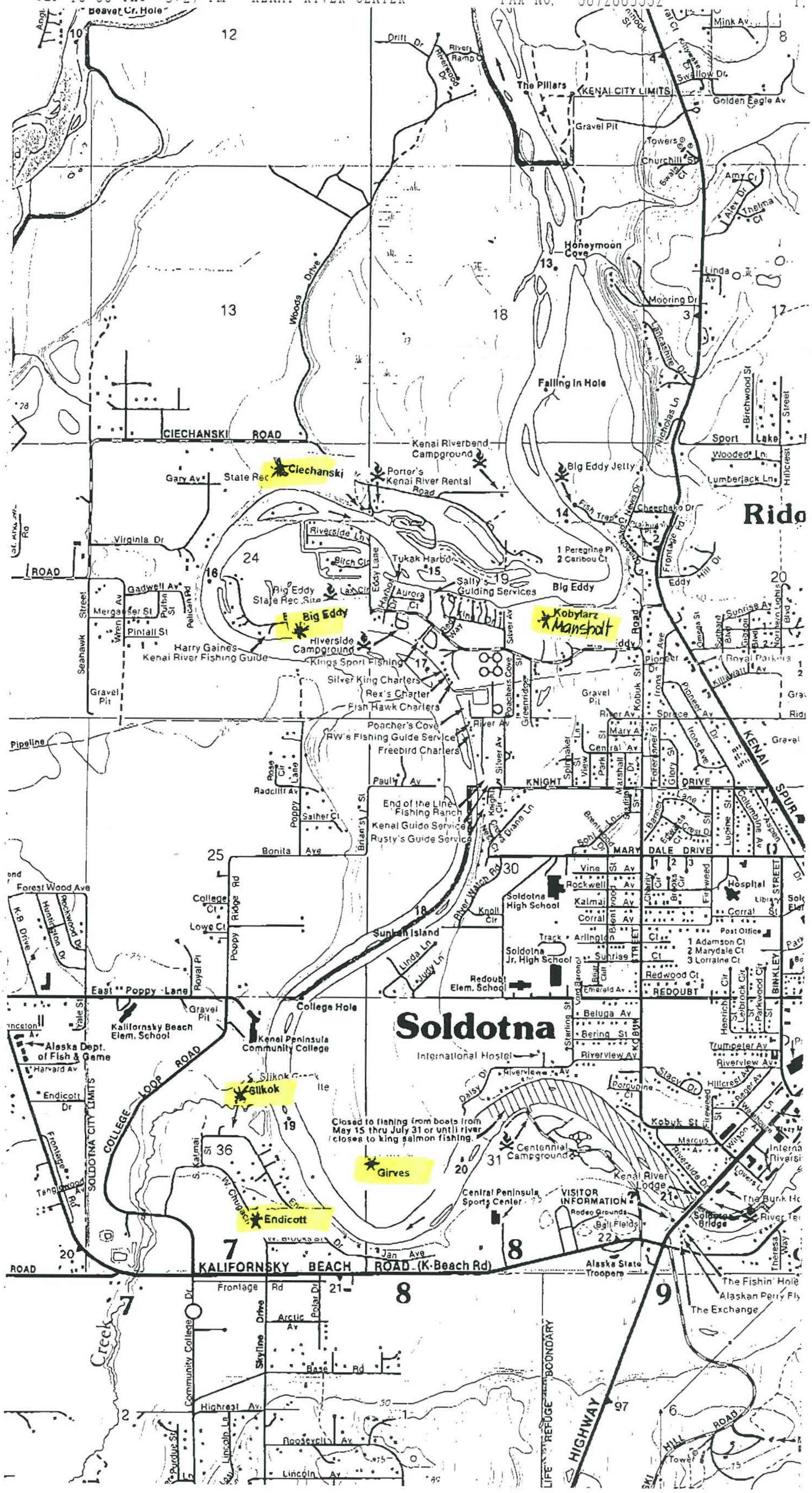
Exxon Valdez Oil Spill Trustee Council

Public Advisory Group

Seward/Kenai River Field Trip

September 15-16, 1998


Beaver Cr. Hole
Drift Dr
Rivers Ramp
Riverwood Dr
The Pillars
KENAI CITY LIMITS
Gravel Pit
Mink Av
Swallow Dr
Golden Eagle Av
Towers
Churchill St
Amy Ct
Alex Dr
Thelma Ct
Honeymoon Cove
Linda Av
Mooring Dr
Lancashire Dr
Woods Drive
Falling In Hole
Birchwood St
Nicholas Ln
Sport Lake
Wooded Ln
Lumberjack Ln
Hillcrest
CIECHANSKI ROAD
Kenai Riverbend Campground
Ciechanski
State Rec
Gary Av
Porter's Kenai River Rental
Big Eddy Jetty
Fish Trap Ct
Cheechako Dr
Ridg
Riverside Ln
Virginia Dr
ROAD
Tukak Harbor
1 Peregrine Pl
2 Caribou Ct
Frontage Rd
Eddy Hill Dr
Gadwell Av
Big Eddy State Rec Site
Sally's Guiding Services
Big Eddy
Merganser St
Pintail St
Seahawk Street
Pelican Rd
Big Eddy
Kobylarz
Manshalt
Harry Gaines Kenai River Fishing Guide
Riverside Campground
Kings Sport Fishing
Silver King Charters
Rex's Charter
Fish Hawk Charters
Poacher's Cove
RW's Fishing Guide Service
Freebird Charters
Omega St
Sunrise Av
Northern Lights Blvd
4 Royal Parkers
Killawatt Av
Pioneer Dr
Irons Ave
Spruce Av
Gravel Pit
River Av
Mary Av
Central Av
Pipeline
KENAI SPUR
KNIGHT DRIVE
Glory St
Paula Av
Radcliff Av
Sather Ct
End of the Line Fishing Ranch
Kenai Guide Service
Rusty's Guide Service
Diana Ln
MARY DALE DRIVE
Lucine St
Columbine Av
Bonita Ave
Brian's St
Vine Av
Rockwell Av
Kalmai Av
Corral Av
Arlington
Sunrise
Hospital
Library
Corral
Post Office
1 Adamson Ct
2 Marydale Ct
3 Lorraine Ct
Forest Wood Ave
K-B Drive
Huntington Dr
Rockwood Ct
College Ct
Lowe Ct
Poppy Ridge Rd
Royal Pl
Soldotna High School
Track
Soldotna Jr. High School
Redoubt Elem. School
River Watch Rd
Knoll Cir
Sunken Island
Linda Ln
Judy Ln
Redwood Ct
REDOUBT
BINKLEY
East Poppy Lane
Gravel Pit
College Hole
Soldotna
Kalifornsky Beach Elem. School
Kenai Peninsula Community College
Alaska Dept. of Fish & Game
Harvard Av
Beluga Av
Bering St
Riverview Av
International Hostel
Trumpeter Av
Riverview Av
Endicott Dr
SOLDOTNA CITY LIMITS
COLLEGE LOOP ROAD
Slikok Creek
Slikok
Closed to fishing from boats from May 15 thru July 31 or until river closes to king salmon fishing.
Centennial Campground
Kobuk St
Marcus
Hillcrest Av
Frontage Rd
Tanglewood Av
Kasmai St
W. Chugach
Girves
Endicott
Central Peninsula Sports Center
VISITOR INFORMATION
Rodeo Grounds
Ball Fields
Kenai River Lodge
Riverside Dr
Soldotna Bridge
The Bunk House
River Terrace
W. Brooks St
Jan Ave
KALIFORNSKY BEACH ROAD (K-Beach Rd)
Alaska State Troopers
The Fishin' Hole
Alaskan Perry Fly
The Exchange
Theresa Way
Frontage Rd
Arctic Av
Polar Dr
Skyline Drive
Base Rd
Community College Dr
Creek
Highrest Av
Roosevelt Av
Lincoln Ln
Lincoln Av
Purdue St
LIFE REFUGE BOUNDARY
HIGHWAY
SKI HILL ROAD
Tower

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

MEMORANDUM

TO: Public Advisory Group

FROM: Molly McCammon
Executive Director

DATE: September 9, 1998

SUBJ: Seward Area Restoration Projects and Habitat Parcels

Attached you will find several items regarding to restoration program projects and small parcel habitat acquisitions in the Seward area.

Habitat Protection - Grouse Lake and Lowell Point

Copies of the location maps and restoration benefits reports for the Grouse Lake and Lowell Point small parcels are attached.

Qutekcak Hatchery - Clam Restoration Project

The Trustee Council authorized $83,400 for Project 99131/Chugach Native Region Clam Restoration in FY 99. This project is in the fifth year of a five-year effort; through FY 99 the Trustee Council has authorized a total of $1.219 million for Project /131.The essential goal of the project is to develop cost-effective procedures for establishing easily accessible subsistence clam populations near Native villages in the oil spill region. In FY 99 the project scope of work will be confined to developing effective, standardized techniques for producing littleneck clam seed at the Qutekcak Hatchery and analyzing growth and mortality of this seed placed on the beaches in FY 96, FY 97 and FY 98. Total seeded area during the project will not exceed five hectares. Follow-up research on success of seeding will be conducted. Growout development work will be confined to areas near the Native villages of Tatitlek, Nanwalek and Port Graham. Jon Agosti will provide the PAG with a tour of the facility and discuss the clam restoration project.

Alaska SeaLife Center

The Trustee Council authorized seven restoration projects for FY 99 at the Alaska SeaLife Center. Five of these projects are currently on-going (99190, 99252, 99327, 99341, 99348) and two are new (99371, 99441). A spreadsheet that provides an abstract for each project along with other information is attached.

attachments

KEN 1014: Grouse Lake

Acreage:	64	Rank: PMSC	Sponsor: USFS	Appraised Value:	$211,000
Owner:	Jim McCracken (Agent)				
Location:	West shore of Grouse Lake, 7.5 miles north of Seward on the Seward Highway				

Parcel Description. The Grouse Lake parcel is located on the west shore of Grouse Lake and includes approximately ¼ mile of lakeshore 7.5 miles north of Seward on the Seward Highway. The parcel is the only level access area around Grouse Lake and Grouse Creek. The parcel is heavily forested and the lake and streams have clear water.

Restoration Benefits. Public ownership of this parcel will protect habitat for pink salmon, sockeye salmon, Dolly Varden, by preventing further development of the site. Acquisition will further benefit the restoration of sockeye salmon by ensuring continued access to Grouse Lake for ADFG's sockeye salmon stocking program. Public ownership of this parcel will also allow the USFS to replace and enhance recreational uses, such as sport fishing and wildlife viewing, that rely on natural resources that were injured in the spill.

Key habitats and other attributes of this parcel include the following:

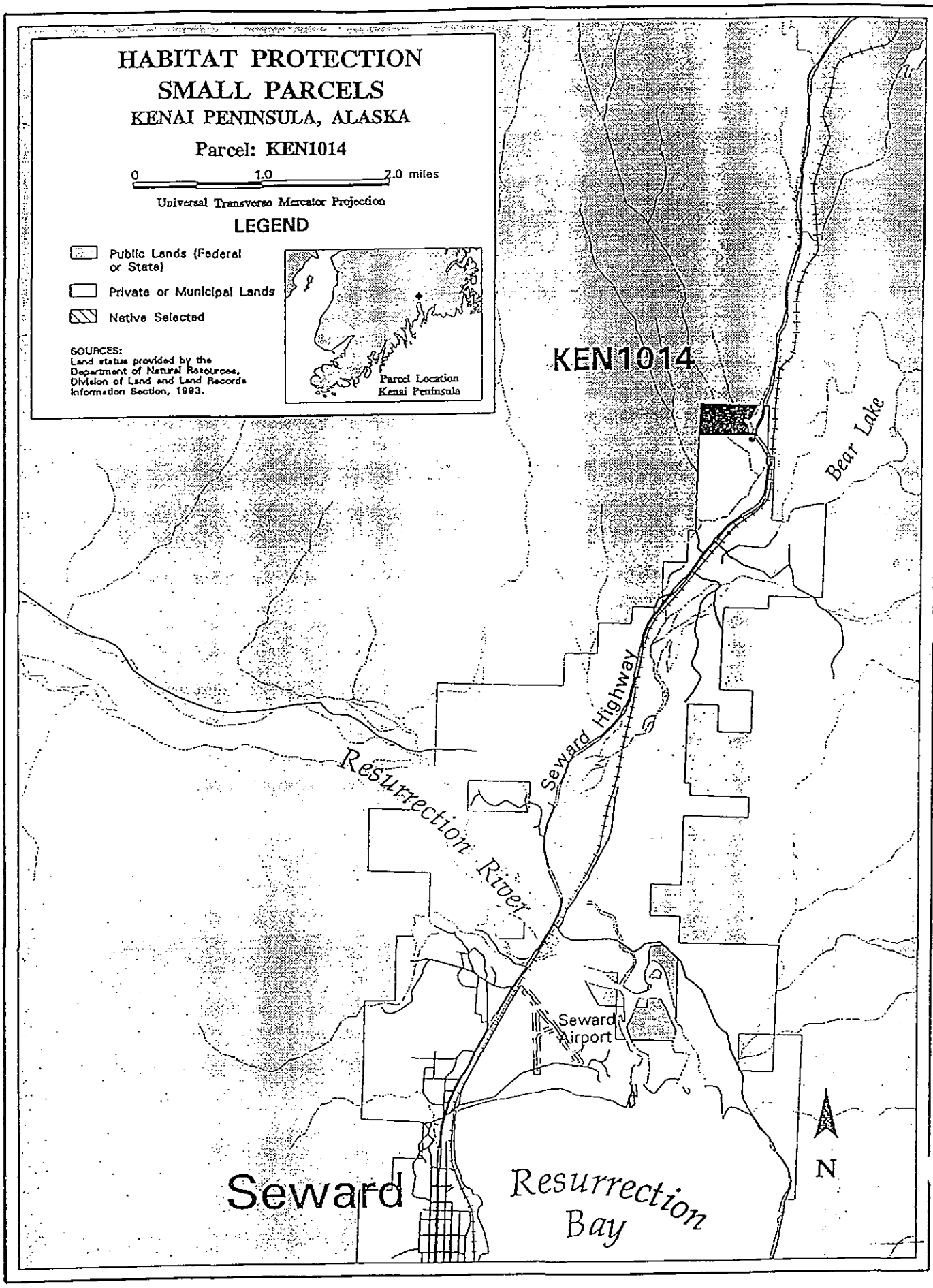
- *Pink salmon and Dolly Varden.* The parcel provides key habitat for pink salmon and Dolly Varden. Pink salmon spawn in the two streams on this parcel and Dolly Varden spawn in the streams and are reared in Grouse Lake.
- *Sockeye salmon.* Grouse Lake is the site of an active sockeye salmon stocking program by the Alaska Department of Fish and Game.
- *Recreation/tourism.* The lake has long been a favorite recreation area used by local residents and tourists for many years. Activities include camping, hiking and sport fishing. Sport fishing is the most popular activity including summer and winter fishing for Dolly Varden. This parcel provides an ideal location for a campground and a fishing area accessible to the handicapped.
- Bald eagles and river otters may also benefit from protection of this parcel. Bald eagles use the area, although there is no documented nesting. River otters are frequently seen in the lake and creek.

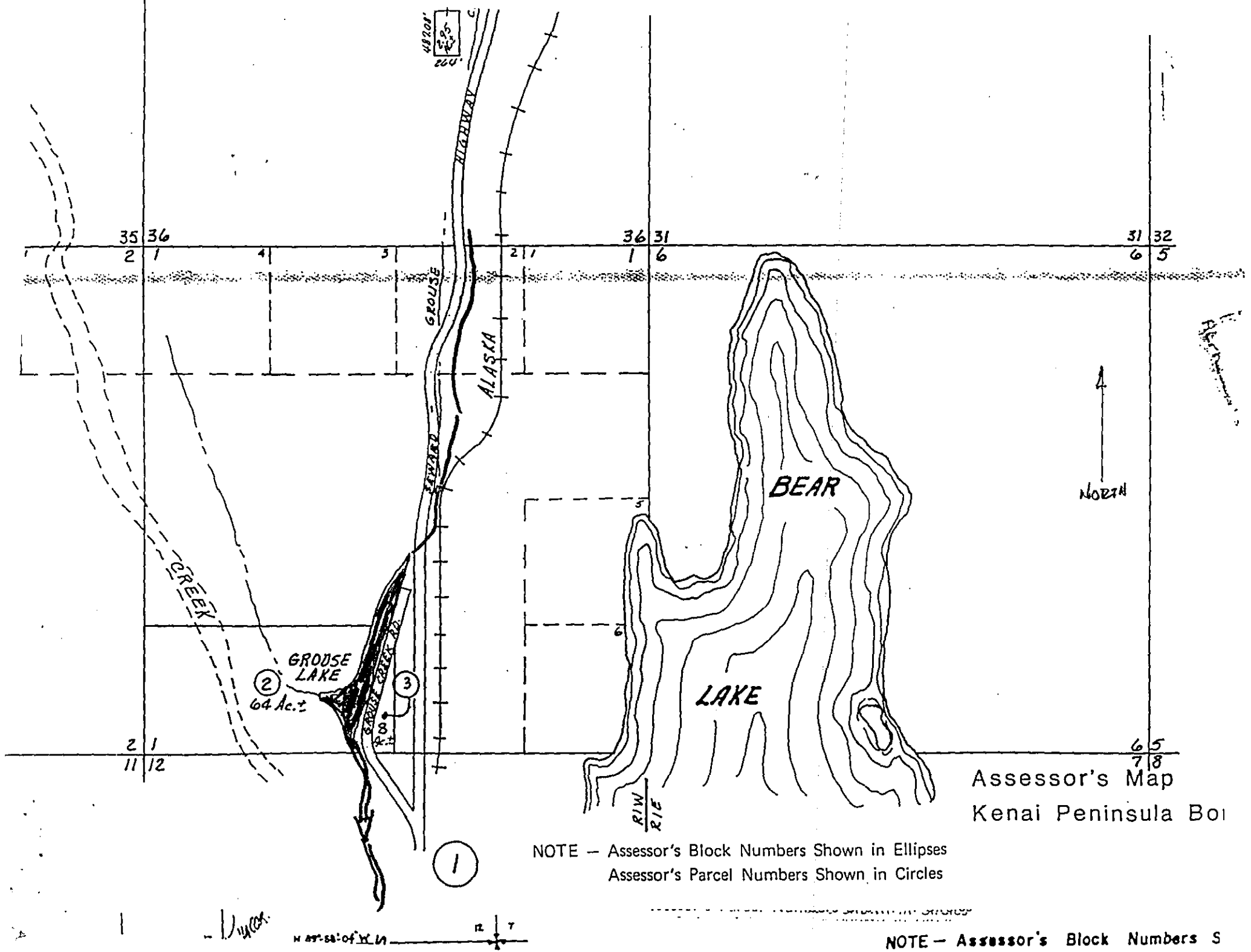
Potential Threats. Because of its proximity to the city of Seward and the Seward Highway, and its level topography, this parcel has development potential. Development possibilities include a residential subdivision or recreational cabins.

Appraised Value. The appraised value of this parcel is $211,000. This parcel is vacant and unimproved. The highest and best use of this parcel is for a homesite and future subdivision when the market warrants.

Proposed Management. This parcel is an inholding in Chugach National Forest. If the parcel is acquired, it would become part of the Chugach National Forest and be managed by the U.S. Forest Service for conservation.

Public Comment. The Restoration Office has received no written comments from the public regarding this parcel.


HABITAT PROTECTION
SMALL PARCELS
KENAI PENINSULA, ALASKA
Parcel: KEN1014
0
1.0
2.0 miles
Universal Transverse Mercator Projection
LEGEND
Public Lands (Federal or State)
Private or Municipal Lands
Native Selected
SOURCES:
Land status provided by the Department of Natural Resources, Division of Land and Land Records Information Section, 1993.
Parcel Location
Kenai Peninsula
KEN1014
Bear Lake
Seward Highway
Resurrection River
Seward Airport
Seward
Resurrection Bay
N



Assessor's Map
Kenai Peninsula Bo

NOTE — Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles

NOTE — Assessor's Block Numbers S
Assessor's Parcel Numbers S

KEN 1015: Lowell Point

Acreage: 19.4 **Rank:** PMSC **Sponsor:** ADNR **Appraised Value:** $531,000
Owner: Jim McCracken (Agent)
Location: One mile south of Alaska Sealife Center, Seward

Parcel Description. This parcel is vegetated, in part, by hemlock and spruce. The parcel has approximately 700 feet of Resurrection Bay frontage.

Restoration Benefits. This parcel serves as a gateway to Resurrection Bay for small boat operators and kayakers, and also has a hiking trail to Caines Head State Recreation Area. Public ownership of this parcel will ensure public access to Resurrection Bay and the state park. Acquisition will also provide a buffer area between subdivisions to the north and this important public access route.

Key habitats and other attributes of this parcel include the following:

- *Recreation/tourism.* A hiking trail to Caines Head State Recreation Area runs through this parcel. The parcel provides access to Resurrection Bay for small boats and kayaks. It is also popular for fishing, picnicking, camping, and beachcombing.

The intertidal area is primarily sand and gravel beach. Although the intertidal area is valuable for access to Resurrection Bay and educational field trips, it does not provide key habitat for intertidal biota. Key intertidal habitat is characterized by dense seagrass beds, clam beds, mussel beds, and high diversity.

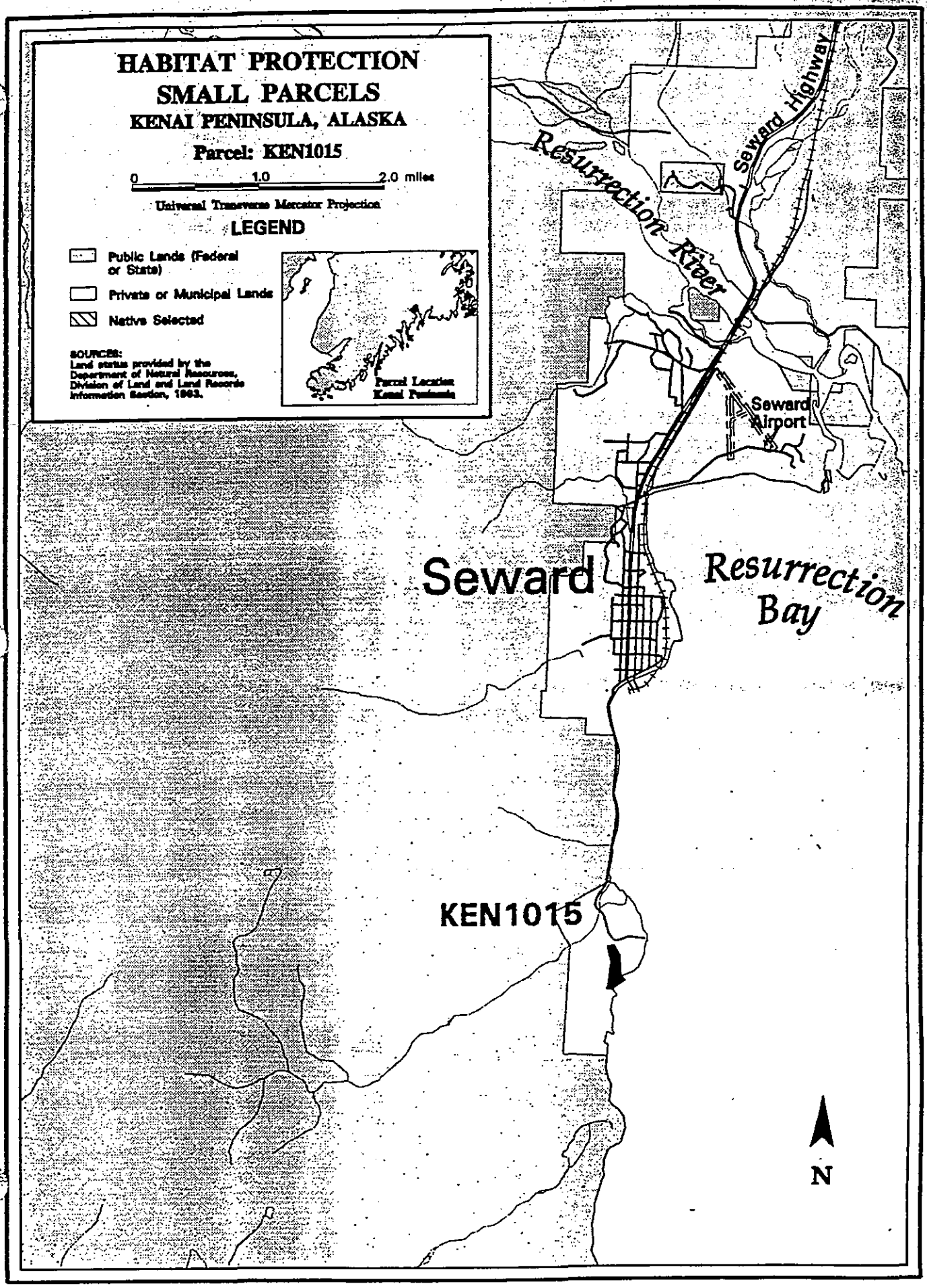
Potential Threats. This parcel has development potential as a residential subdivision. A tract of land to the north of this parcel is already subdivided. A road right-of-way exists to the west of this parcel and the site is served by electrical and telephone service. The landowner has recently planned to develop the property for private recreational cabins and camp areas. These developments may close off public beach access.

Appraised Value. The appraised value of this parcel is $531,000. The parcel has been improved with a 640-square foot cabin, well, and septic. The highest and best use of this parcel is residential or recreational development or long-term holding of the parcel for future land value increases prior to subdividing.

Proposed Management. The purpose of acquisition is to preserve and protect in perpetuity the ecological, natural, physical and scenic values of the subject property for the benefit of fish and wildlife resources and services that were injured in the *Exxon Valdez* oil spill. ADNR proposes to manage this parcel to enhance recreation and ensure public access to Caines Head Trail. In their justification for sponsoring this parcel, Alaska State Parks stated, "A private house and other small structures are located in the center of this parcel. These structures would be efficiently used to help park staff manage this parcel and Caines Head State Recreation Area." The parcel will probably be classified "Public Recreation Land."

Alaska State Parks has allocated $200,000 in state restitution funds to develop day use parking, trailhead, and interpretive exhibits on this parcel.

Public Comment. Forty-four individuals expressed support for acquisition of this parcel. Many of the letters were written by students, parents, and teachers from Inlet View Elementary School in Anchorage, and Homestead School and Fire Lake Elementary School, both in Eagle River. All three schools sponsor field trips to Lowell Point. Individuals from Seward, other communities in the Kenai Peninsula, and Anchorage also voiced support for acquisition of this parcel.


HABITAT PROTECTION
SMALL PARCELS
KENAI PENINSULA, ALASKA
Parcel: KEN1015
0
1.0
2.0 miles
Universal Transverse Mercator Projection
LEGEND
Public Lands (Federal or State)
Private or Municipal Lands
Native Selected
SOURCES:
Land status provided by the Department of Natural Resources, Division of Land and Land Records Information Section, 1993.
Parcel Location
Kenai Peninsula
Seward Highway
Resurrection River
Seward Airport
Seward
Resurrection Bay
KEN1015
N

PROJECTS THAT WILL USE THE ALASKA SEALIFE CENTER -- FY 99

Proj.No.	ProjectTitle	Proposer	Lead Agency	New or Cont'd	FY99 TC Action	Total Estimate FY99-02
99190	Construction of a Linkage Map for the Pink Salmon Genome	F. Allendorf/Univ. Montana	ADFG	Cont'd 4th yr. 5 yr. project	$212.1	$399.4

This project will complete a genetic linkage map for pink salmon in FY 98. The first primary aspect of the project in FY 99 is to add additional markers, consolidate linkage groups using gene-centromere mapping, and add additional anchor loci. The seond primary aspect is to continue experiments at the Alaska SeaLife Center that use the linkage map to test for organismal effects of regions of the genome on phenotypes that affect traits that are important to recovery of pink salmon (e.g., growth and disease resistance). The project also will test whether there are regions of the genome that are affected by natural selection resulting in differential marine survival of individuals with different genotypes.

99252	Investigations of Genetically Important Conservation Units of Rockfish and Walleye Pollock	J. Seeb, L. Seeb/ADFG	ADFG	Cont'd 2nd yr. 5 yr. project	$232.5	$232.5

This project will consolidate an array of requests from the commercial fisheries industry for discrete stock research into a single proposal for work that the Alaska Department of Fish and Game will conduct at its Anchorage genetics laboratory. Also, the Alaska Department of Fish and Game proposes to develop experimental fish runs at the Alaska SeaLife Center; these are essential for study of genetics, physiology, or diseases of anadromous fish proposed by University of Montana, University of Alaska, or the Alaska Department of Fish and Game and other principal investigators seeking to conduct research at the Seward facility.

99327	Pigeon Guillemot Restoration Research at the Alaska SeaLife Center	D. Roby/Oregon State Univ.	DOI	Cont'd 2nd yr. 4 yr. project	$166.1	$428.9

This project will test the feasibility of direct restoration techniques for pigeon guillemots (e.g., installation of artificial nest sites, use of social attractants, captive propagation and release). While raising young guillemots in captivity, it will also be possible to conduct controlled experiments crucial to two other restoration objectives: (1) development of nondestructive biomarkers of petroleum hydrocarbon contamination, and (2) understanding how dietary factors (prey species composition, prey size, lipid content, feeding frequency) constrain growth, development, and condition at fledging in guillemots.

99341	Harbor Seal Recovery: Controlled Studies of Health and Diet	M. Castellini/UAF	ADFG	Cont'd 2nd yr. 4 yr. project	$194.2	$403.7

This project will continue a long-term study to quantify the impact of specific fish diets on the health and body condition of harbor seals. The ability to conduct such investigations under controlled conditions is now available at the Alaska SeaLife Center. This project will establish whether specific diets are nutritionally adequate to maintain seal health. Even though health status biomarkers for marine mammals in Prince William Sound were established during field trials (Project /001), the critical test of how each marker varies in an individual as a result of a specific prey item has not been established. While this project will focus on the issue of harbor seal health, the approach is potentially applicable to any of the injured top predators.

PROJECTS THAT WILL USE THE ALASKA SEALIFE CENTER -- FY 99

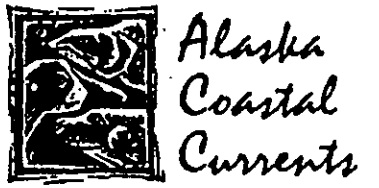
Proj.No.	ProjectTitle	Proposer	Lead Agency	New or Cont'd	FY99 TC Action	Total Estimate FY99-02
99348	Responses of River Otters to Oil Contamination: A Controlled Study of Biological Stress Markers	M. Ben-David, T. Bowyer, L. Duffy/UAF	ADFG	Cont'd 2nd yr. 2 yr. project	$240.1	$240.1
	This project will explore the effects of oil contamination on physiological and behavioral responses in river otters experimentally. Fifteen captive otters will be exposed to two levels of oil contamination under controlled conditions in captivity. Samples of blood, tissues, and feces will be collected for analysis of biomarkers and immunological examinations.					
99371	Effects of Harbor Seal Metabolism on Stable Isotope Ratio Tracers	D. Schell/UAF	ADFG	New 1st yr. 3 yr. project	$110.2	$313.6
	A major concern with the use of stable isotope tracers in ecosystem studies is the fidelity with which ratios are transferred up food chains. Use of specific habitats or prey cannot be assessed if geographic gradients in isotope ratios are laid on top of trophic effects and/or prey switching. To remove these problems we will seek specific conservative biomarkers such as essential amino acids or fatty acids that carry isotope ratios unmodified by metabolism. Amino acids labeled with 15N and 13C will be used to follow transamination and carbon relocation during metabolic processes in the seals at the Alaska SeaLife Center. Specific fatty acid isolation and determination of suitability as habitat biomarkers will follow in years two and three of the project.					
99441	Harbor Seal Recovery: Effects of Diet on Lipid Metabolism and Health	R. Davis/Texas A&M Univ.	ADFG	New 1st yr. 2 yr. project	$140.9	$272.5
	To better understand the results from field studies of harbor seal health, body condition, and feeding ecology, data are needed on diets that vary in nutritional composition. Working with the Alaska SeaLife Center, this project will determine how fatty acid profiles in the blubber of captive harbor seals change over time during controlled diets of pollock and herring. In addition, it will assess the aerobic capacity and lipid metabolism of skeletal muscle in harbor seals fed controlled diets and in wild harbor seals in Prince William Sound. The results will augment already funded investigations of diet and health to provide a more in-depth understanding of the nutritional role and assessment of dietary fat for harbor seals.					

PENINSULA CLARION DECEMBER 14, 1997

Seward's Lowell Point soon to be a state recreation site

Editor's note: It has been eight years since the Exxon Valdez ran aground in Prince William Sound, spilling nearly 11 millions gallons of Alaska crude oil. Time has since told quite a lot about the spill's long-term effects. To help tell the story, the Exxon Valdez Oil Spill Trustee Council is providing this column focusing on the ongoing recovery within the spill region.

By JODY SEITZ



A friend and I visited Seward last June on one of those perfect summer days, clear and sunny with a slight wind off the bay. Conditions were perfect for a walk along the beach where you can kick up the sand, comb the area for souvenirs and inspect the tide pools. In Seward, if you're seeking a quiet beach, chances are you'll end up at Lowell Point.

First we drove by the Caines Head trail, where it begins at the sewage lagoon. Further down the dusty dirt road we crossed a one-lane bridge, and drove through a neighborhood of distinctly Alaska architecture — each home unique, handmade and in progress. We parked on the roadside and looked up to the gently blowing beach grass on the dunes in front of us.

Lowell Point beach is the coastal site that has won the heart of Anchorage area teachers. Each year, busloads of Anchorage students take a field trip to Seward to put their classroom learning to practice. Fifth- and sixth-graders wander along the beach and view a healthy intertidal ecosystem, complete with fucus, starfish, jellyfish and other marine life.

When the 20-acre beachfront property came up for sale, Anchorage teachers and students joined with residents of Seward to protect the beach from further development.

Most of Seward's coastline is occupied by industrial or commercial development, according to Mark Lutrell, of the Seward-based Eastern Kenai Peninsula Action Association. Lowell Point beach is one of just two accessible beaches in Seward that are still wild. The other one is at Fourth of July Creek.

Lutrell said he was surprised that 20 small acres could create such a stir. He quickly learned that the Lowell Point beach meant a great deal to people outside of Seward after he notified a local educator that the land was up for sale.

Word spread quickly. Hikers, commercial kayak guides and school groups from Seward to Eagle River wrote the Exxon Valdez Oil Spill Trustee Council in an effort to protect the beach.

"It's a great place to hang out for a picnic or build a campfire, fish, launch your kayak, or just walk the beach," Lutrell said. "A lot of school groups come here to check out the intertidal zone. It's really a popular place."

So popular in fact, that conflicts were developing between visitors and nearby landowners. "One of the residents told me that people were using her yard as a bathroom," Lutrell said. "One guy even said, 'hey, you know, could I leave my trash here so I don't have to carry it back to Seward?' Another guy was building a campfire underneath one of the cabins because it was raining."

The Trustee Council purchased the land in February of 1997 for $531,000. The small beach at Lowell Point will soon become the Lowell Point State Recreation Site. Conflicts between visitors and homeowners should ease when the state Division of Parks builds an interpretive kiosk, a parking area and public bathrooms.

There's another bonus: Hikers can look forward to starting the Caines Head trail at Lowell Point instead of the sewage lagoon.

Jody Seitz lives in Cordova and produces the Alaska Coastal Currents radio program.

Kodiak Daily Mirror
September 4, 1998

Pigeon guillemot research moves to SeaLife Center

For years biologists have been trying to assess the impact of ecosystem changes on seabird populations. Biologists know that declines within pigeon guillemot colonies preceded the Exxon Valdez oil spill by several years and seem to coincide with a decrease — beginning in the late 1970s — in the amount of high fat fish species (sandlance, capelin, herring) fed to their chicks.

Dr. Dan Roby, with Oregon State University, has been trying to see if the change in their diets explains the declines in their colonies and their slow recovery from the spill.

It's hard to do in the field. Normally, to avoid predators pigeon guillemots nest in burrows in the cliffs and among rocks of remote headlands. The dedicated biologist more often than not must spend hours in the rain and wind of the North Pacific, hanging in front of a cliff face or perched on a rock, binoculars in hand, just to observe what the adults feed their young.

Factors other than food also affect chick survival: not all parents are good at bringing back food; some nests get flooded out; parents sometimes abandon their chicks, and predators always play a role. Crows, ravens, mink, and peregrine falcons all feast on seabird eggs when they're available.

To eliminate some of these threats to the chicks, Roby proposed raising them in captivity at the Alaska SeaLife Center and feeding them diets which reflected the changes in their prey in Prince William Sound.

Researcher Dr. George Divoky saw an opportunity to use the studies of chicks to create a more accessible colony for research. "I thought that if a colony could be created, the captive-raised birds could return here," he said. "That way, known-age birds would come back and breed at the SeaLife Center, which would be creating a population of birds that could be used for research."

Although the birds nest in remote rocky cliffs, their needs are really simple. Pigeon guillemots nest under docks from Monterey Bay, California, all the way to Dutch Harbor. "All they need," said Divoky, "is a dark place protected from predators."

He should know. Divoky spent 25 years on the North Slope using nest boxes to create the largest colony of black guillemots in Alaska - raising it from 10 breeding pairs in 1972 to 225 breeding pairs in 1989.

Divoky plans to take advantage of the guillemots' affinity for man-made sites. He built next boxes and attached them to platforms on the shores of Resurrection Bay in front of the SeaLife Center. Decoys sit atop the platforms to attract guillemots and speakers continuously play a chorus of guillemot calls. The idea is for guillemots to be drawn in, hear familiar sounds and start investigating the cavities in the nest boxes.

Young birds begin looking for nesting areas at about two years, even though they have another year or two to go before they are ready to breed. "Two year olds are very restless, and begin prospecting for new areas away from their natal colonies," said Divoky. "We could get birds from as far away as Prince William Sound and Bristol Bay."

After they reach fledgling weight, about 35 days after hatching, they'll release three groups of birds, each of which had diets of fish with different fat content."

A couple of years from now Roby and Divoky will watch for this year's chicks to return. One of the most exciting things they could find, according to Divoky, is that the three groups of birds have different survival rates. "If we see the chicks raised on sandlance do well, and the chicks raised on pollock and gunnels do poorly, we have an indication that the fledging weights and fledging success may well be lowered by the shift that has occurred in nearshore fish," Divoky said.

Jody Seitz lives in Cordova and also produces the Alaska Coastal Currents radio program. The series is sponsored by the Exxon Valdez Oil Spill Trustee Council to provide information about restoration activities within the spill region.

Planted clams help supplement subsistence harvest

Editor's note: It has been eight years since the Exxon Valdez ran aground in Prince William Sound, spilling nearly 11 million gallons of Alaska crude oil. Time has since told quite a lot about the spill's long-term effects. To help tell the story, the Exxon Valdez Oil Spill Trustee Council is providing this column focusing on the ongoing recovery within the spill region.

By JODY SEITZ

Alaska Coastal Currents

Production and recovery following the Exxon Valdez oil spill

A common saying in the coastal regions of Alaska is "when the tide goes out the table is set." The tide zone holds everything from clams to chitons and provides a smorgasbord for subsistence users and recreational clammers.

After the Exxon Valdez oil spill, clam digging lost its appeal for many people living in the spill-impacted areas. Harvests of shell-fish plummeted during the year of the spill and subsistence harvesting was disrupted for several years.

To help offset that loss, the Exxon Valdez Oil Spill Trustee Council funded a project to supplement subsistence harvests by creating put-and-take clam fisheries on some beaches in the spill area.

First, though, the Quetecak Hatchery in Seward had to learn how to raise littleneck clams. It was a project never before accomplished in Alaska. Using wild clams and their own ingenuity, hatchery workers Carmen Young and Miranda Barrier experimented until they were able to spawn the clams and keep the larvae alive. Neither of them had training in shellfish production. Three years later, the results are encouraging. Clams that have been "planted" on beaches are growing twice as fast as expected.

The Quetecak tribe began its hatchery in a small building leased from the Institute for Marine Science. The tribe primarily raised oyster spat for area shellfish farmers.

Biologist Jon Agosti joined the team two years ago, bringing with him valuable experience growing another type of clam, manilus, in southeast Alaska. According to Agosti, shellfish hatcheries are more labor intensive than finfish hatcheries. The littleneck clam is also more difficult to raise than the manilus clam, especially in such high densities. "It's a lot of hands-on work," said Agosti. "Good husbandry requires a lot of bacterial management. It's easy for pathogens to wipe out a group."

The tiny larvae are fed three types of plankton in specific densities. Thirty million larvae excrete a lot of waste, so the tanks have to be drained daily. Six tanks of 30,000 gallons each are drained through microscopic screens. Workers capture the larvae on the screens, and monitor their condition, health and numbers. Then they are put in a fresh tank.

In 1996, they planted the first littleneck clams in beaches around Tatitlek, Chenega Bay and Port Graham. When they checked the clams last fall, they determined that the planted clams were growing faster than wild clams. But that is just in the first year, Agosti pointed out.

"To be really confident we would need to see that repeated in a few year classes," he said. "Then we could say with confidence that it's a three-to four-year crop versus our worst fears in the beginning that it might be a six- or eight-year crop," said Agosti.

This January the hatchery moved into brand new quarters in the Seward Mariculture Technical Center, owned by the Alaska Department of Fish and Game and built with funds from the Exxon criminal settlement. The subsistence project may pay off for shellfish farmers as well, said Agosti.

"We want to produce large numbers of spat for sale to the growers. This facility was built with an eye for the future when industry will be substantially larger and they'll grow additional species, not just the oysters which dominate production today."

Jody Seitz lives in Cordova and produces the Alaska Coastal Currents radio program.

Peninsula Clarion
July 5, 1998

The Seward Phoenix Log
August 13, 1998

First pigeon guillemot chick fledges from center's roof

The first pigeon guillemot chick fledged from the SeaLife Center roof at about 11:30 p.m. Aug. 1. Gram, the first animal born at the center, was fed at 10 p.m. and then placed on the rood (i.e., cross) in his nesting box. As observers Andrew Hovey, David Cooper and Ida Cooper watched, Gram walked to the edge of the rood, flapped his wings several times and finally jumped — flying into the darkness.

The fledgling is now competing with salmon for the herring in Resurrection Bay. In the next three weeks, Gram will be joined by 22 more captive-raised guillemots. As nestlings, the seabirds are fed every two hours.

These birds can be identified by one silver and three colored leg bands. Anyone observing these birds should call the SeaLife Center's pigeon guillemot project at 224-6326.

Research

Aug. 1: Our Exxon Valdez-funded project on the genetics of economically important fish is finally getting started. Some of our early efforts will focus on DNA markers in rockfish, and we are starting a research collection for inheritance studies. There are more than 65 species of the rockfish genus Sebastes that inhabit the eastern North Pacific Ocean. Thirty-two species are found in Alaska waters. Increased fishing pressure in recent years has made some species vulnerable to overexploitation.

You may have met two of our research fish, Stan and Molly, that Mark Kansteiner, the SeaLife Center's aquarist, just introduced into the rockfish exhibit. These are copper rockfish, Sebastes caurinus, which inhabit shallow rocky areas from the Gulf of Alaska to Baja, Calif.

Rockfish are ovoviviparous: The males fertilize the females internally; the females incubate the eggs and give birth to the young alive.

Rehabilitation

Just an update to let you know that the seal pups, Yukon and Denali, are all doing well. We hope to release them within a week or two. Iliamna, the other harbor seal, is eating fish and gaining weight. Her eye is healing well and she should be released back to the Lake Iliamna area in three to four weeks.

The pigeon guillemot in rehab right now was sent to us July 21 from the Naked Island research group. The bird weighed 330 grams upon arrival and now tips the scales at 455 grams.

Exhibits

Just a reminder that the deadline for the "Name the Octopus contest is Aug. 23. The unnamed male octopus is part of the Denizens of the Deep habitat. Entry boxes are at the front-door ticket counter. The winning entry gets an octopus sweatshirt.

Donna Harris is marketing director at the Alaska SeaLife Center.

The SeaLife Scoop

Compiled by Donna Harris

The Peninsula Clarion
August 30,1998

Pigeon guillemot research moves to Alaska SeaLife Center

Editor's note: It has been eight years since the Exxon Valdez ran aground in Prince William Sound, spilling nearly 11 million gallons of Alaska crude oil. Time has since told quite a lot about the spill's long-term effects. To help tell the story, the Exxon Valdez Oil Spill Trustee Council is providing this column focusing on the ongoing recovery within the spill region.

By JODY SEITZ

For years biologists have been trying to assess the impact of ecosystem changes on seabird populations. Biologists know that declines within pigeon guillemot colonies preceded the Exxon Valdez oil spill by several years and seem to coincide with a decrease — beginning in the late 1970s — in the amount of high fat fish species (sandlance, capelin, herring) fed to their chicks.

Dr. Dan Roby, with Oregon State University, has been trying to see if the change in their diets explains the declines in their colonies and their slow recovery from the spill.

It's hard to do in the field. Normally, to avoid predators pigeon guillemots nest in burrows in the cliffs and among rocks of remote headlands. The dedicated biologist more often than not must spend hours in the rain and wind of the North Pacific, hanging in front of a cliff face or perched on a rock, binoculars in hand, just to observe what the adults feed their young.

Factors other than food also affect chick survival: not all parents are good at bringing back food; some nests get flooded out; parents sometimes abandon their chicks; and predators always play a role. Crows, ravens, mink and peregrine falcons all feast on seabird eggs when they're available.

To eliminate some of these threats to the chicks, Roby proposed raising them in captivity at the Alaska SeaLife Center in Seward and feeding them diets which reflected the changes in their prey in Prince William Sound.

Researcher Dr. George Divoky saw an opportunity to use the studies of chicks to create a more accessible colony for research. "I thought that if a colony could be created, the captive-raised birds could return here," he said. "That way, known-age birds would come back and breed at the SeaLife Center, which would be creating a population of birds that could be used for research."

Although the birds nest in remote rocky cliffs, their needs are really simple. Pigeon guillemots nest under docks from Monterey Bay, Calif., all the way to Dutch Harbor.

"All they need," said Divoky, "is a dark place protected from predators."

He should know. Divoky spent 25 years on the North Slope using nest boxes to create the largest colony of black guillemots in Alaska — raising it from 10 breeding pairs in 1972 to 225 breeding pairs in 1989.

Divoky plans to take advantage of the guillemots' affinity for manmade sites. He built nest boxes and attached them to platforms on the shores of Resurrection Bay in front of the SeaLife Center. Decoys sit atop the platforms to attract guillemots and speakers continuously play a chorus of guillemot calls. The idea is for guillemots to be drawn in, hear familiar sounds and start investigating the cavities in the nest boxes.

Young birds begin looking for nesting areas at about two years, even though they have another year or two to go before they are ready to breed.

"Two year olds are very restless, and begin prospecting for new areas away from their natal colonies," said Divoky. "We could get birds from as far away as Prince William Sound and Bristol Bay."

After they reach fledging weight, about 35 days after hatching, the researchers will release three groups of birds, each of which had diets of fish with different fat content.

A couple of years from now Roby and Divoky will be watching for this year's chicks to return. One of the most exciting things they could find, according to Divoky, is that the three groups of birds have different survival rates.

"If we see the chicks raised on sandlance do well, and the chicks raised on pollock and gunnels do poorly, we have an indication that the fledging weights and fledging success may well be lowered by the shift that has occurred in nearshore fish," Divoky said.

Jody Seitz lives in Cordova and also produces the Alaska Coastal Currents radio program.

The Seward Phoenix
August 27, 1998.

SeaLife Center to use beluga carcass in ed program

By Roger Kane
LOG Staff

Alaska SeaLife Center Educational Department program coordinator Jim Pfeiffenberger completed one more step in what he calls "a half-baked plan" to dress out a 2-year-old male beluga whale, cleanse the skeleton and reassemble it for display.

The 500-pound whale was recovered April 9 three miles south of Girdwood in Turnagain Arm by the Protected Resources Division of the National Marine Fisheries Service and given to the Alaska SeaLife Center April 10 after a necropsy was performed.

The animal was not visibly injured and tissue samples, organs and glands were sent to the Northwest Fisheries Science Center in Washington for analysis.

Pfeiffenberger said the center also has carcasses of a harbor seal pup, a fur seal pup and a sea otter pup, as well as a partial carcass of a Steller sea lion and partial remains of an unidentified beaked whale.

Long-term plans are to use the mammal carcasses for educational purposes.

"It's not a fully formulated plan yet," Pfeiffenberger said, but he hopes to involve school children from the Seward area in the cleansing and reassembling project.

He also said the animal carcasses could be used to teach biological illustration to the kids and he hopes to involve other experts in the project.

He said Alaska Natives could also use the carcass as a visual aid for lectures on subsistence and the role of the whale in traditional Native lifestyles.

SeaLife Center 'hatching' new research

By Colleen Kelly
LOG Staff

A three-year research project at the Alaska SeaLife Center should give the facility its own wild population of seabirds for both study and exhibit purposes.

In upcoming days, researcher George Divoky and others in his group will place about 50 pigeon guillemot eggs into the nesting boxes they have installed on the SeaLife Center's beach waterfront.

Sadie Wright, technician for the group, has already collected 11 eggs from pigeon guillemot nests in Kachemak Bay. In two major collecting trips coming up, local climbers will assist the project by taking eggs from sites in Prince William Sound and Kodiak, Divoky said.

Colleen Kelly/LOG photos

Andrew Hovey and Sadie Wright know the importance of sorting fish according to size before freezing them in plastic bags. Eventually, the fish will be thawed and fed to young pigeon guillemots.

By taking the eggs this early in the nesting season, he said there's a chance the hens will lay a second time. "We don't want to disrupt the breeding cycle of these broods."

Stealing the eggs won't be detrimental to the bird's numbers. "We'll provide a higher fledging success in captivity than they would have in the wild," Divoky said.

Before moving to Seward last month to take part in this research project, Divoky had participated in a North Slope project involving black guillemots. "We went from 10 nesting pairs to 225" in that project, he said.

Once the pigeon guillemot eggs hatch after a 28-day incubation period, researchers will feed the birds diets ranging from high- to mid- to low-lipids.

They will look at growth rates as well as contaminant levels, Divoky said.

"We'll almost certainly get three different growth rates," he said. "We'll probably test the liver enzymes that indicate whether the bird was exposed to oil."

At the time of fledging, researchers will take the banded birds to the roof of the SeaLife Center. "We'll do it at dark in order to avoid the prey. We'll have to make sure there aren't any gulls around," Divoky said.

They'll open the doors of the nesting boxes and let the birds fly away. When the philo patric (meaning "birds raised here") guillemots are 3 years old, Divoky hopes

Seward Phoenix Log 6/18/98

George Divoky hopes decoys like the one he's holding and the nesting boxes behind him will entice young pigeon guillemots to set up housekeeping near the Alaska SeaLife Center.

they'll return to roost in the SeaLife Center nesting boxes.

The research group will repeat the process over the next two summers.

By having their own resident population of pigeon guillemots, Divoky said they'll try find an efficient way to obtain blood and fecal samples without having to take them from eggs in the wild.

A secondary focus of the egg-hatching project is to attract other pigeon guillemots flying through the area to set up housekeeping in the nesting boxes. With that goal in mind, the researchers are placing plastic decoys in and around the nesting boxes. They're also playing a CD recording of pigeon guillemot sounds in the wild.

Anyone taking a walk on the waterfront area between the Institute of Marine Sciences dock and the SeaLife Center will hear the sounds of pigeon guillemots even though the only ones in sight are of the plastic decoy variety, Divoky said.

Because pigeon guillemots breed at 3 years of age, Divoky hopes they're successful at attracting some passersby. If they do, next year the nesting boxes might also be home to wild pigeon guillemots who've decided to relocate to downtown Seward.

The birds' offspring could then become study subjects for Divoky and entourage.

Dan Roby from Oregon State University is the principal for the three-year research project funded by the Exxon Valdez Oil Spill council. Divoky is a post-doctoral researcher. Others in the group are doctoral student Andrew Hovey and technician Wright, an undergraduate at the University of Alaska Fairbanks.

State of Alaska

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FOR IMMEDIATE RELEASE: July 2, 1998 98-182

KNOWLES DEDICATES BING'S LANDING CAMPGROUND ON KENAI

First campground to close its banks to fishing to protect habitat

KENAI—Gov. Tony Knowles today dedicated the newest enhancement project on the Kenai River, the Bing's Landing Campground. "Bing's Landing is the newest addition to our efforts to protect habitat and provide responsible recreational access on the Kenai river," Knowles said. "Our comprehensive approach to the Kenai includes purchasing some parcels and protecting them for present and future generations, while providing responsible recreational access at other locations."

Dedication of the campground marked the second phase of the Bing's Landing project, named after Bing Brown who used the landing as a starting point for his Kenai River guiding business. Phase one, construction of a parking lot and public boat launch, was completed in 1988.

"This campground is special because it's the first to have its banks closed to bank fishing to protect riparian habitat," Knowles said. "Trails have been relocated to funnel the foot traffic into less sensitive areas and the river bank has flourished."

The governor also announced the Exxon Valdez Trustee Council has agreed to provide the State of Alaska $450,000 to acquire 76 acres along the Kenai River near Soldotna owned by Elmer and Ellen Patson. "This acquisition assures the protection of outstanding riparian habitat along the Kenai River, including about 1,500 feet of shoreline," Knowles said. The protected habitat includes low, overhanging grassy banks for fish rearing, extensive wetlands for maintaining water quality and forested uplands. The acquisition with benefit pink, sockeye, coho and king salmon as well as dolly varden.

"Over the last three and a half years, we have completed 31 private waterfront demonstration projects; purchased over 217,000 acres of land, not including the Patson parcel; and closed 19.4 miles of riverbank to protect habitat," Knowles said. "At the same time we've constructed several responsible recreational access projects along the river, including Cooper Landing and Pillars Boat Launch, Soldotna's Centennial Campground, Funny River and many more."

Knowles plans to dedicate the site for the new Kenai River Center later this summer.

-30-

Journal of Alaska Business
Week of August 10, 1998

Scientists feed oil to otters to test spill's effects 10 years later

By Ned Rozell
Special to the Journal

When the Exxon Valdez ran into Bligh Reef in the spring of 1989, the most visible victims of the oil spill were blackened sea otters and shore birds. Now, nearly a decade later, scientists are still trying to sum up the effects of the oil spill. In Seward, one researcher is trying to learn more about the spill by feeding small amounts of crude oil to river otters.

Merav Ben-David, an ecologist who studies animal behavior and physiology at the University of Alaska Fairbanks' Institute of Arctic Biology, is performing research on river otters that began right after the spill. In 1989, Terry Bowyer, a wildlife biologist at the Institute of Arctic Biology, Larry Duffy, head of UAF's chemistry and biochemistry department, and technicians from the Alaska Department of Fish and Game began examining river otters in oiled and nonoiled areas.

The scientists chose to study river otters because the animals often live where the land meets the sea. River otters, seldom-seen members of the same family as sea otters, den along bodies of water in the forests of Alaska. The animals, which grow to 4 feet long, hunt in rivers, the ocean, and sometimes on land. River otters on the coast catch much of their diet — fish, crabs and shrimp — from the sea.

Bowyer, Ben-David and graduate student Gail Blundell have studied river otters in Prince William Sound for the past three summers to look for lingering effects of the oil spill. Otters are notoriously hard animals to study — they are shy and too smart to come to a trap twice — so Blundell and Ben-David captured 15 river otters from different areas within Prince William Sound and brought them to the Alaska SeaLife Center.

When river otters were first studied, right after the spill and the three years following, researchers found enzymes in the otters' blood indicating stress that could be caused by ingesting crude oil. Otters that lived near oil-fouled beaches showed high levels of the enzyme; otters in areas without oil showed much lower levels.

Today, the otters living near shores that were soaked by oil nine years ago are still showing elevated levels of the stress enzyme. Though crude oil is no longer visible, otters may still be suffering from its effects. That's what Ben-David hopes to find out as she feeds crude oil to some of the otters at the SeaLife Center in Seward.

Ben-David has a small metal jug of crude oil given to her by ARCO workers at Prudhoe Bay. She and assistant Olav Ormseth will fill tiny capsules with the oil, slip the capsules inside herring, and feed the herring to the otters four times each week. Five otters will receive the heaviest dose of oil — 1,000 parts per million, about the equivalent of a tablespoon of oil in five gallons of water. Five will get a dose 10 times smaller, and five will ingest no oil whatsoever. Ben-David said she is basing the highest dosage on oil levels found presently in blue mussels that live in Prince William Sound.

Ben-David and Ormseth will take blood samples from the otters every three weeks to see if the crude oil is causing the stress enzymes to increase. Using underwater cameras, they will watch otters to see if their diving ability is impaired by the crude oil, which can cause anemia.

The researchers will continue feeding some oil to the otter for 100 days, Ben-David said. Then, she will stop feedin them oil for 100 days before sh releases them in March 199

By feeding a toxin to one o the cutest mammals in Alask Ben-David expects a bit o opposition. She said feeding o to otters is the next logical ste in her study, a step that wi help determine how much o spills affect living creature and for how long.

"It's extremely important t validate those results we're get ting out in the field," she said "These results will be very usefu for future oil spill work. We can use the otters as a model for al marine mammals affected by oil.

Ned Rozell is a science write at the Geophysical Institute University of Alaska Fairbanks

Prince William Sound Otter Study...

Oil-Fed Otters May Unravel Pollution Impact

by Ned Rozell
Science Writer

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Rozell

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She said feeding oil to otters is the next logical step in her study, a step that will help determine how much oil spills affect living creatures, and for how long. "It's extremely important to validate those results we're getting out in the field," she said.

"These results will be very useful for future oil spill work. We can use the otters as a model for all marine mammals affected by oil."

(This column is provided as a public service by the Geophysical Institute, University of Alaska Fairbanks, in cooperation with the UAF research community. Ned Rozell is a science writer at the Institute.)

Grant funds $1 million in Steller research

By Roger Kane
LOG Staff

Stimulating cutting-edge Steller sea lion research at the Alaska SeaLife Center will be a little easier after the May 2 grand opening when Tom Melius from the National Fish and Wildlife Foundation presents the center with a check for $1 million.

The NFWF was specifically provided the money in fiscal 1998 through the National Marine Fisheries Service budget to support the SeaLife Center.

This is one of the biggest research grants the center has received and it will be used to fund 22 months of research dedicated to sea lions, Executive Director Kim Sundberg said.

The project's goals are laid out in a seven-element conceptual plan and reinforce the center's research-, rehabilitation- and education-oriented philosophy.

Objectives include helping Steller populations recover, educating the public about sea lion biology, ecology and conservation, and assisting the National Marine Fisheries Service in compiling and synthesizing information relevant to Steller research and management.

Under the direction of the center's research director, Mike Castellini, a professor of marine science with the University of Alaska Fairbanks, the Steller sea lion research plan would be implemented as soon as funding is in place.

Research coordinator

The first order of business is to appoint Donald G. Calkins as the senior marine mammal scientist. Until his retirement from the Alaska Department of Fish and Game in December, Calkins served as the department's lead wildlife biologist for Steller sea lion research and was chosen for his 27 years' experience working with Stellers.

While his position at the SeaLife Center is only half time, Calkins will lead the program, as well as any collaborative efforts between the center and the NMFS.

Visiting scientist

Castellini said the $1 million appropriation offers the SeaLife Center a unique situation, in that rather than soliciting scientists to conduct their research at the center and charging them a bench fee, "we get to bring people here."

And bringing someone here is one of the program's elements.

The center hopes to appoint a visiting Steller sea lion scientist by July 1 for a year-long appointment with a six-month renewal option.

In the conceptual plan written by Sundberg and Castellini, they state the visiting scientist would pursue his or her own research project in coordination with the senior marine mammal supervisor.

The position includes a $2,200 per-month stipend, travel, a housing allowance and office support costs.

Research contracts

Under the guidance of an NFWF review committee, Calkins will prepare a request for proposals to contract for Steller sea lion research at the SeaLife Center. The center hopes to have contracts in place by July.

Preference will be given for linking field and laboratory data and the RFP will emphasize Steller sea lion nutrition, physiology and telemetry testing.

The SeaLife Center also intends to initiate a graduate/post-doctoral research award program, which will absorb about $100,000 of the $1 million appropriation.

Another $150,000 will be used to fund collaborative research between the SeaLife Center and the NMFS.

Community-based research

Community and local industry leaders will be able to participate in research projects, reporting data of use to Steller sea lion research. The programs will be implemented and coordinated by Calkins and will potentially include support for the Youth Area Watch program to report tissue, age, size and other data collected from subsistence harvested sea lions.

A trained-observer program will also be created and data will be collected by people aboard tour ships and fishing vessels out of Seward and other communities.

Tissue database

An electronic database of Steller sea lion tissue samples will be created by the center's information technology manager and will catalog tissue samples from throughout North America.

Cataloged tissue will be published on the SeaLife Center's web page and will include samples from the Alaska Department of Fish and Game, NMFS, UAF, the North Pacific Universities Marine Mammal Research Consortium and others.

The database will be updated through 1999 and possibly longer if it's well received.

Information management

Steller sea lion data will be brought together and the information disseminated through exhibits at the center and also on the web page. Sea lion status, management, conservation efforts and research activities will comprise the bulk of publicly available information.

Steller sea lions

The final element of the conceptual plan will be supporting the direct costs of maintaining sea lions at the SeaLife Center.

There are currently three sea lions at the center, but more animals, specifically non-releasable stranded animals or transfers from other facilities, may take up residence at the SeaLife Center.

Food, medicines, veterinary care and half-time support for the SeaLife Center marine mammal supervisor to train animals for use by researchers is included in this element.

The Seward Phoenix
August 27, 1998

Stellers take nap while staff takes samples

The SeaLife Scoop

Compiled by Donna Harris

Earlier this month the three Steller sea lions underwent anesthesia and research procedures for the first time since coming to the Alaska SeaLife Center. It was both a training exercise and a research sampling exercise. Woody was anesthetized the morning of Aug. 11.

Dr. Bruce Heath, professor emeritus of veterinary anesthesiology form Colorado State University, came to assist and instruct Dr. Pam Tuomi and Millie Grey on gas anesthesia on sea lions. Heath and Dr. Calkins of the SeaLife Center developed the procedures for gas anesthesia on sea lions. Dr. Heath is recognized as the foremost expert in the field.

While the Steller sea lions were under anesthesia, researchers took blood samples, ultrasound measurements of the blubber thickness, body size measurements, and mapped and measured their whiskers. A sea lion's whiskers are an identifying characteristic similar to a person's fingerprints.

Most of our sea lion experiments are designed to help us better understand the decline that has put the wild population in Alaska into the endangered species category.

The animal husbandry staff, notably Dennis Christen and Vic Aderholt, worked especially hard to provide this opportunity and participated fully while the animals were anesthetized. Woody, Kiska and Sugarloaf were very cooperative and recovered exceptionally well from the procedures.

Pigeon guillemots

Lisa Thomas with the U.S. Geological Survey Resources Division in Anchorage will be assisting with the pigeon guillemot feeding and fledging this week. Fledging is proceeding well and all birds should be gone by Sept. 2-4.

Exhibits

Aug. 20 — Three more rockfish entered the kelp forest exhibit. The two quillback rockfish (Sebastes maliger) and the new copper rockfish (S. caurinus) swarmed peacefully in quarantine with a few other Sebastes for the last 10 days or so. Upon entering the habitat, the small copper rockfish segregated, making friends with Stan and Molly. The two quillbacks swam into the corner of the habitat, expanding gill arches and making hostile advances. The kelp forest is developing personality — more to follow.

We're seeking volunteers for exhibit interpretation and visitor education. We provide training. Call Jim Frederickson, volunteer coordinator, 224-6343.

More changes

Vic Aderholt has resigned as the director of animal husbandry and will be filling the position of facilities technician. Donna Harris is resigning as the director of marketing effective Sept. 4.

Dr. Pam Tuomi will be the new animal care coordinator. The center's veterinarian will also serve as the lead to coordinate the aquarium, avian and mammal teams. Cliff Menzel is now heading the life support team.

New staffers include Judi Andrijanoff, who fills the new position of development associate, and Maureen Sims in the new position of external affairs coordinator.

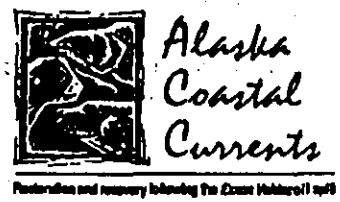
Donna Harris is marketing director at the Alaska SeaLife Center.

PENINSULA CLARION 1/25/98

Unique ties between tourism, science developing

Editor's note: It has been eight years since the Exxon Valdez ran aground in Prince William Sound, spilling nearly 11 millions gallons of Alaska crude oil. Time has since told quite a lot about the spill's long-term effects. To help tell the story, the Exxon Valdez Oil Spill Trustee Council is providing this column focusing on the ongoing recovery within the spill region.

By JODY SEITZ



In a short while basic research on marine mammals and birds in Alaska will get a boost — from a new facility that runs on tourism dollars.

Several marine species, including puffins and pigeon guillemots, will be housed at the Alaska SeaLife Center in Seward by the time it opens next May. Having the mammals and birds housed in controlled conditions will allow scientists to study the same animal over time. This is a big advantage to researchers like Amy Hirons, a University of Alaska Fairbanks biologist trying to learn why harbor seal populations in Prince William Sound are in a 20-year decline. Hirons is studying the whiskers of seals and sea lions to learn more about their diets. First, she must find out how fast the whiskers grow. That means she has to measure the whiskers of the same sea lions and harbor seals as they age. Until recently, the closest place to do the studies was an aquarium in Washington state. Now she's in luck. The sea lion and the seal she's been studying are moving to the SeaLife Center.

The center is the first of its kind in the northern hemisphere because it is intended to serve both scientists and tourists. Seawater from Resurrection Bay circulates through the facility. There are quarantine tanks and habitats that mimic natural environments of harbor seals, sea lions and seabirds.

But its most intriguing feature is its symbiotic design. Aside from the animals, visitors are also able to view and learn about ongoing research. Scientists and non-scientists can benefit each other, says Education Director Leslie Peart.

"Researchers need a constituency now to find their funding," Peart said. "They've got to be able to communicate the findings of their research to us. And people want to know what's really happening in the world of science and want very much to be able to understand it."

Victor Adderholt, director of aquatics, hopes the facility will heighten public awareness of the need to care for the marine environment. "I'm hoping that the SeLife Center will serve as an instrument to make the public aware of what we have and how much we have to work to protect it."

Scientific work with marine mammals requires that scientists obtain a permit guaranteeing the proper care and humane treatment of the animals. The center can hold these permits for the scientists and provide that guarantee. "We are here to provide folks with a facility to carry out their work, be it rehabbing stranded animals, be it research or what have you. And to have at their disposal a ready pool of expertise to help them in their goals," said Adderholt.

The center's staff hopes to fund research on Alaska's seabirds and marine mammals indefinitely through tourism. It seems possible. The expected number of visitors in the first year is a whopping one quarter million people.

Jody Seitz lives in Cordova and produces the Alaska Coastal Currents radio program.

The Seward Phoenix LOG

Thursday, June 11, 1998 Volume 32, Number 40 Seward, Alaska 75 cents

Harbor seal dies in rehabilitation

SeaLife Center officials seeking cause of death

By Roger Kane
LOG Staff

One of two harbor seal pups in rehabilitation at the Alaska SeaLife Center died unexpectedly June 3. The cause of death is still unknown.

The 2- to 3-week old pup arrived May 27 from Cordova with a 6-centimeter long and 5-centimeter deep wound over its right hip, likely caused by a boat propeller.

SeaLife Center veterinarian Pam Tuomi said the animal was initially responding well to treatment and its wound was healing nicely. The first sign anything was wrong came the morning of June 2, when the seal pup developed a dangerously high temperature of 103.6 degrees (normal is between 98 and 99 degrees).

At about the same time, the pup became "oblivious to being handled" and at about 3:30 a.m., after almost 24 hours of "not normally responsive" behavior, the critically ill seal died, Tuomi said.

"Everybody here was devastated," she said. While everyone had taken great care not to imprint human behavior upon the seal, the seal made a lasting impression on everyone working with it and after only a week, most became emotionally attached to the pup, she said.

The sudden illness and subsequent death took everyone by surprise, as they were concentrating on treating the animal's wound and had no idea it was sick.

Tuomi conducted a necropsy, a thorough examination of all body tissues. She weighed and measured the organs, and took samples of tissues, blood serum and cultures. The samples will be kept in the University of Alaska Fairbanks' archives, as well as in the SeaLife Center's archives.

During the necropsy, Tuomi discovered many pinpoint-sized hemorrhages scattered throughout the pup's brain.

The hemorrhages were present in the white matter of the medulla oblongata — the rear portion of the brain that regulates breathing, blood circulation and other muscle controls.

Tuomi said the lesions indicate that an infection is the likely cause of the young seal's death.

"Any physical trauma when it was hit (by the boat propeller) would've shown up within 24 hours. This is something that was incubating," she said.

But analysis of the animal's blood chemistry at admittance to the SeaLife Center and after its death revealed little about the pup's demise. No lung parasites or intestinal infections were found during the post-mortem examination either, Tuomi said.

"Those tissues were perfectly normal," she said.

If the seal suffered from a neurological infection, it's not likely that evidence of it would show up in the blood, she said, and there's no way of knowing what killed the seal, unless the organism responsible for the infection is identified.

"If it is an organism," Tuomi said.

A toxin may have caused the pup's death, but Tuomi is skeptical because there would have been visible tissue damage in more places than just the brain if the pup had been exposed to a lethal toxin.

Tuomi said a pathologist will be examining the samples she took from the pup and a pathology report should be available within a week.

Ongoing rehab

The other harbor seal pup being cared for at the SeaLife Center was about 3 days old when it arrived May 24 from Juneau. The pup was picked up and taken to the NMFS office in Juneau by a tourist who thought it had been abandoned.

The baby seal is not injured and is in good health. It's gaining weight steadily and behaving normally.

Now almost 3 weeks old, the animal is being tube-fed a high-fat pinniped pup formula similar to a baby formula. It will be weaned from the formula and introduced to live fish as soon as

its teeth come in.

The goal of the rehabilitation effort for this seal pup is to get it fattened up for reintroduction to the highly competitive and dangerous world of the sea.

According to a press release from the SeaLife Center, the tourists who picked up the seal pup most likely orphaned it in the process.

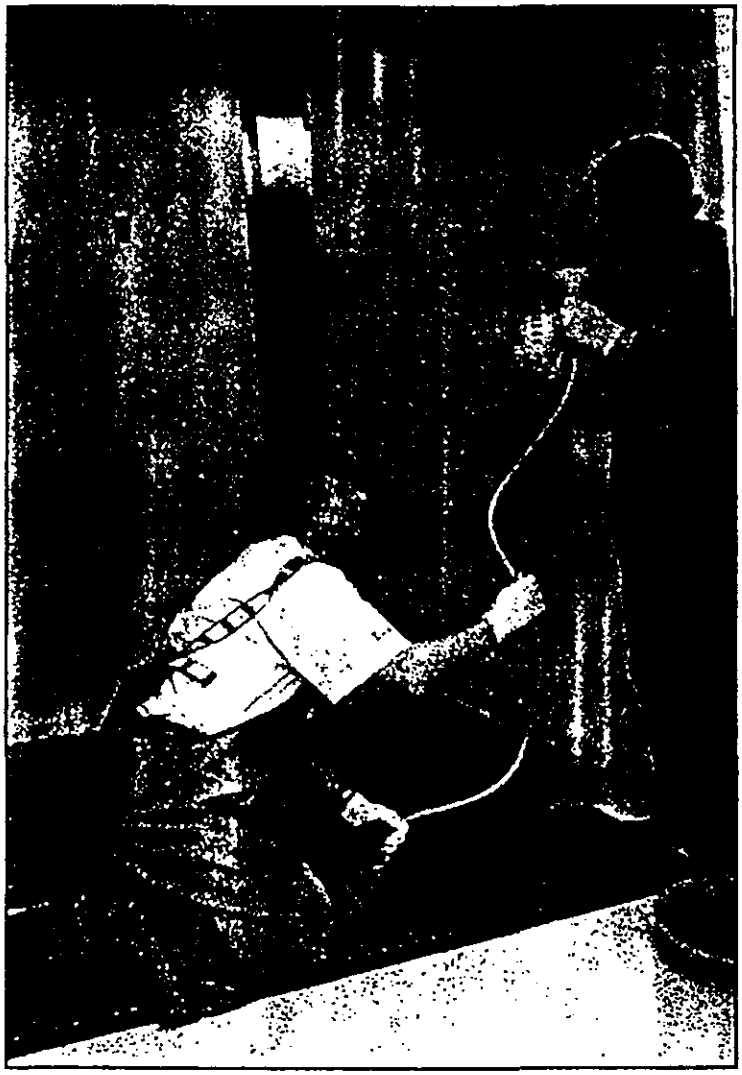
Barbara Mahoney, a biologist with NMFS in Anchorage, said no enforcement action was taken against the tourists in Juneau, as they thought they were helping the animal.

Mahoney said it's important to monitor any marine mammal that appears to be stranded for at least 24 hours before attempting to rescue it, especially in the case of young animals. The mothers of seals, for example, do not abandon their young unless they are being hunted, are injured or have been captured.

Mahoney said it's unclear why the number of stranded animals being reported or turned in to NMFS has risen in recent years. It may be that more animals are found stranded, but most likely the increases are the result of heightened public awareness.

And with more people exploring the Alaska coast, contact with marine mammals has increased as well.

"Alaska's always been kind of remote, but more areas are being covered now," Mahoney said, and NMFS is receiving better public input in Alaska.



Roger Kane/LOG photo

Veterinarian Pam Tuomi kneels over the 3-week-old harbor seal being rehabilitated at the SeaLife Center Friday as Lynn Aderholt pours the high-fat content pinniped formula into the hose from which the seal feeds.

Rescue unneeded

Seal pups found on ocean beaches in the spring may appear to be abandoned, but in most cases the mother is at sea feeding and will return to her pup.

NMFS encourages individuals finding seal pups not to touch or approach them.

James Day, an NMFS enforcement officer in Seward, said if an animal appears healthy and is behaving normally, it is probably not stranded.

"If an animal is not injured or clearly in trouble, it should be left alone," Day said.

Anyone who removes a seal pup from a beach may eliminate the possibility of the pup ever reuniting with its mother. Caring for an animal if it imprints on a human being or cannot otherwise be reintroduced to the wild is also costly.

NMFS wildlife biologist Kaja Brix said the costs they're most concerned with are that of an animal's welfare and to the species population.

She said people need to recognize that when they remove a lone pup from a beach, they are removing the animal from a "perfectly natural situation."

She said it's not uncommon for a mother seal to leave a pup for up to 10 hours while it is feeding at sea. If the pup is not there when the mother returns, the two will most likely never be reunited.

Brix said last year at least seven healthy pups were picked up from beaches and taken to NMFS by people who had assumed they were abandoned. She said true strandings occur much less frequently.

Harassment

Harassing any marine mammals, including seals, carries a fine of $10,000.

Mahoney said the code of conduct for wildlife viewing requires staying a minimum distance of 100 yards from a marine mammal. She said it's important to spend no more than 30 minutes viewing them and not to trap mammals between boats or encircle them.

All vessels should yield to animals traveling toward them, so as not to change their behavior, frighten or threaten them.

"And realize you're not the only boat in the animal's day," she said.

The cumulative effect of vessels and multiple-vessel contact, even though they may be operating within NMFS guidelines, can disrupt the animals.

SeaLife Center survives first months with few headaches

SEWARD (AP) — There have been some bumps along the way, but the directors of the SeaLife Center say the laboratory and tourist attraction has survived its first three months.

Despite worries from some Seward residents, parking problems and traffic congestion never materialized, even as about 10,000 people a week stopped by the new attraction on the edge of Resurrection Bay.

The center's financial picture isn't yet clear, but things look hopeful. "We probably won't know until late this fall how we're doing in 1998," general manager Darryl Schaefermeyer said. "But I think the trend shows we should be pretty close (to budget goals)."

By the end of August, about 150,000 people will have visited the marine research center, Schaefermeyer said, putting it at 94 percent of its late-summer attendance target.

Those visitors are key to the center's survival. It cost $56 million to build, and while construction costs were borne through a portion of the settlement paid by Exxon for the 1989 oil spill, municipal bonds and private contributions, the facility is supposed to be self-sustaining.

At its core, the SeaLife Center is a laboratory where researchers study animals that inhabit Alaska waters. For a $12.50 admission fee, people can see the animals being studied and the scientists at work.

But unlike marine theme parks, visitors don't see trained killer whales. They're more likely to watch researchers darting river otters with anesthetic to draw blood samples.

Three large tanks house sea lions, harbor seals and seabirds. There are also videos, photographic displays and large aquariums housing pollock, salmon, starfish, crab and other creatures.

So far, visitors appear to enjoy watching and interacting with the researchers, said Michael Castellini, the research director. Researchers, he said, are having fun being on display and answering questions — attention that's rare in a university or agency setting.

"There's no other place that does it like this," Castellini said.

Something that separates this facility from others is that researchers routinely stop what they're doing — taking a harbor seal out of a tank, for instance, and placing it in a cage to weigh — to explain to onlookers what they're up to.

"Questions range from, 'How come they're all disappearing?' to "How do you weigh them?' " he said.

Castellini can't answer the first question. It's one reason the SeaLife Center exists. Populations of harbor seals and sea lions in the Gulf of Alaska have dropped significantly since the 1970s, and studies conducted at the center are examining the role of diet in the declines. Populations of herring and crab have dropped in the region, and one theory is that seals and sea lions are eating more of other foods instead, including pollock, and they provide less nutrition.

Another break with tradition for some scientists has been naming, not numbering, captive birds and sea otters. A name is easier for children to grasp, said George Divoky, an Oregon State University seabird biologist who has spent the summer raising pigeon guillemot chicks that may one day colonize an old sea wall next to the SeaLife Center. Among the chicks' names: Mili and Nano.

With ticket revenue paying roughly two-thirds of research costs, biologists such as Divoky have been flocking to the center, Castellini said. More than a half-dozen studies are taking place now.

Castellini predicted the center, which has room for 13 separate studies at once, will be at full capacity early in 1999.

"I think they're getting a pretty good deal," said Schaefermeyer, who said the center may take a second look at its price breaks for researchers. "It'll still be heavily subsidized, but not as subsidized as this first year," he said.

The center also has what Schaefermeyer described as an "ambitious" program to raise $1.5 million from corporations and foundations in the year's final four months. That fund raising is just now seriously getting under way.

The Seward Phoenix Log
July 16, 1998

SeaLife Center gets its 100,000th visitor July 12

Visitor No. 100,000 entered the doors of the SeaLife Center July 12. Visitation is running on par with earlier estimates, which predicted 100,000 visitors would enter the facility sometime the second week of July.

The Family Fun Run Saturday, Aug. 8 will help raise funds to support the marine wildlife rehabilitation program. Call the rehabilitation department, 224-6395, for details.

The SeaLife Scoop

Compiled by Donna Harris

We need volunteers in a variety of departments. Call Jim Frederickson at 224-6343.

Membership in the SeaLife Society includes more than 1,550 people. Benefits include discounts in the gift shop and on visitor admission, free parking, a newsletter subscription and invitations to special programs. Call Larry Dalberg, 224-6313, to join.

Exhibits

June 30: When accompanied by a docent or volunteer, visitors can see tufted puffins and common murres up close in the bird aviary area.

July 1: The low tide microhabitat is complete and includes a nice-sized red rock crab (Cancer productus). Like all Cancer species, these crabs can be quite nasty, so we're not going to put anything else in there for the time being.

There is a lingcod to the harbor bottom exhibit. As expected, the searcher came over and immediately there was some territorial aggression between the two. If you see them erecting their gill covers or lining up side by side with erect dorsal fins, this is what they are doing. The searcher is maintaining territory by the rocks, while the lingcod appears to have settled in on the other side of the tank by the pilings. An important commercial and sport species, lingcod primarily eat fish, but also dine on crabs, shrimps, squid and octopus.

July 3: The exposed rock wall microhabitat has two plumose anemones (Metridium senile) and one heart crab (Phyllolithodes papillosus). The little heart is a lithode similar to king crabs. It clings to rocks and is well camouflaged with a colorful carapace that is distinctively furrowed and ridged in a vaguely heart-shaped pattern.

In the sheltered rock walls microhabitat there is a masked greenling (Hesagrammos octagrammus). These bright greenlings are found fairly shallow in kelpy areas in Alaska waters more northerly than other members of their family. There is also a beautiful crinoid or feather star (Florametra serratissima), a blood star (Henricia leviuscula) and brown alga (Alaria nana).

The splash zone microhabitat now contains barnacles (Balanus glandula) and a periwinkle snail (Littorina sp.). Keyhole limpets (diadora aspera) and pink scallop (Chlamys sp.) have been added to the rock/sand borders microhabitat.

July 4: We opened the jelly exhibit this morning with moon jellyfish (Aurelia aurita) common to bays, estuaries and offshore waters.

July 6: The aquarium staff dive team went to Aialik Bay and brought back numerous invertebrates such as sea stars, sea anemones and chitons. They also found a crested sculpin, a fish found in Alaska and as far west as Korea but not in the Lower 48. It has huge fanlike fins and looks like leafy brown algae.

Rehabilitation

July 1: The female harbor seal pup from Egegik has been named Denali. When she arrived two weeks ago, she weighed 8.4 kilograms. Her weight is now 10.5 kilos. She joined Yukon, the other rehab harbor seal pup, in outdoor lab pool No. 7 today.

July 8: An abandoned sea otter pup picked up in the Klawok area is at the center. We will stabilize the very small pup before sending it elsewhere for long-term care because rehabilitated pups cannot be released to the wild. They need 24-hour, around-the-clock care for grooming and feeding needs and become imprinted to humans, and therefore must be placed in a zoo or aquarium. The Sea Life Center does not have a permanent facility for sea otters. It is important that people not to assume an otter pup that is by itself is abandoned. The mother often leaves the pup floating on the surface when she dives to feed herself.

July 10: The two harbor seal pups are doing fine. Yukon is fully weaned onto fish and is healthy and gaining weight. Denali, the second pup, was also quickly weaned to fish. We hope to release both pups when they weigh approximately 20-25 kilos, are able to catch fish and pass a veterinary exam. They will be tagged with telemetry devices so we can monitor their progress in the wild.

July 15: Aialik, the new sea otter pup, has found a home and is being sent to Oregon Coast Aquarium today.

Research

Researchers conducted their first blood testing on the river otters the last week of June. Samples will be taken every three weeks to check on the otters' health. Several otters were examined by x-ray and ultrasound to check their limbs and internal organs. All are in good health.

July 10: There are nine chicks hatched in the pigeon guillemot project. All are named after units of measurement: Gram, Pascal, Pico, Nano, Megabyte, Joule, Curie, Coulomb and Tesla. Another chick is piping, or breaking out of its shell. Piping usually takes two days.

Last week, George Divoky and Andrew Hovey collected eggs in the Shumagin Islands off Sand Point. The eggs are similar in size to chicken eggs and have a cream to blue background with brown speckles. From a 1970s census, the Shumagins were known to have large numbers of pigeon guillemots. In visiting the islands, Divoky and Hovey found that numbers have dropped dramatically. This week Sadie Wright is collecting eggs in the Juneau area.

Terrie Williams, a marine mammal physiologist for the University of California Santa Cruz, will arrive next week to work with Merav Ben-David on river otters performing physiological research involving metabolic studies. She will also give a seminar on energetics.

Mammals

July 2: Tina and Pender have been in the harbor seal backholding area as we train them to "slug hop" over to the platform scale. We have also been working on voluntary morphometrics, or measurements which is something new for all of the seals.

Woody, the sea lion, has gained 130 pounds since arriving at the SeaLife Center. He weighs 631 pounds (285.5 kilos). We made a custom 96-inch ruler to get standard lengths (tip of the snout to the tip of the tail) for the sea lions. Woody is 9 feet, 6 inches (231.5 centimeters).

We introduced Kiska, one of our two female Steller sea lions, to the four older harbor seals in the outdoor lab research deck last week. The seals seemed fairly interested in Kiska, but gave her enough space. Kiska, on the other hand, pretty much ignored the seals.

Donna Harris is marketing director at the Alaska SeaLife Center.

Anchorage Daily News
August 18, 1998

SeaLife Center

A remarkable institution

At the Alaska SeaLife Center, you won't see a trainer riding Shamu like a rocket or a synchronized leap of dolphins. "We're not Sea World," executive director Kim Sundberg said.

Delights are less spectacular at the Seward research center. Here you can lightly touch an array of starfish and learn about them by talking with an attendant on the spot. You can fall under the spell of the sea lions' graceful glide under water and marvel at the subsurface flying of puffins as they dive for their dinner.

Marine life puts on a show, but the center isn't theater. Its role is research, rehabilitation and education.

Mr. Sundberg points out, for example, that the puffins' underwater display has surprised even veteran marine scientists, who are now talking about different research into buoyancy and how the birds swim under water.

Steller sea lions have been in decline for years and still no one is certain why. "We're working hard to try to turn that around," Mr. Sundberg said.

The hard work here isn't all behind closed doors, either. Those $12.50 and $10 admission tickets pay for most of the research in progress. In return, researchers are expected to give something of themselves in explanations about their work.

"We've been fortunate to have researchers who enjoy that interaction," Mr. Sundberg said.

It brings the work of the center closer to home for Alaskans and out-of-state visitors, and gives people a better idea of what their tickets buy.

Those tickets also help cover the costs of making such research possible. Exxon Valdez oil spill money paid for most of its construction, but the sea life center aims to be self-sustaining. Part of that sustenance is covering costs that include monthly utility bills of $35,000 and a yearly $1.7 million bond repayment. Monthly payments on the bond go up to $149,000 in September.

"Our costs of operation are probably higher than anywhere else in the country," Mr. Sundberg said. "We'd love to be able to discount our tickets ... but that wouldn't make our operating expenses."

The Alaska SeaLife Center has even more ambitious plans for the future, including a sea otter habitat, auditorium, cooperative ventures with the University of Alaska, an Internet data base and an endowment for a research chair. Those dreams will take a bigger bankroll than gate receipts and gift shop sales will provide.

But those sales remain vital to the center's mission. When we put our money down, we gain knowledge, enjoy wonder and pay for the rescue of marine life. At the same time, we invest in the discovery of more knowledge and understanding. Like much research, the work of the center likely will pay off in ways we haven't imagined yet.

The Alaska SeaLife Center is only 3 months old. Already it's worth the price of admission.

Austrian fulfilling quest to work at SeaLife Center

By Roger Kane
LOG Staff

Originally from Vienna, Austria, Elisabeth Auberry came to Seward with the intention of working at the Alaska SeaLife Center and has thus far succeeded in her quest.

Auberry has been working on artwork at the SeaLife Center and has also completed some computer graphics projects.

She's created a teachers' brochure and an illustration of a wolf eel and is also working on another brochure while she works toward her ultimate goal— securing a research grant.

Auberry wants to study comparative anatomy at the SeaLife Center and to create textbook illustrations for marine biologists, zoologists and veterinarians.

In addition to volunteering her desktop publishing skills and creating educational illustrations, she is also working on a series of drawings she hopes to release for reprinting and sale by winter.

Thus far she's completed two of the seven wildlife portraits she intends to create for the set. The first is a Dall sheep and the second is a bald eagle. She plans to add a porpoise, puffins, a mountain goat, a moose and possibly a wolf.

At the early age of 2 her skill as an artist emerged and Auberry said she's been drawing ever since. The woman with an IQ of 180 also has an impressive list of achievements.

When she was 13 years old, her love of science and exceptional intellect gained her admittance to the University of Vienna in Austria, where she studied biological sciences, marine biology and zoology for 16 years.

She's earned two Ph.D.s, a medical degree and a seat representing Austria at five conferences of the International Atomic Energy Agency. She is one of 30 women worldwide to participate as a representative in the 300-member agency.

She has also exhibited her artwork in 16 gallery shows while living in Austria.

Auberry has also worked as a medical and scientific illustrator and was employed by the University of Vienna medical school for six years. She also created illustrations for researchers and publishers in Austria and Germany for 13 years.

She's earned two Ph.D.s, a medical degree and a seat representing Austria at five conferences of the International Atomic Energy Agency. She is one of 30 women worldwide to participate as a representative in the 300-member agency.

She earned one doctorate degree in medical physics and physiology after studying the Chernobyl nuclear accident and the medical and biological impacts of the radiation on people and animals.

The other Ph.D. focused on comparative neuro-anatomy and the correlations between the physical health of the human brain and intellectual development.

Some of the significant findings of her brain research include a way of accurately measuring the brain of a human by measuring specific dimensions of the skull. Auberry said she had measured more than 300 skulls, which confirmed her theory.

She said she kept her research a secret for a long time before publishing a dissertation of the findings in order to prevent others from taking credit for her work.

Medical illustrator Elisabeth Auberry has lived in Seward two months and is hoping to get a grant to study comparative anatomy at the Alaska SeaLife Center.

Since moving to Alaska four months ago with her husband Vance Auberry, Elisabeth said she hopes to be able to create Alaska art as a second profession.

Three months and counting

Anchorage Daily News
August 17, 1998

Photos by STEPHEN NOWERS / Anchorage Daily News

Allison Wright, a summer intern from Long Island University in New York, conducts a science lecture recently at the Alaska SeaLife Center. Below, river otters dine on salmon in their enclosure.

SeaLife Center closes in on budget goals

By JON LITTLE
Daily News Peninsula Bureau

SEWARD — The Alaska SeaLife Center, an experimental blend of science and entertainment, has survived its first critical three months in reasonable shape, its directors say.

But like any toddler, there have been some bumps along the way and the marine research facility has plenty of growing yet to do, said its general manager, Darryl Schaefermeyer.

"We probably won't know until late this fall how we're doing in 1998," Schaefermeyer said. "But I think the trend shows we should be pretty close (to budget goals)."

Despite fears from some local residents, parking problems and traffic congestion never materialized, even as roughly 10,000 people a week have stopped by the new attraction on the edge of Resurrection Bay. It opened in a mad dash on May 1, with construction still being completed. Most of the work is now done.

By the end of August, about 150,000 people will have visited the marine research center, Schaefermeyer said, putting it at 94 percent of its late-summer attendance target

Those visitors are key to

Please see Page B-3, CENTER

Anchorage Daily News

CENTER: Seward facility closes in on goals

Continued from Page B-1

the continuing survival of the center, which cost $56 million to build. While construction costs were borne through a portion of the settlement paid by Exxon for the 1989 oil spill, municipal bonds and private contributions, the facility was developed to be self-sustaining.

At its core, the SeaLife Center is a laboratory where researchers study animals that inhabit the cold seas surrounding Alaska. People who pay the $12.50 admission get to see some of the animals being studied and scientists at work.

But unlike marine theme parks, visitors don't see trained killer whales. They're more likely to watch researchers darting river otters with anesthetic to draw blood samples.

Three large tanks house sea lions, harbor seals and seabirds. There are also videos, photographic displays and large aquariums housing ocean dwelling creatures such as pollock, salmon, starfish and crab. Children can draw and mold clay in an art lab.

So far, visitors appear to enjoy watching and interacting with the researchers, said Michael Castellini, research director. Researchers, he said, are having fun being on display and answering questions — attention that's rare in a standard university or agency setting.

"There's no other place that does it like this," Castellini said.

So many visitors crowd a large picture window every time workers routinely drain the main outdoor pool for cleaning that one scientist will head upstairs to explain what's going on.

Something that separates this facility from others is that researchers routinely stop what they're doing — taking a harbor seal out of a tank, say, and placing it in a cage to weigh — to explain to onlookers what they're up to.

"Questions range from, 'How come they're all disappearing?' to "How do you weigh them?' " he said.

Castellini can't answer the first question. It's one reason the SeaLife Center exists. Populations of harbor seals and sea lions in the Gulf of Alaska have dropped dramatically since the 1970s, and studies conducted at the center are examining the role of diet in the declines. Populations of herring and crab have dropped in the region, and one theory is that seals and sea lions are eating more of other foods instead, including pollock, and they provide less nutrition. Scientists here are testing the theory.

To help the center shift its fund raising into higher gear, it recently hired former Kenai River Sportfishing Inc. executive director Ben Ellis to become the SeaLife Center development director.

The second question is a lot easier, he said. Animals are weighed after being loaded into a wheeled cage and placed on a scale.

Another break with tradition for some scientists has been naming, not numbering, captive birds and sea otters. A name is easier for children to grasp, said George Divoky; an Oregon State University seabird biologist who has spent the summer raising pigeon guillemot chicks that may one day colonize an old sea wall next to the SeaLife Center. Among the chicks' names: Mili and Nano.

With ticket revenue paying roughly two-thirds of research costs, biologists such as Divoky have been flocking to the center, Castellini said. More than a half-dozen studies are taking place now.

Castellini predicted the center, which has room for 13 separate studies at once, will be at full capacity early in 1999.

"I think they're getting a pretty good deal," said Schaefermeyer, who added that the center may take a second look at its price breaks for researchers. "It'll still be heavily subsidized, but not as subsidized as this first year," he said.

That won't be the only adjustment as the SeaLife Center moves further away from concept to reality.

While ticket and gift shop sales are a huge part of the center's income, sponsors are supposed to help out, too, Schaefermeyer said. The center has what Schaefermeyer described as an "ambitious" program to raise $1.5 million from corporations and foundations in the last four months of the year. That fund raising is just now seriously getting under way.

To help the center shift its fund raising into higher gear, it recently hired former Kenai River Sportfishing Inc. executive director Ben Ellis to become the SeaLife Center development director.

Officials with the facility hope that corporate and private sponsors will help the facility pay for everything from an Internet data base to endowments for science chairs.

Large construction projects, such as a sea otter habitat and an auditorium, also have been part of the center's plans from the beginning, if it can line up the money.

Before the SeaLife Center opened its bright yellow doors, it projected a $7.9 million income and $6.2 million in expenses for the year.

With visitor numbers — the biggest piece of the income puzzle — looking good, the biggest question now is whether the center will meet its $1.5 million sponsorship goal, Schaefermeyer said.

SEWARD PHOENIX LOG
August 20, 1998
pag 1 & 19

Contractor says SAAMS owes money

By Colleen Kelly
LOG Staff

Claiming that the developer of the Alaska SeaLife Center has refused to sufficiently compensate them for construction costs, the general contractor of the $56 million facility has filed a complaint in U.S. District Court seeking relief in excess of $6 million.

Lawyers for Strand Hunt, the contractor that completed the cold-water marine mammal research facility this spring, filed the civil complaint July 22 in Anchorage against the Seward Association for the Advancement of Marine Science.

Darryl Schaefermeyer, general manager since Aug. 1 at the SeaLife Center and SAAMS project administrator throughout the two-year construction phase, was reluctant to discuss the matter in detail, saying he had no intention of conducting "negotiations through the press."

He said SAAMS and Strand Hunt of Kirkland, Wash., are currently in discussions and trying to clear up contract problems. "We've not met with legal counsel present," he said.

According to a statement issued Tuesday by the SAAMS board of directors, Strand Hunt's lawyers filed the complaint last month in federal court during an ongoing series of meetings and conferences involving the two sides.

"No party has been served and no litigation has been activated," the SAAMS statement said.

"It is not unusual for a project of this magnitude to have outstanding issues with the general contractor. Issues that may arise during such a large construction project often include disputes over costs," the statement continued.

According to a federal court clerk in Anchorage, SAAMS received notice last month that Strand Hunt had filed a complaint. To activate the lawsuit, Strand Hunt will have to serve SAAMS with a summons.

Attorney David Trachtenberg with Groff and Murphy, the Seattle law firm representing Strand Hunt, wouldn't say if or when Strand Hunt would serve the summons.

Trachtenberg said although he "wouldn't call this lawsuit a non-event," he emphasized that neither side wants to derail the negotiations. "We're all — SAAMS and us — trying to resolve these issues," the attorney said.

He agreed with SAAMS' statement that litigation isn't that uncommon when dealing with construction projects similar to the SeaLife Center.

"It's a unique and complex project," he said, "where you're blending a lot of different issues" — including marine exhibits and a sophisticated water piping system that brings ocean water into the plant.

Strand Hunt filed the complaint because "there are some contract requirements that we needed to comply with," Trachtenberg said.

From the project's inception, SAAMS and Strand Hunt have worked together, the attorney said, "to solve issues as they came up on the job."

The construction contract provided for what is called a "partnering process," which was done

Attorney David Trachtenberg with Groff and Murphy, the Seattle law firm representing Strand Hunt, wouldn't say if or when Strand Hunt would serve the summons.

under the direction of Charles Cowan — "one of the leading partner facilitators in the country," according to Trachtenberg.

With construction complete and the facility open and operating since May, Strand Hunt is claiming that SAAMS still owes it money.

Strand Hunt was successful bidder for the $27.5 million construction contract. During the two-year construction phase, the project cost increased to $29.2 million. Trachtenberg said although SAAMS has paid Strand Hunt "about $29.2 million or so to date" for its work, there is an outstanding amount owed the Washington construction firm.

Neither he nor SAAMS are willing to disclose what the disputed outstanding dollar amount is. Describing SAAMS as a private nonprofit corporation, Schaefermeyer wouldn't go into detail about the dispute and said, "That's part of our business."

The SeaLife Center general manager said, "for purposes of the contract, SAAMS is the owner (of the SeaLife Center)."

But the City of Seward is the owner of the building, according to Rick Gifford, city finance director. The city and SAAMS have an agreement whereby SAAMS agreed to construct, complete and operate the SeaLife Center, Gifford said.

If SAAMS gets sued, the city doesn't anticipate getting involved in the fray. "SAAMS and their insurance company will have to deal with it," Gifford predicted.

Gifford, who was acting city manager until the city hired Scott Janke in May, served on SAAMS' executive board in the final phases of the construction project.

"As we got closer to the completion of the project, that's when differences started coming up," he said. Although Gifford said he was aware of negotiations between the contractor and SAAMS, he didn't know the details.

Both Gifford and Assistant City Manager Tylan Schrock said they had heard rumors about Strand Hunt's plans to seek damages from SAAMS. But neither of the city officials had received word from SAAMS in recent weeks about the latest developments.

In the complaint filed in federal court, Strand Hunt contends SAAMS breached the contract when it refused to compensate Strand Hunt for changes made during construction. Strand Hunt also said by delaying certification of project completion, SAAMS wrongfully assessed the construction firm in excess of $2.7 million for liquidated damages.

In addition to claiming breach of contract, Strand Hunt is alleging they were defrauded when SAAMS led them to believe they had enough money to pay for a number of change orders during the construction project.

The contractor further contends in its complaint that SAAMS was negligent because it failed to inform the contractor it "did not have sufficient financial resources to compensate Strand Hunt."

In the complaint, Strand Hunt seeks a court trial to determine damages in excess of $6 million for breach of contract, as well as further damages for fraud and intentional misrepresentation to be determined at a trial. Strand Hunt is also asking that SAAMS pay all funds outstanding on the contract balance.

ANCHORAGE DAILY NEWS
August 21, 1998

Builder sues sea center for $6 million

By NATALIE PHILLIPS
Daily News reporter

The general contractor of Seward's Alaska SeaLife Center has filed a $6 million lawsuit against the nonprofit organization that owns the center, claiming it wasn't reimbursed for extensive modifications required during construction.

The Washington state contractor, Strand Hunt Construction Inc., also contends that the nonprofit wrongfully charged it $2.7 million for not meeting a construction deadline, according to the lawsuit filed in federal court. Strand Hunt claims it met the deadline and said delays were caused by the center's owner, the Seward Association for the Advancement of Marine Science.

SeaLife Center officials did not return phone calls Thursday. Instead, the organization issued a one-page statement.

"It is not unusual for a project of this magnitude to have outstanding issues with the general contractor," the statement said. "Issues that may arise during such a large construction project often include disputes over costs."

An attorney representing Strand Hunt declined to discuss the case.

The $56 million center opened this spring as a science research facility and tourist attraction. Construction costs were covered by municipal bonds, private contributions and money that Exxon paid federal and state governments to settle claims following the oil company's 1989 spill in Prince William Sound.

The facility was developed to be self-sustaining with researchers bringing in funding through grants and visitors paying $12.50 apiece to see the animals being studied and scientists at work.

According to the suit, Strand Hunt signed two contracts with the nonprofit organization, known as SAAMS, in May 1996. One was to build the center and the second to build the exhibit space.

The suit, filed July 23, states that "during the course of the construction, Strand Hunt experienced numerous problems, including, but not limited to, significant changes to the plans and specifications provided by SAAMS, incomplete, inadequate and defective plans and specifications provided by SAAMS, ... poor owner management of the project, ... and interference by SAAMS and its agents in Strand Hunt's construction of the project."

Strand Hunt officials claim that they talked to SAAMS officials about the modifications and the two parties agreed to the costs. SAAMS representatives assured them that the nonprofit organization had the money to cover the increased costs, the contractor claims in the lawsuit. But when it was time to collect, the nonprofit did not have the money to pay Strand Hunt, the suit contends.

At some point, Strand Hunt and SAAMS officials entered into negotiations to resolve the dispute and Strand Hunt accepted a settlement offer. But later, SAAMS reneged on the agreement, according to the lawsuit.

SEWARD PHOENIX LOG
6/18/98

Sun clears way for floating dock

By Colleen Kelly
LOG Staff

Rainy spring weather delayed Kenai Fjords Tours' plans to have a floating dock in place last month at the Alaska SeaLife Center. The project finally got to move forward as sunny skies held court in recent days.

"It's been ready to go in for the past two weeks, but the weather has been the holdup," said Tom Tougas, president of Kenai Fjords Tours, in a Tuesday interview.

"We put the anchors on this morning and hope to set the dock in this afternoon, if the wind doesn't interfere," he said.

A 114-foot ramp will connect the 28-by-116-foot dock to the uplands.

With the floating dock in place, it'll cut down the number of bus trips transporting cruise ship passengers from the small boat harbor to downtown and back, Tougas explained, while still allowing visitors to take in both downtown Seward and a wildlife boat cruise.

According to Kenai Fjords Tours' game plan, passengers coming into port in the morning can get off the cruise ship and go on a Kenai Fjords wildlife cruise from 8 a.m. to 2 p.m. The wildlife tour boat will pull up to the floating dock at the SeaLife Center and passengers getting off there will have about three hours to spend downtown.

"If they're Princess cruise ship passengers, then they'll get on a Princess bus" to leave Seward, Tougas said. Holland America cruise passengers travel on Gray Line buses.

It cuts out the transfer from the harbor to downtown and vice versa, he said.

For Princess and Holland America cruise passengers arriving in Seward from Anchorage or other points north, it's just the reverse, he said. They get here about 10 a.m. and then have about an hour and a half downtown before boarding the wildlife tour boat from the floating dock, Tougas said.

The tour company president said they've projected a daily average of 100 visitors will utilize the new floating dock this summer.

The dock will be pulled about mid September at the end of the cruise ship season, Tougas said. "It's the same thing we do at Fox Island," he said.

The floating docks will be stored in the off-season at Seward Marine Industrial Center.

Kenai Fjords Tours signed a 20-year lease in January with the city of Seward for about 34,500 square feet of tidelands. Rent starts out at about $1,380 per year.

According to lease terms, the floating dock will have one berth available for competing wildlife cruise tour boat companies.

In addition, Kenai Fjords Tours is leasing land from the SeaLife Center so it can provide a covered waiting area. Any tour company using the dock will have to pay the SeaLife Center rent of $1 per passenger who embarks or disembarks.

DRAFT

Alaska SeaLife Center Tour

Exxon Valdez Oil Spill Trustee Council
Public Advisory Council
September 15, 1998
12:30 to 5:00 p.m.

AGENDA

12:30 p.m.	Arrive at SeaLife Center Meet Maureen Sims and Mike Castellini in Lobby
12:30 to 1:30	Facility Tour Front of house tour
1:30 to 1:45	Break and Refreshments Soft drinks and fruits/cookies
1:45 to 2:00	Opening Remarks Overview of all projects, ASLC project history Dr. Mike Castellini
2:00 to 2:15	Pigeon Guillemot Restoration Research Dr. George Divoky
2:15 to 2:30	Harbor Seal Recovery: Controlled Studies of Health and Diet Dr. Mike Castellini
2:30 to 2:45	Construction of a Linkage Map for the Pink Salmon Genome Dr. Jim Seeb
2:45 to 3:00	Break
3:00 to 3:15	Investigations of Genetically Important Conservation Units of Rockfish, Walleye, Pollock and Herring Dr. Jim Seeb
3:15 to 3:30	Responses of River Otters to Oil Contamination: A Controlled Study of Biological Stress Markers and Foraging Success Dr. Merav Ben-David
3:30 to 3:45	Break
3:45 to 5:00	Behind the Scenes Tour Labs and Research Deck

DRAFT

Public Advisory Group

Seward/Kenai River Field Trip Summary
September 15-16, 1998

PAG Members in Attendance:
Rupert Andrews
Pamela Brodie
Chip Dennerlein
Eleanor Huffines
Jim King
Chuck Meacham
Brenda Schwantes
Stacy Studebaker
Howard Valley
Gary Cadd, Rep Hodgins' office staff
Kelly Wolf, Youth Restoration Corps (9/16)

EVOS Staff:
Eric Myers
Stan Senner
Sandra Schubert
Joe Hunt
Cherri Womac

Agency Staff:
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Bruce Wright, National Oceanic & Atmospheric Administration
Karen O'Leary, U.S. Forest Service
Jack Sinclair, Alaska Department of Natural Resources
Dave Athons, Alaska Department of Fish & Game
Suzanne Fisler, Alaska Department of Natural Resources
Chris Degerness, Alaska Department of Natural Resources
Bill Berkhahn, Alaska Department of Natural Resources
Mark Kuwada, Alaska Department of Fish & Game

Presenters:
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Maureen Sims, Alaska SeaLife Center
Dr. Mike Castellini, Project 99341 principal investigator
Jeff Olsen, Projects 99190 & 99252 principal investigator
Dr. Merav Ben-David, Project 99348 principal investigator
Dr. George Divoky, Project 99327 principal investigator - via video

Open House attendees
Jon Agosti, Qutekcak Shellfish Hatchery
Mayor Bob Satin, City of Seward
Willard Dunham, SAAMS Executive Committee Member

Met at Kenai Dunes by:
Representative Mark Hodgins
Keith Kornelis, City of Kenai

Tuesday, September 15, 1998

Upon arrival in Seward the PAG traveled immediately to Grouse Lake, a heavily forested 64-acre parcel with clear-water streams. The parcel is managed by USFS as part of the Chugach National Forest and was purchased with EVOS funds. Karen O'Leary, USFS, met the PAG and answered questions regarding the parcel and surrounding area. The parcel provides key habitat for pink salmon and Dolly Varden, and is the site for an active sockeye salmon stocking program. The lake is a favorite recreation area for local residents and tourists.

Following the visit to Grouse Lake the PAG traveled to Lowell Point, another parcel purchased with EVOS funds and consisting of 700 linear feet of Resurrection Bay frontage. The parcel is managed by ADNR-Division of Parks and Outdoor Recreation to enhance recreation and ensure public access to Caines Head Trail. Jack Sinclair, ADNR, met the PAG and answered questions regarding the parcel and Caines Head Trail. Besides providing public access to Resurrection Bay for small-boat operators and kayakers, it is a popular site for picnicking, fishing, camping, and beachcombing. It is also used by schools as far away as Anchorage for educational field trips.

The Qutekcak Hatchery plant manager Jon Agosti guided the PAG through the hatchery. (The Trustee Council is funding a clam restoration project at the facility.) Mr. Agosti started with a brief background of the hatchery's origins and purposes, then led the PAG from cultivation of nutrients to feed clams and oysters to spawning shellfish and finally to actual shellfish seed. Tatitlek, Nanwalek and Port Graham are the focus areas for seeding.

Following lunch the PAG met with Maureen Sims and Dr. Mike Castellini at the Alaska SeaLife Center (ASLC) and participated in a behind-the-scenes tour of the facility. ASLC is attempting to educate the public regarding its purpose and inform them a percentage of the admission fee funds research. The PAG also met with principal investigators working on EVOS funded restoration projects for FY 99. Dr. Castellini addressed project 99341, Harbor Seal Recovery: Controlled Studies of Health and Diet. Jeff Olsen spoke on projects 99190 and 99252, Constructing a Linkage Map for Pink Salmon and Investigations of Genetically Important Conservation Units of Rockfish, Walleye, Pollock and Herring. Dr. Merav Ben-David and her river otters described the Responses of River Otters to Oil Contamination: A Controlled Study of Biological Stress Markers and Foraging Success, project 99348. Via video, Dr. George Divoky presented the results of the Pigeon Guillemot Restoration Research at the ASLC, project 99327. During Dr. Castellini's closing remarks, he pointed out that the ASLC has been approached by a

number of interests wanting to conduct research at the facility, and that by next year the research part of the facility may be at capacity. He feels the ASLC is quite successful.

An Open House was held at a local coffee house. In addition to the PAG members and staff, the Open House was attended by three Seward residents. Jon Agosti answered more questions from the PAG. Mayor Bob Satin and Willard Dunham (SAAMS Executive Committee member), both volunteers at the Alaska SeaLife Center, mingled informally with the staff and PAG. Mayor Satin approached the PAG regarding their views on creation of a Marine Science Charter School. Mr. Dunham discussed the Restoration Reserve and ASLC.

Wednesday, September 16, 1998

The PAG was accompanied by several agency staff: Alex Swiderski, ADOL; Chris Degerness, Suzanne Fisler and Bill Berkhahn, ADNR; and Dave Athons, ADFG, on the Kenai River float. Floating the river the PAG observed restoration efforts at Bings Landing, Funny River, Rotary Park, and Centennial Campground. They also viewed large and small habitat parcels: Stephanka, Salamatoff, River Ranch, and Patson.

The PAG left the river at Centennial Campground and continued their tour by bus to the Kenai Dunes to observe problems caused by heavy public use during the dip net fishery opening. Representative Mark Hodgins and Keith Kornelis, City of Kenai, met the PAG at the dunes. The City of Kenai has successfully redirected some of the public flow away from wetlands and private property, but is seeking Trustee Council assistance in expanding parking with EVOS funds project proposals 99387 and 99388.

DRAFT

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DRAFT 9/10/98

Public Advisory Group
Kenai Peninsula Site Visit
September 15-16, 1998

Tuesday, September 15, 1998

7:30 am	DEPART Anchorage (ERA)	
8:15 am	ARRIVE Seward	
8:30 - 10:30 am	SMALL PARCEL Site Visits (via bus from Seward airport)	
	♦ Grouse Lake (USFS)	[K O'Leary]
	♦ Lowell Point (ADNR-Parks)	[J Sinclair]
10:30 - 11:30 am	QUTEKCAK HATCHERY Project /131	[J Agosti]
11:30 - 12:30 pm	LUNCH (on your own)	
12:30 - 5:00 pm	ALASKA SEALIFE CENTER	
	♦ Pink Salmon Genome /190	[M Castellini et al]
	♦ Rockfish/Pollock Genetics /252	[M Castellini et al]
	♦ Pigeon Guillemot Research /327	[M Castellini et al]
	♦ Harbor Seal Health & Diet /341	[M Castellini et al]
	♦ River Otters & Oil /348	[M Castellini et al]
	♦ Harbor Seal Metabolism/Stable Isotopes/371	[M Castellini et al]
	♦ Harbor Seal Recovery/Lipid Metabolism/441	[M Castellini et al]
5:00 - 7:00	DINNER (on your own)	
7:00 pm	OPEN HOUSE: Resurrect Art (320 3rd Avenue)	
	♦ "Alutiiq Pride: A Story of Subsistence" (30 min. documentary film to show at 7:30 pm)	

Wednesday, September 16, 1998

Note: Locations where the PAG would stop are indicated by italics.

7:30 am	DEPART Seward (via bus with coffee/juice/fruit/bagels)	
9:30 am - 2:00 pm	KENAI RIVER - from the river (Skilak Lake - Centennial Park)	
	♦ Stephanka (KEN 1004)	
	♦ *Bing's Landing (Project /180) - 30 min.**	*[S Fisler, D Athons]*
	♦ *River Ranch parcel (KEN 148) - 30 min.*	*[S Fisler, D Athons]*
	[lunch break]	
	♦ Funny River (Project /180)	
	♦ SNA parcels (KEN 1051&1052)	
	♦ Salamatof parcel (KEN 54)	
	♦ Patson parcel (KEN 1034)	
	♦ Rotary Park (Project /180)	
2:00 pm - 5:30 pm	KENAI RIVER continued - ground tour (transfer to bus)	
	♦ *Centennial Campground - 30 min.**	*[M Kuwada]*
	♦ *Ciechanski Rec Site (Project /180) - 30 min.*	*[M Kuwada]*
	♦ *Kenai Dunes (Project /180) - 30 min.*	*[M Kuwada]*
5:30 pm	BUS to Kenai Airport	
6:45 pm	DEPART Kenai (ERA) - estimate	
7:15 pm	ARRIVE Anchorage - estimate	

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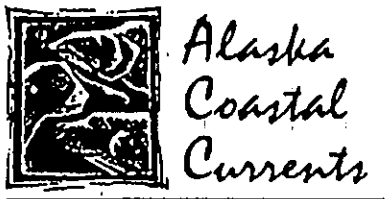
* restrooms at this location.

PENINSULA CLARION 2/22/98

Stabilizing river banks also stabilizes fish habitat

Editor's note: It has been eight years since the Exxon Valdez ran aground in Prince William Sound, spilling nearly 11 millions gallons of Alaska crude oil. Time has since told quite a lot about the spill's long-term effects. To help tell the story, the Exxon Valdez Oil Spill Trustee Council is providing this column focusing on the ongoing recovery within the spill region.

By JODY SEITZ



Restoration and recovery following the *Exxon Valdez* oil spill

Bank stabilization on the Kenai River has been going on for decades.

But until recent years, protection of the river bank was not considered in the same breath with protection of habitat. Today, thanks to a change in awareness, they are one and the same.

Over the last 30 years, the state let landowners stabilize their banks with just about anything, according to Gary Leipitz of the Alaska Department of Fish and Game.

"We've allowed brick walls, rock rip rap on Typar (a permeable fabric), rubber-tired banks, aircraft landing mat bulkheads. Things like that, that helped armor and protect the bank, were actually allowed on the river," said Leipitz.

Unfortunately, those are not good habitats for fish. They reduce plant cover and increase the velocity of the current, making it harder for young salmon to get to their wintering grounds.

Now there is more science and some art to stabilizing river banks.

Scientists actually recreate fish habitat using natural materials. The 1,300-foot bank at River Bend Campground was denuded and trampled from years of heavy fishing. In 1995, it became the premier test site on the Kenai River for a restoration project using willows and coconut fiber logs.

Biologists call it bioengineering. For some of us it's a new term, but the practice has roots that go back to 3000 B.C. on the Yangtze and Yellow rivers, according to Leipitz.

The coconut, or coir, logs are among the new biodegradable materials used to stabilize banks. They degrade slowly enough that willows and small plants have a chance to establish good root systems in the bank.

Reuben and Kelly Hanke own the Harry Gaines fishing business on a prominent bend in the Kenai River. They used rock rip rap to stabilize their banks. It worked, but it had some problems, and it wasn't pretty.

"As a commercial operator, it was a tremendous liability to us trying to load people in and out of the boats," said Reuben Hanke. "A big problem with rip rap was that at the end of the year you had to go back and pull up a lot of the rock that had slid down the banks."

The Hankes had just finished landscaping their yard and putting down a new layer of rip rap when the hundred year flood hit in 1995. When they saw how well the River Bend Campground banks held up, they made up their minds to try the same thing.

The Hankes installed the coconut fiber logs and small willow along their banks. The logs, which degrade within 10-15 years, give the willows a place to grow until they are large enough to do what the logs do now — stabilize the banks.

Hanke said he'll wait to pass judgment, but so far, it's looking good. The logs are holding, and the willows are growing. "You've got vegetation, plus top-shelf fish habitat," he said.

Jody Seitz lives in Cordova and produces the Alaska Coastal Currents radio program.

ANCHORAGE DAILY NEWS
JULY 7, 1998
B4

State expands study of Kenai River erosion

The Associated Press

KENAI — Riverfront property owners might find strangers knocking on their doors or unexpected survey markers on their land this summer as the Alaska Department of Fish and Game expands its studies of erosion along the Kenai River and does some work on private land.

Results of the study could have major implications for future management of the world-class salmon stream and its sport fishery.

"In the past we have always had 100 percent cooperation knocking on doors," said Mary King, the fisheries biologist leading the study team.

Expanding the project has made it more difficult for the team to contact owners. Last year they worked at a dozen sites, studied plat maps and contacted people in advance.

This year, the biologists are marking points every half-mile along both banks from Skilak Lake to the tidal area at about River Mile 5.

The team will knock on doors this year but may not always see a house or find anyone home, so King said she wants area residents to know what is happening.

The study is trying to determine how much anglers affect the health of the riverbank habitat, which is crucial for salmon fry.

Biologists this year are counting anglers, measuring bank erosion and comparing plant and soil conditions before and after the peak sportfishing season.

The Kenai River
A River At Risk

The Key is Healthy Habitat

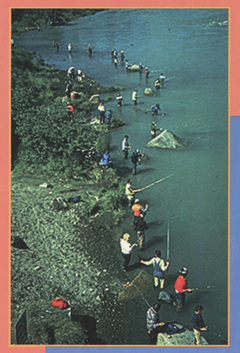
Riverbanks with overhanging grasses, alders and trees hold the soil together to prevent erosion, and provide essential nursery habitat for juvenile salmon and trout. As bank anglers and others trample this needed vegetation and landowners remove trees and bushes, these deep-rooted plants can no longer hold the riverbank together and it breaks apart. These activities also reduce plant growth or eliminate vegetation along the water's edge which protects juvenile salmon and trout from predators, slow water currents to allow juveniles to feed on aquatic insects, and filter surface run-off and groundwater thereby keeping pollutants from reaching the river.

Bank erosion is the removal of soil and rock by water, wind, ice and gravity and is a natural process. However, many activities on the riverbank and even boat wakes increase natural bank erosion and loss of vegetation. Loss of this natural vegetation has an immediate negative impact on juvenile fish growth and survival; over time it will also affect adult salmon and trout populations.

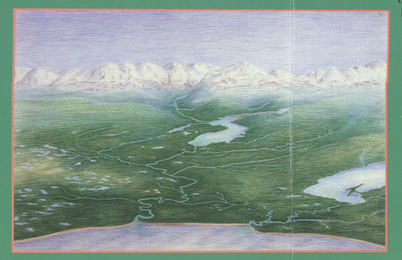
Many methods of controlling bank erosion may have unintended negative consequences. Bulkheads and rip-rap may help control an eroding bank, but they also degrade king salmon rearing habitat by eliminating protective bank vegetation and increasing water currents. These methods reduce the quality of king salmon rearing habitat by more than 50 percent.

Bulkheads, jetties, and other structures which intrude into the river, also reduce juvenile king salmon rearing habitat, interfere with juvenile salmon upstream migration to overwintering areas, and destroy fish spawning areas.

Being aware of the impact of human use on the Kenai River makes it possible for people to protect the river by changing their own behavior. Landowners, land managers, anglers, and others who protect fish habitat are working to ensure a healthy future for the Kenai River and surrounding communities.



The World Famous Kenai River



From the headwater glaciers of Cook Inlet, the Kenai River drains a diverse landscape of high mountains, icefields, large lakes, and extensive lowlands. This river system is modest by Alaskan standards with 2,000 square miles of watershed and a mainstem length of only 83 miles. Despite its modest size, it supports 27 species of fish and sustains one of the most valuable salmon fisheries in Alaska.

Development and recreational use of lands along the river are changing streambank vegetation, surface drainage patterns, and wetland habitat, all of which are vital to the health of the Kenai River fisheries. Increasing human use of the river and the continued loss of fish habitat will result in the loss of native trout and salmon runs, as it has occurred elsewhere.

Of the 400 stocks of salmon and steelhead native to the Pacific Northwest, 106 stocks are now extinct, 214 have declined significantly, and 80 remain healthy. In the last 100 years, at least 27 species and 13 subspecies of North American fish have become extinct. Over 100 other species are listed as threatened or endangered. The collapse of these stocks is attributed primarily to habitat loss.

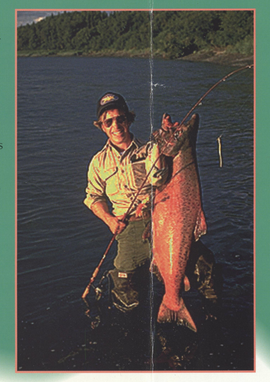
The Kenai River king (chinook) salmon fishery is also threatened by loss of habitat. In 1994, a study by the Alaska Department of Fish and Game's Habitat Division found impacts from development and human use have destroyed nearly 12 percent of the king rearing habitats in the Kenai River. Over 600 projects including boat launches, access ladders, docks and landings, boat basins, and erosion control projects have altered fish nursery and spawning habitat in the river. Increasing numbers of bank anglers are also impacting fish habitat by trampling bank vegetation and accelerating erosion. Since 1982, annual sport fishing on the Kenai River has increased by over 100,000 angler-days.

Alaska has an advantage over other states which have lost most of their wild salmon runs. We have the opportunity to learn from the mistakes of the past and plan for a better future, but we must act now. Many case studies have shown when people regard fish habitat protection along rivers as a low priority the result is fewer fish and the loss of entire runs.

Prevention of habitat loss is far less costly than habitat restoration. Restoration of fish habitat is not always successful, and natural recovery is slow or not at all. Once restored, it may take decades before salmon return in sufficient numbers to support a sport fishery and commercial harvest.

All who love, use, and depend on this river - visiting and resident anglers, sightseers, property owners, resource agencies, and the commercial fishing industry - must do what they can to support this vital resource. The long-term well-being of the community and its economy are tightly tied to the Kenai River fisheries and are, ultimately, only as strong or as fragile as the health of the river.

Reversing the habitat loss trend will require long-term public commitment to activities which maintain and enhance fish habitat. Habitat protection must be given greater consideration when planning developments and other activities along the Kenai River. Unless we start taking action now, the Kenai River faces the same fate as many of the great salmon rivers in the Pacific Northwest. The good news is people and local organizations are recognizing the threats to the Kenai River and are working to protect this special natural resource.



Soldotna Creek Park Project

In 1994, the first soil bioengineering project in Alaska was undertaken at Soldotna Creek Park. Soldotna Creek Park is a popular red salmon fishing hole, but anglers have trampled the vegetation causing extensive erosion and loss of critical juvenile fish rearing habitat. Nearly 600 feet of the eroded riverbank have been rebuilt using live cribwalls, live stakes and fascines, coir fabric, and native grass clumps.

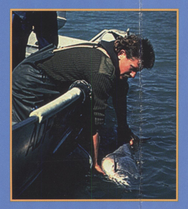
Crews excavated the bank above the high water mark and installed the live cribwall. It is made of spruce logs which have live willow cuttings planted between them. Other sections of the riverbank were recontoured and covered with a material similar to jute mesh called "coir." The coir was then overplanted with native grass. Both the live cribwall and coir act to hold the soil together until roots from the plantings become established and stabilize the bank.

Centennial Park Project

A soil bioengineering project is planned for Centennial Park in 1995. This is a popular red salmon fishing spot that also provides boat access to the river. Bank fishing, as in other similar areas, has destroyed valuable juvenile salmon rearing habitat. Current plans call for the construction of a trail system with wooded walkways linked to a stairway on the bluff and leading to floating docks strategically placed along the riverbank. The intent is to direct anglers via boardwalks and stairways to the floating docks where they can enter the water and use the entire shoreline as a "hip wader" fishery. This will minimize damage to bank vegetation and fish habitat. Signs and volunteers will be used to describe the importance of bank vegetation as fish habitat, and the implications to future salmon fishing if habitat loss continues.

There Is An Economic Impact

Loss of habitat and declining fish populations have resulted in significant financial losses for all of us in the United States. For example, commercial harvest of Pacific salmon in Washington, Oregon, and California, valued at $200 million in 1980, dropped to only $120 million in 1990. Logging, agricultural expansion, hydroelectric dam construction, and increasing urbanization have all contributed to significant habitat loss. The result is that many stocks face extinction.



Prevention of habitat loss is far less costly than restoration. In the Pacific Northwest, nearly $200 million will be spent annually by state and federal resource agencies just to begin watershed restoration. And there is some doubt how successful it will be.

Although threats to Alaska's Kenai River are somewhat different, the end result of habitat loss will be the same. Increasing development and other human activities in the Kenai River drainage could ultimately result in the loss of the salmon fisheries with significant financial impacts to the local economy.

Sport and commercial harvest of Kenai River king and red salmon contribute over $41 million to the local economy. Property values along the river are higher because of access to a world class salmon fishery. Continued loss of fish habitat in the Kenai River drainage will result in significant income loss for motels, lodges, restaurants, fish guides, commercial fisherman, fish processors, and countless others who directly or indirectly depend upon the salmon fisheries for their livelihood.

Preventive measures like conservation easements, land-use planning, use of floating docks, and tax incentives for private riverfront landowners to protect fish habitat, would cost a fraction of the price of restoration.

Extinct Native Stocks

This is only a partial list of rivers in California, Idaho, Oregon, Washington and Nevada, in which the native stocks of salmon and steelhead have become extinct due to development pressure.

Chinook salmon
Calaveras River (CA)
Sprague River (OR)
Williamson River (OR)
Wood River (OR)
Klamath River (OR)
San Joaquin River (CA)
American River (CA)
McCloud River (CA)
Pit River (CA)
Weiser River (ID)
Powder River (ID)
White Salmon River (WA)
Umatilla River (OR)
Metolius River (OR)
Clearwater River (ID)
Columbia River small tributaries from Bonneville to Priest Rapids dams (OR-WA)
Walla Walla River (OR-WA)
Yakima River (WA)
Entiat River (WA)
Okanogan River (WA)
Lewis River (WA)
Payette River (ID)
Malheur River (OR)
Boise River (ID)
Owyhee River (OR)
Bruneau River (ID)
Spokane River (WA)
Colville River (WA)
Kettle River (WA)
San Poil River (WA)
Pend Oreille River (WA)
Snohomish River (WA)
Duwamish-Green River (WA)
Puyallup River (WA)
Nisqually River (WA)
Williamson River (OR)
Wood River (OR)
Pysht River (WA)
Wind River (WA)
Clearwater River (ID)
Willamette River (OR)
Snake River and tributaries above Hells Canyon Dam (OR-ID-NV)
San Poil River (WA)
Kootenay River (BC)

Coho salmon
Malibu Creek (CA)
Euchre Creek (OR)
Grande Ronde River (OR)
Wallowa River (OR)
Tucannon River (WA)
Clearwater River (ID)
Walla Walla River (OR-WA)
Spokane River (WA)
Snake River (OR-WA-ID)
Methow River (WA)
Columbia River small tributaries from Bonneville Dam to Priest Rapids Dam(OR-WA)
Yakima River (WA)
Umatilla River (OR)
Wenatchee River (WA)
Entiat River (WA)

Sockeye salmon
Payette River (ID)
Metolius River (OR)
Wallowa River (OR)
Yakima River (WA)
Skaha, Okanogan (WA)
Alturas, Petit, Stanley, Yellowbelly (ID)
Columbia River tributaries above Grand Coulee Dam (Upper Arrow, Lower Arrow, Whatshan, Slocan lakes; WA and Canada)
Elwha River (WA)
Mason Lake (WA)

Chum salmon
Umatilla River (OR)
Walla Walla River (OR-WA)
Klamath River (CA)
Sacramento River (CA)
Nisqually River (WA)

Pink salmon
Klamath River (CA)
Sacramento River (CA)

Steelhead trout
San Luis Rey River (CA)
San Mateo Creek (CA)
Santa Margarita River (CA)
Rincon Creek (CA)
Gaviota Creek (CA)
Maria Ygnacio River (CA)
Los Angeles River (CA)
San Gabriel River (CA)
Santa Ana River (CA)
San Diego River (CA)
Sweetwater River (CA)
Spokane River (WA)
Owyhee River (OR)
Malheur River (OR)
Bruneau River (ID)
Weiser River (ID)
Boise River (ID)
Sandy River (OR)
Powder River (OR)
Burnt River (OR)
Payette River (ID)
Pend Oreille River (WA)
South Umpqua River (OR)

Information provided by the American Fisheries Society.

Where To Get Information

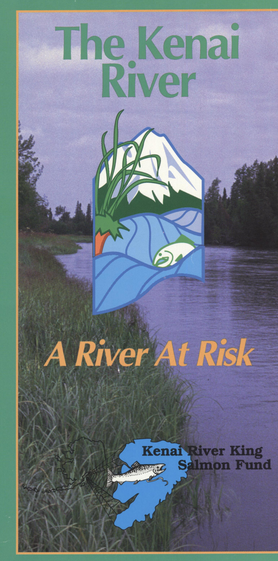
Detailed information about soil bioengineering, erosion control, and fish habitat protection and restoration is available from the following sources:

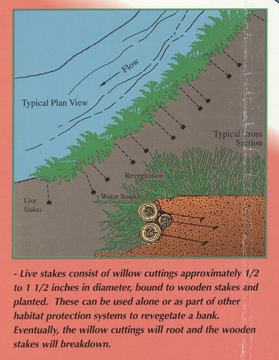
U.S. Fish and Wildlife Service
Ecological Services
605 W 4th Ave. Room G-62
Anchorage, AK 99501
(907) 271-2888

Alaska Department of Fish and Game
Habitat and Restoration Division
333 Raspberry Road
Anchorage, AK 99518
(907) 344-0541

Soil Conservation Service
P.O. Box 400
Homer, AK 99603
(907) 235-8177

Alaska Department of Natural Resources
Division of Parks and Recreation
P.O. Box 1247
Soldotna, AK 99669
(907) 262-5581





- Live stakes consist of willow cuttings approximately 1/2 to 1 1/2 inches in diameter, bound to wooden stakes and planted. These can be used alone or as part of other habitat protection systems to revegetate a bank. Eventually, the willow cuttings will root and the wooden stakes will breakdown.

Kenai River King Salmon Fund
34824 Kalifornsky Beach Road
Soldotna, AK 99669
(907) 262-2492

Funding and technical information were provided by the U.S. Fish and Wildlife Service (Service). Positions included here are not necessarily those of the Service.

Permits for activities in wetlands, below the ordinary high water mark, and along the riverbank require state and federal permits. For further information, please contact the Alaska Department of Fish and Game, Habitat Division; Alaska Department of Natural Resources, Division of State Parks; and the Army Corps of Engineers, Regulatory Branch.

Landowners... love it or lose it

Private, state, and federal property owners all have a stake in protecting Kenai River fish habitat. Most homeowners living along this productive salmon stream enjoy the view and access to fishing. State and federal land managers must provide public access to the river's resources, while protecting fish and wildlife habitat for the enjoyment of future generations. Unfortunately, much of what makes the river more accessible, such as trails and parking lots, destroys habitat at the same time.

Filling wetlands adjacent to the river for public access or residential and commercial development has destroyed salmon habitat and affects the river's ability to produce fish. Wetlands along the river provide nursery areas for juvenile red (sockeye) and juvenile silver (coho) salmon, prevent pollutants from reaching the river through filtration, add nutrients to the river, provide flood control, and are important to waterfowl and moose.

Smoothing banks with wood or metal bulkheads, or adding rip-rap to shore-up weakening banks destroys king (chinook) salmon rearing habitat.

Increased water currents, due to the smooth non-vegetated bank, make upstream migration for juvenile salmon difficult. In 1994, Alaska Department of Fish and Game determined bulkheads and rip-rap areas provided less than half the rearing habitat value for juvenile king salmon than found along naturally vegetated riverbanks.

Removing bank vegetation and trees along the river to improve the view increases erosion and also eliminates important juvenile salmon and trout habitat. Erosion causes some of the same problems as bulkheads. Without the vegetation, water currents are faster, food is less available, and predation rates are higher; all of which affect juvenile salmon growth and survival.

One of the pleasures of living on the Kenai River is direct boat access via private docks. Jetties have been used to protect docks and riverbanks from erosion. However, these structures destroy fish spawning areas, interfere with juvenile salmon upstream migration to Skilak Lake to overwinter, alter river hydrology, and increase erosion elsewhere. If floating docks are used and bank vegetation retained in its natural state, jetties are unnecessary. New jetties are no longer permitted on the river.

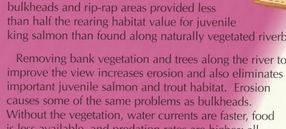
"Habitat friendly" floating docks, elevated boardwalks, ramps, and hillside stairways can be built to allow access to the river while minimizing damage to bank vegetation. Floating docks are a simple alternative to the standard dock and do not change the flow of the river or block upstream fish migration. Elevated boardwalks and stairways allow anglers to walk to the river and along its edge without trampling important vegetation or increasing soil erosion.

Soil bioengineering is another good method to restore damaged fish habitat, reduce bank erosion, and save receding property. Bioengineering uses live plantings of woody and leafy plants with deep root systems combined with non-living materials to reinforce eroding riverbanks and change bank slopes to reduce erosion.

Property owners who have paid a premium to live along one the most famous salmon rivers in Alaska have a vested interest in its continued good health. Protecting the riverbank's natural vegetation helps avoid receding property and costly erosion controls. All who own river frontage are encouraged to support initiatives that work toward protecting fish habitat, and to involve friends and neighbors in making the same effort to stop erosion and habitat loss. Preserving or repairing banks eroded by boat wakes and human foot traffic is important - and the sooner the better.

Native Log Stairway

Permits for activities in wetlands, below the ordinary high water mark, and along the riverbank require state and federal permits. For further information, please contact the Alaska Department of Fish and Game, Habitat Division; Alaska Department of Natural Resources, Division of State Parks; and the Army Corps of Engineers, Regulatory Branch.



Facines are bundles of live willow branches six to eight inches in diameter and 15 feet long placed in trenches in the riverbank paralleling the river. These facines eventually root and revegetate an eroded bank. This natural, geotextile, square mesh is called coir. It looks similar to jute, but is made of woven coconut husk. It is a biodegradable, organic material intended to temporarily hold soils in place until roots of newly planted vegetation can bind the soil itself. The material is used in conjunction with the installation of live cribwalls, live facines, and native grass clumps.

One of the pleasures of living on the Kenai

Anglers/Guides... don't walk on it!

The Kenai River attracts sport anglers from around the world. Thousands arrive each summer looking for trophy kings and rainbow trout, abundant reds or fighting silver salmon. While the benefits to the area from sport angling are significant and desirable, their increasing numbers are also threatening the health of the river's habitat. Those working to protect the river are dedicated to finding ways to allow continued use of the river by sport anglers, while decreasing the threat to habitat.

The fastest growing in-river recreational fishery is the red (sockeye) salmon fishery in July. Nearly every day in July, over 2,000 anglers use the Kenai River. Because successful red salmon fishing does not require use of a boat, anglers typically walk along the riverbank. Many of these anglers unintentionally leave behind miles of damaged shoreline on both private and public lands.

Alaska Division of Tourism

Ironically, the most sought after salmon, the king (chinook), has been identified by biologists as the main species threatened by this streambank foot traffic. Biologists have also determined that the health of king salmon reflects the overall health of the river. As the river's king salmon habitat declines, so will the health of king salmon runs, and many other species could follow.

Anglers and guides need to know that natural undisturbed banks with dense stands of overhanging grasses and trees are nature's nursery areas for juvenile salmon and trout. Tree roots and other natural bank stabilizers don't just provide habitat and predator protection for these juvenile fish, but actually hold the soil of the bank together.

When not using the river:

- Support efforts that encourage protection of fish habitat.
- Tell friends how important it is to maintain vegetated river banks in their natural state.

The future of the Kenai River will be determined by each individual's actions throughout the watershed. Implementing protective measures will benefit all anglers who love fishing the Kenai. Lack of habitat means fewer juveniles survive. Fewer juveniles eventually means fewer adults. Fewer adults means poor fishing or no fishing at all. It's as simple as that. Federal and state agencies need everyone's support and active participation in protecting fragile Kenai River resources.

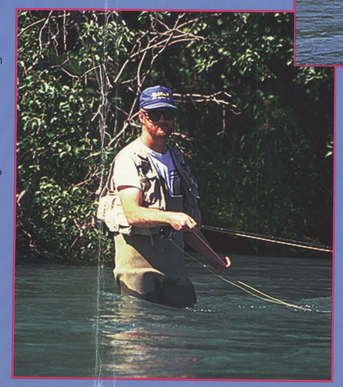
Here's what anglers can do to help.

When fishing from the bank:

- Walk in the river with waders or rubber boots to avoid trampling and damaging vegetation on the riverbank. Use developed trails, ladders and boardwalks, when available, to access the river.

When using a boat on the river:

- Always launch and retrieve boats at a developed launch site.
- Select a graveled, rocky or paved site when beaching a boat to avoid crushing bank vegetation.



Commercial Fishermen... protecting a financial asset.

While Alaska's commercial fishermen do not directly impact the bank and streambed of the Kenai River, they have a financial interest in ensuring it remains a healthy, viable river with a strong annual salmon run. Of an average 4.4 million salmon harvested in Upper Cook Inlet each year, 50%, or 2.2 million fish, originate in the Kenai River. At an average cost of $1.50 per pound, Kenai River red salmon alone contribute roughly $23 million to the local economy each year. Add in the commercial harvest of all other species - kings, silvers and pinks - and the economic impact of Kenai River fish increases by millions of dollars.

Commercial drift boat and set net fishermen must become involved in protecting the Kenai River. Financially supporting and becoming involved with groups promoting habitat restoration will help. Speaking out about the importance of habitat to the future of sport and commercial fishing is also vital. Commercial fishermen are encouraged to get involved, be supportive, and spread the word.

Private Projects

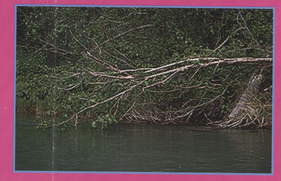
Some private citizens have already successfully demonstrated practical uses of elevated walkways made of steel grating. A metal walkway is similar to a wooden one in that it protects vegetation from trampling. Unlike wooden walkways, however, those constructed of steel grating do not inhibit sunlight from reaching beneath the walkway, allowing underlying vegetation to flourish. Such efforts will allow landowners to be more successful in preventing bank erosion and providing nursery habitat needed to raise the popular Kenai kings.

Government agencies

Public agencies must set examples of good stewardship for Kenai River habitat protection on lands they own or manage. Efforts should be taken to restore fish habitat damaged by high levels of recreational use while continuing to provide public access facilities.

A 1986 Memorandum of Understanding (MOU) among the State of Alaska (Department of Natural Resources), U.S. Department of Interior (Fish and Wildlife Service), U.S. Department of Agriculture (Forest Service), provides a framework for land managers in the Kenai River watershed assuring that all publicly funded projects meet the guidelines of the 1986 Kenai River Comprehensive Management Plan. To be consistent with the intent of the MOU, government agencies should construct and operate public facilities in a manner which maintains and improves fish and wildlife habitat in the Kenai River and its tributaries.

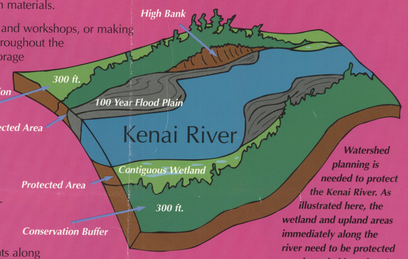
To protect fish and wildlife, development activities along the river below the ordinary high water mark and those involving wetlands are subject to review by state and/or federal resource agencies. Currently, no such review is necessary for activities such as clearing riverbank vegetation in uplands above the ordinary high water mark.



This natural, geotextile, square mesh is called coir. It looks similar to jute, but is made of woven coconut husk. It is a biodegradable, organic material intended to temporarily hold soils in place until roots of newly planted vegetation can bind the soil itself. The material is used in conjunction with the installation of live cribwalls, live facines, and native grass clumps.

Government agencies can work toward habitat protection and restoration by:

- Conducting fish habitat restoration projects, increasing law enforcement efforts, and providing public education materials.
- Holding public seminars and workshops, or making other public outreach efforts throughout the Kenai Peninsula and the Anchorage area on fish habitat issues and solutions.
- Working with guides and tour groups to promote habitat conservation and protective fishing practices.
- Developing partnerships with private landowners, corporations, non-profit organizations, and all other interested groups and individuals to protect fish habitat along the Kenai River and its tributaries.
- Developing protection and conservation easements along the river to protect streamside vegetation important for providing fish habitat.



Watershed planning is needed to protect the Kenai River. As illustrated here, the wetland and upland areas immediately along the river need to be protected as salmon habitat; they, in turn, require a conservation buffer to assure their protection.

Adopting the 1986 Kenai River Comprehensive Management Plan, or a similar watershed approach establishing protection zones along the Kenai River and its tributaries, would protect uplands and wetland habitats essential to maintaining the health of the salmon and trout fisheries. The plan prohibit activities which damage salmon and trout spawning, rearing, feeding, and migration habitat within the watershed.

Russian River Project

In 1993, state and federal resource agencies developed alternative plans to manage the large number of anglers at the confluence of the Russian and Kenai Rivers (to the east of this map). This high traffic area has sustained a great deal of damage - loss of bank vegetation, damaged tree roots and accelerated erosion - all of which have led to the destruction of juvenile salmon and trout habitat.

A number of solutions have been proposed: 1) relocate trails away from the Russian River, 2) construct boardwalks along and stairways leading into the river, 3) build elevated fishing platforms for the physically challenged, 4) use volunteers to inform anglers of ways to minimize impacts to fish habitat, 5) close access along sections of the riverbank to protect existing vegetation or revegetation projects, 6) reconstruct damaged riverbanks using root wads and large woody debris, 7) use soil bioengineering techniques, and 8) create educational signs describing the problems and solutions.

Boulders used to shore-up eroding banks are called rip-rap. While this method slows erosion, it also destroys naturally vegetated habitat for juveniles and increases the water velocity.

If something isn't done.....

Failure to properly manage public and private lands will result in problems similar to those facing salmon fisheries in the Pacific northwest where salmon and steelhead have been declining. Land use managers may be forced to take more drastic action to protect Kenai River fish habitat if public education efforts and land use plans under consideration fail to stop the destruction.

Additional actions could include: closing entire sections of river to bank fishing; limiting the number of anglers, guides, boats and rafts on the river; creating additional non-motorized sections of river; reducing the size of outboard motors; lowering boat speed limits; making the river a drift fishery only; and increasing user fees to pay for habitat restoration.

If these first measures fail, then Kenai River users may face even greater restrictions, none of which would be welcomed. In the most drastic case, certain fish stocks like the famous Kenai king salmon, could become officially listed as threatened or endangered under the Endangered Species Act. Should this happen, the Kenai River could be closed to king fishing indefinitely, with similar sport and commercial closures in salt water. Further, any development action considered detrimental to king salmon habitat would likely also be prohibited.

Boulders used to shore-up eroding banks are called rip-rap. While this method slows erosion, it also destroys naturally vegetated habitat for juveniles and increases the water velocity.

Moose River

Sterling Hwy.

Farmer's Hole

Bing's Landing

Naptowne Rapids

1st Hole

2nd Hole

Morgan's Hole

Kenai Keys

Skilak Lake

29 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

MEMORANDUM

TO: Public Advisory Group

FROM: Molly McCammon
Executive Director

DATE: September 8, 1998

SUBJ: Kenai River - Trustee Council Parcels and Projects

Please find enclosed several items regarding restoration efforts along the Kenai River. This includes material from a variety of sources that describe efforts to protect, restore and enhance Kenai River resources and services.

Background

Trustee Council restoration efforts along the Kenai River are a result of injuries sustained to resources and services as a result of the *Exxon Valdez* oil spill.

- **Overescapement of sockeye salmon** - Closure of commercial fisheries in Cook Inlet during the spill resulted in an excessive return of sockeye to the Kenai River system. Too many returning sockeye overpopulated the natal lakes which did not have a forage base (plankton) adequate to support the increased population. This change in trophic structure resulted in poor fry survival. Trustee Council expenditures on sockeye research -- most of which concerned sockeye in the Kenai River -- were directed at documenting the effects of overescapement and the mechanism by which it acts. In addition, there was a substantial investment in improved management (e.g., genetic stock identification), both to speed recovery from the overescapement event as well as to enhance Kenia River sockeye populations over the long term. The effects of the overescapement event persisted through 1995 but were no longer evident by 1998.

- **Recreation and tourism** - The oil spill disrupted use and enjoyment of the spill area for recreation/tourism, which is considered to be a lost or reduced service under the civil settlement. Efforts to protect and restore habitat along the Kenai River benefit not only sockeye salmon and other biological resources but also recreation and tourism. Although the Kenai itself was not oiled, efforts along the river help to restore, replace and enhance these services.

The Kenai River system has annually produced approximately 40 percent of the commercial sockeye salmon harvest in Cook Inlet and 30 percent of the commercial

chinook salmon harvest. The chinook harvest has ranged from about 8,000 to 40,000 fish and the sockeye harvest has ranged from about 2.5 million to 9.5 million fish. Combined, sport anglers and commercial fishermen provide as much as $78 million to the state's economy each year (Liepitz, 1994).

There are indications, however, that the Kenai River is in danger. Sportfishing on the river almost doubled from 1981 to 1994, climbing from about 129,000 angler days to nearly 341,000 angler days (Howe, 1995). This has, in turn, resulted in streambank trampling and increased erosion as more anglers seek out fishing opportunities. Overcrowding, trespass and waste disposal problems have all become common place. Subdivision development has increased, putting further pressure on the river's resources.

The riparian zone along the banks of the river support important fish and wildlife habitat and play a critical role in maintaining the health and productivity of the river. Vegetation along this corridor helps maintain water quality, controls erosion and provides important fisheries habitat. Juvenile salmon in particular depend heavily upon the riparian zone for food, cover and migration. Undercut banks with overhanging vegetation provide cover for fish, allowing them to avoid predation, feed and grow.

Using chinook salmon as the study species and juvenile rearing habitat as the key indicator, a 1994 survey determined that 11-12 percent (i.e., 18 - 20 miles) of the river corridor had been impacted by bank trampling, vegetation loss and structural development. Degraded public land along the Kenai River included 5.4 miles of trampled riparian habitat and 3.5 miles of developed shoreline. In the case of chinook salmon on the Kenai River, available rearing habitat, which generally consists of a 6' wide corridor along the river, constitutes only 121 acres along the 67 mile length of the river. The amount of habitat loss for other fish species is not known.

Interest in conserving the resources and services of the Kenai River has resulted in a wide variety of public and private efforts as reflected in the enclosed materials. The Trustee Council has contributed through the use of civil settlement funds for the purchase of small parcels from willing sellers as well as for projects to protect river frontage using a combination of "bioengineering" and recreational facility development to better manage human use (Project /180). A brief narrative of Trustee Council funded small parcels and other restoration efforts, organized in the sequence of travel from Skilak Lake to the mouth of the river, is attached.

(A more comprehensive booklet describing all Kenai Peninsula restoration projects funded from both the civil settlement as well as the criminal settlement is also included in your briefing packet.)

attachments

Public Advisory Group
September 16, 1998

Kenai River - Restoration Projects and Habitat Protection Parcels

The following list briefly describes Trustee Council restoration projects and small parcel acquisitions along the Kenai River. Some projects are still in progress as part of the three-year $1.87 million Project 99180: Kenai River Habitat Restoration and Recreation Enhancement. There are also a number of additional small parcel nominations submitted by willing private sellers still under review. This narrative includes only those projects or parcel acquisitions along the Kenai that the Trustee Council has funded or contributed funding to; the list does not include projects or parcels along sidestreams (e.g., Moose River habitat parcel) or further upstream in the watershed (e.g., Russian River campground). For additional information, please contact the Restoration Office at 278-8012.

Middle River: Skilak Lake (RM 50) to Centennial Park (RM 21)

Note: RM refers to River Mile. RB refers to Right Bank and LB refers to Left Bank (as you move downstream).

RM 50 **Skilak Lake outfall**: Start of trip.

RM 47 RB/LB **KEN 1004/Stephanka parcel** (803 acres): The Stephanka parcel was part of a larger "package" of parcels offered for sale by the Kenai Native Association (KNA) to the Department of the Interior which also included some land exchanges. In total, the package will return approximately 15,500 acres to the Kenai NWR with approximately 1,800 acres of Refuge land transferred to KNA. Completely surrounded by the Kenai NWR, the Stephanka parcel was one of the highest scored parcels evaluated under the small parcel program. The Trustee Council contributed $4 million toward the purchase of the KNA package. In addition to important values for anadromous fish species, this parcel was recognized for river otter habitat as well as cultural resources.

RM 39.5 RB **Bings Landing State Recreation Site**: A combination of Trustee Council approved civil settlement funds (Project /180) and state criminal settlement funds have been used at Bings Landing. Restoration work includes revegetation of approximately 200' of heavily trampled shoreline (coir log, live staking, gratewalk). Other new recreational facilities at Bings Landing include the addition of 36 new campsites, latrines and interpretive panels.

RM 32 LB **KEN 148/River Ranch parcel** (146 acres): One of the larger parcels on the river, this property was historically used as a horse and cattle ranch and riparian vegetation along portions of the river was cleared or trampled by livestock. Elimination of this source of erosion will allow for reestablishment of native riparian vegetation. The popular Morgans Landing fishing hole is immediately down stream and this section of the river receives high public use from boat and shore-based anglers. A relatively flat tract, this $1.65 million parcel has high potential for intensive commercial uses that could compromise other river resource values.

RM 30.5 LB **Funny River**: Located at the confluence of the Funny River and the Kenai River, this unit of the State Park system has suffered from accelerated bank erosion due to foot traffic and boat wakes along approximately 300' of river frontage. The wetlands at the

confluence and the Funny River riparian area upstream of the confluence have also been degraded. Objectives of this project (Project /180) are to revegetate trampled streambanks, provide access for sockeye fishing via elevated gratewalk/fishing platforms and to maintain closure areas to protect vegetation along the river.

RM 28 LB **KEN 54/Salamatof parcel** (1,377 acres): One of the largest undeveloped parcels on the Kenai River, the $2.32 million Salamatof parcel extends along approximately 2 miles of river bank between RM 28 and RM 26. The parcel will be incorporated within the Kenai NWR and managed consistent with restoration purposes.

RM 26 RB **KEN 1051 & 1052/SNA parcels** (21.1 acres): These two small parcels (10.8 and 10.3 acres respectively), with a combined value of $183,000, are located within the Moose Meadows subdivision. Acquisition of these parcels will provide for restoration of fishing opportunities on this popular stretch of the Kenai River. The number of bank anglers pursuing second run sockeye salmon has increased dramatically over the past 10 years. The USFWS maintains a 25' public easement along both sides of the river and serious bank habitat damage and sloughing has occurred along this corridor. The damage resulted in closure of the easement in 1995, 1996 and 1997. The Kenai Refuge has received special funding for riverbank restoration and protection and it is intended that these parcels will be developed as public fishing sites with gratewalk to protect streamside vegetation.

RM 24.5 LB **KEN 1034/Patson parcel** (76 acres): This large undeveloped tract just upstream of the City of Soldotna provides an opportunity to protect important upland and riparian habitat that includes low, overhanging grassy banks for fish rearing and extensive wetlands for maintaining water quality/flood control. With a purchase value of $450,000, this parcel has approximately linear 1,500' of riparian habitat. Completion of this parcel purchase by the Alaska Department of Natural Resources is pending legislative approval.

RM 23 LB **Soldotna Airport Rotary Park**: Objectives at Rotary Park (Project /180) include protection and restoration of streambank vegetation and providing recreational enhancements that focus sportfishing use and promote non-damaging access to the Kenai River. In 1993, the City of Soldotna and the USFWS funded substantial recreational facilities (parking lot, trail, handicap access) at Rotary Park and the Soldotna Visitor's Center has referred large numbers of anglers to this location. Increased use has resulted in erosion and loss of vegetation. The project will install approximately 300' of elevated light-penetrating gratewalk. Fencing will be designed to create exclusion areas to protect vegetation and streambank restoration will occur along approximately 105' of shoreline (coir logs, grass plugs, willow sprigs, etc.). Spruce tree revetments will be installed along approximately 75' of shoreline.

RM 21.5 LB **KEN 1038/Roberts parcel - Soldotna "Fish Walk"** (3.3 acres): Adjacent to the Kenai Peninsula Visitors Center, the Roberts parcel slopes down to the Kenai River with approximately 640' of river frontage. This parcel is the location of the Soldotna "Fishwalk" a joint effort by the non-profit Kenai River Sportfishing Association, the City of Soldotna, the State of Alaska, and the private landowner. This gratewalk along the river, constructed at a cost of more than $125,000 dollars, provides a popular fishing platform. Purchase of the Roberts parcel with civil settlement funds at a cost of $698,000 permanently secured the Fishwalk which had been developed under the terms of an easement. The Roberts parcel protection together with the Fishwalk provide a high profile example of habitat protection compatible with intensive recreational sportfishing use.

RM 21 LB **Centennial Park**: Restoration work at Centennial Park was jointly funded by the Trustee Council (Project /180) and other funding sources. Prior to the project this popular fishing site located near the Soldotna bridge was severely trampled and eroded from foot traffic down a steep slope to the river edge. Backfill, coir log, root wads, and brush mattressing have been used together with fenced exclusion areas to revegetate this bank and restore habitat along approximately 650' feet of river bank. An angler trail is being developed as part of the project. The trail is intended to efficiently funnel anglers to walkways and access points (stairways) while protecting vegetation from trampling.

Lower River - Centennial Park (RM 21) to Cook Inlet (RM 0)

RM 20 RB **KEN 1006/Girves parcel** (110 acres): Located just outside the City of Soldotna across the river from two heavily used state recreation sites (Centennial Park and Slikok Creek State Recreation Area), this $1.83 million parcel provides key fisheries habitat. Prior to purchase, the landowner was experiencing a high degree of trespass associated with the sport fishery as well as significant erosion and the associated loss of habitat. Public ownership of this parcel will allow the parcel to be managed to protect the natural, physical and biological values of the parcel.

RM 19.5 LB **Endicott Sonar Site**: ADF&G operates a sonar fish counting and sampling site at this location. The site is characterized by a low grassy floodplain terrace with undercut banks of silt and clay. Restoration work (Project /180) has included installation of elevated light-penetrating gratewalk to allow ADFG technicians to use the site without trampling vegetation.

RM 19 LB **Slikok Creek**: Slikok Creek is a day use facility and the vast majority of park users are streambank fishermen. Restoration and recreational enhancement work at Slikok includes replacement of existing stairs down the bluff to the riverbank and installation of a gratedeck landing at the river, installation of extensive gratewalk with 3 seasonably removable stairs for the hipboot fishery and bioengineering to stabilize and revegetate several hundred feet of riverbank.

RM 16.5 RB **Big Eddy**: Big Eddy State Recreation Area has had a dock and restroom facility since 1986. Heavy angler use and boat wakes resulted in severe riverbank degradation and in 1995 the remaining 400' of riverfrontage downstream of Big Eddy was closed to protect riparian vegetation while the riprap project (slowly slipping into the river) needed to be removed. Restoration efforts at Big Eddy include removal of the riprap, relocation of an existing walkway to provide more bank stability, revegetation, installation of more than 200' of elevated gratewalk, a 24'X32' fishing platform and a floating dock.

RM 15.5 LB **Ciechanski**: Ciechanski State Recreation Area has had a dock and restroom facility since 1985. Heavy angler use and boat wakes resulted in severe riverbank degradation and in 1995 the dock platform was pulled due to excessive erosion. Streambank restoration and soil bioengineering has included a variety of techniques including use of coir logs, live siltation (320'), brush matting (135'), live staking and cabled spruce trees (50'). The project will include installation of 190' of elevated gratewalk and installation of a 10' X 9' aluminum floating dock.

RM 14.5 RB **KEN 10/Kobylarz parcel** (20 acres): With approximately 1,100' of riverbank frontage immediately adjacent to the popular Big Eddy fishing hole, this parcel consists of a large wetland and spring fed slough. The slough provides excellent rearing and overwintering habitat for Dolly Varden, chinook and coho salmon. Valued at

$320,000, this parcel had previously been considered for a development project by the prior landowners that would have filled approximately 4.3 acres of wetlands. These wetlands are a particularly valuable resource as a final filtering system for runoff that is destined for the river.

RM 14.5 RB **KEN 1049/Mansholt parcel** (1.6 acres): This parcel is contiguous with the KEN 10/Kobylarz parcel located along the river at the Big Eddy fishing hole. Valued at $55,000, this parcel supports a spring fed slough and riparian wetland that provide important rearing habitat for coho and chinook salmon.

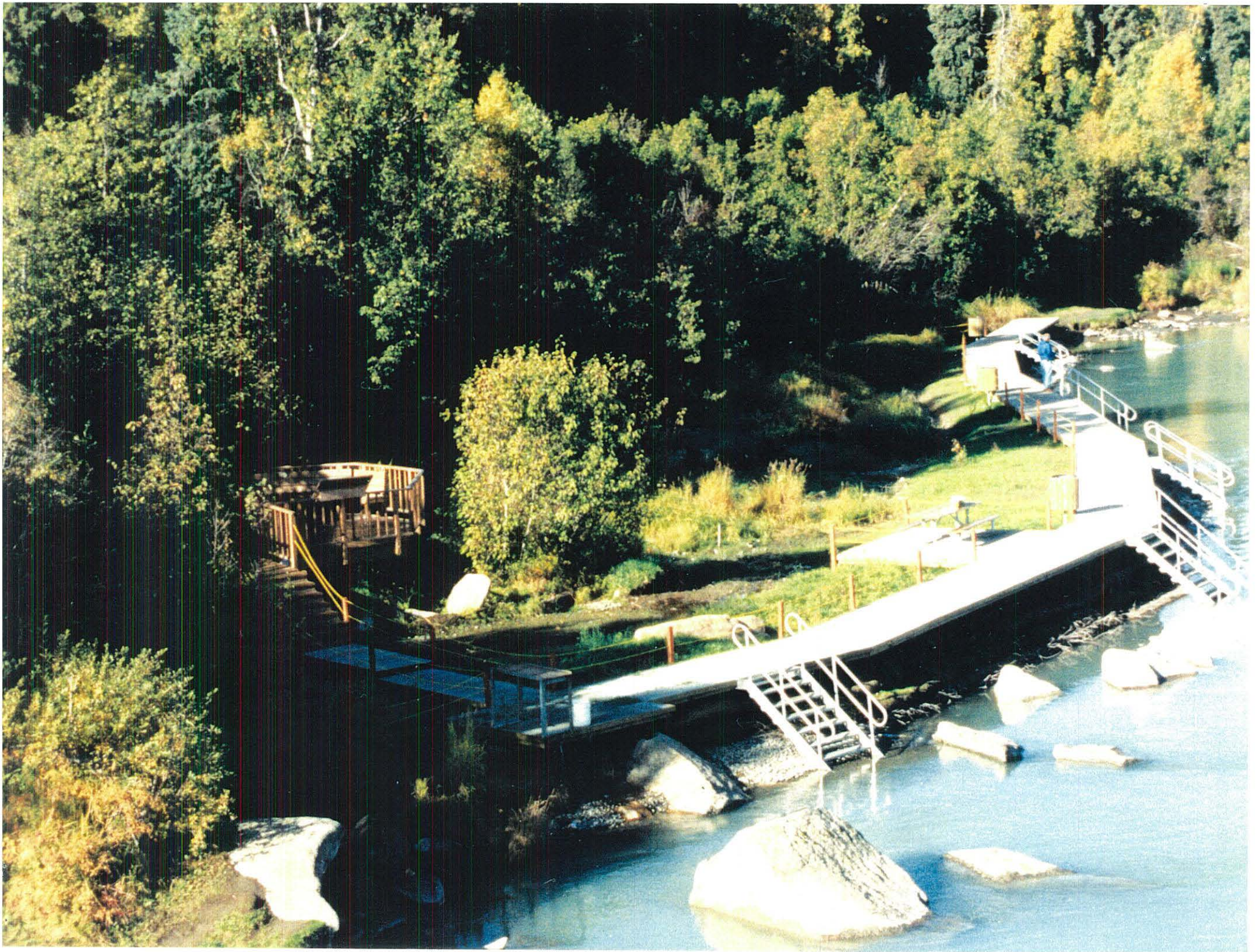
RM 7 RB **KEN 34/Cone parcel** (100 acres): Located near the mouth of the Kenai River, this parcel is characterized by tidal marsh with surrounding uplands that are a mixture of bog meadow, grasses, shrubs and spruce forest. One of the higher scored parcels for its diverse resource values, this tract was purchased for $600,000. Estuarine wetlands such as those on the property are used by salmon smolt for cover and feeding prior to their outmigration to Cook Inlet. The Kenai Flats provide important habitat for a variety of waterfowl, shorebirds, and raptors. Threats to this parcel included interest on the part of the landowner in developing a boat launch facility and parking development prior to nominating it for consideration by the Trustee Council.

RM 0 RB **Kenai Beach Dunes**: The beach area near the mouth on the north side of the Kenai River has developed into a popular site for a dipnet fishery authorized by the Alaska Board of Fisheries. The beach dunes in this area were becoming severely degraded as a result of foot traffic and unauthorized ATV and 4-wheel vehicle use. Wetlands in the area were also being damaged by vehicles using the area for parking and as a turn-around. Restoration work (Project /180) involved transporting 76 concrete pilings to be installed along the sides of the road to prevent off-road driving. Elevated gratewalks and stairways were constructed to provide public access across the dunes and down to the beach. The City of Kenai has proposed an expansion of the parking facilities in this area. (See Project 99387 Detailed Project Description.)

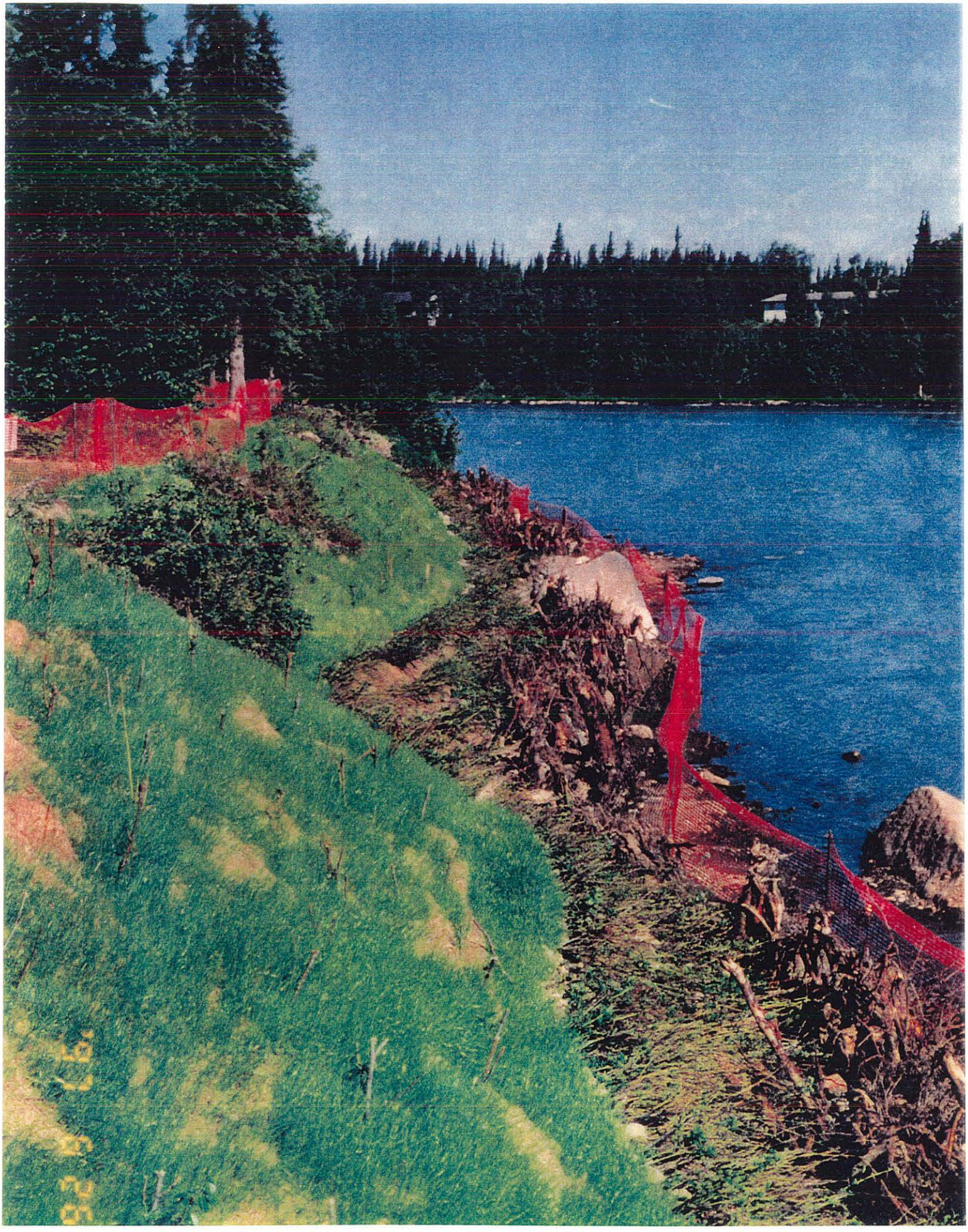
BING'S LANDING STATE RECREATION SITE


06514001
10/1/92

SOLDOTNA VISITOR'S CENTER FISHWALK



CENTENNIAL CAMPGROUND




05704230

BIG EDDY STATE RECREATION SITE


Big Eddy
State Recreation Site

Approved TC 8-13-98

Kenai Habitat Restoration and Recreation Enhancement

Project Number:	99180
Restoration Category:	General Restoration
Proposer:	A. Weiner/ADNR, K. Kromrey/USFS
Lead Trustee Agency:	ADNR
Cooperating Agencies:	None
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	4th yr. 4 yr. project
Cost FY 99:	$299.6
Cost FY 2000:	
Cost FY 01:	$0.0
Cost FY 02:	$0.0
Geographic Area:	Kenai Peninsula
Injured Resource/Service:	Sockeye salmon, pink salmon, Dolly Varden, commercial fishing, subsistence, recreation, and tourism

ABSTRACT

Adverse impacts to the banks of the Kenai River total approximately 19 miles of the river's 166-mile shoreline, including 5.4 river miles of public land. Riparian habitats have been impacted by trampling, vegetation loss and structural development. The project's objectives are to restore injured fish habitat, protect fish and wildlife habitat, enhance and direct recreation, and preserve the values and biophysical functions that the riparian habitat contributes to the watershed. Restoration/enhancement techniques will include revegetation, streambank restoration, elevated boardwalks, floating docks, access stairs, fencing, signs, and educational interpretive displays.

INTRODUCTION

This project is a continuation of the Kenai River Habitat Restoration and Recreation Enhancement Project that began in 1996. The objectives of this project are to.

1. Restore and protect fish habitat on the Kenai River,

2 Improve existing recreational access to the Kenai River watershed in a manner that restores and protects riparian fish and wildlife habitat,

3. Provide information to the public that promotes their understanding of the river's ecology and proper use of its resources

Public lands on the Kenai Peninsula, including those acquired with Exxon Valdez oil spill joint settlement funds, contain important habitat for several species injured by the spill and provide recreation services for tens of thousands of Alaska residents and tourists. Kenai River fish support a large commercial fishery, a commercial sport fishing industry, a subsistence fishery, and a recreational sport fishery. In the aggregate, revenues generated by sportfishing, commercial fishing and river-based tourism represent a significant and growing proportion of the local economy.

The riparian zone, the transitional area that lies between the river's channel and the uplands, provides important fish and wildlife habitat and plays a major role in the hydrology of the watershed by helping to control floods and erosion. This vegetated area functions as a buffer and filter system between upland development and the river, thereby maintaining water quality by absorbing nutrients, accumulating and stabilizing sediments, and removing heavy metals and pollutants that are a result of urban development and which enter the river from surface runoff. It is also the area where a significant portion of the Kenai River's sportfishing and other recreational activities are concentrated.

Degradation of the river's streambanks, riparian vegetation and fish habitat has the potential of jeopardizing its long term productivity and degrading the quality of the recreational experience. This project proposes revegetation, streambank restoration, and public access improvements that will promote pink and sockeye salmon and Dolly Varden habitat protection and restoration, as well as enhancement of recreational services in the Kenai River watershed. The project also proposes to design and construct educational and interpretive displays that will inform the public of the proper manner in which to access and use the river's resources.

Restoration and enhancement proposals on public lands extending from the outlet of Kenai Lake to the mouth of the Kenai River (Figure 1), were nominated by public

landowners and evaluated by an Interdisciplinary Team (IDT) of biologists and resource managers using specific threshold and evaluation criteria (Table 1). The IDT designed the qualifying criteria used to evaluate and rank the proposals by considering a variety of factors, including the degree of damage at a site and the effects that each proposal will have on fish habitat, recreation, and the surrounding environment.

All proposals had to meet threshold criteria before the evaluation criteria were applied. The scores are a method of ranking those proposals that best achieve the overall project's goals for habitat restoration, compatible recreation enhancement, and educational value. In an attempt to identify the most cost-effective proposals and obtain maximum benefits from available funds, it was decided to compare the relative restoration benefits of the proposals in terms of costs. To facilitate that determination, the results of the evaluation process, i.e. the scores, were plotted against the estimated costs.

Conceptual restoration and enhancement plans were presented to the IDT for evaluation. Final engineered plans were provided to ADFG/ADNR prior to construction. Choice of building materials and construction methods are the responsibility of the landowner (but subject to IDT review) and must employ restoration techniques permittable by regulatory agencies (ADFG, ADNR, and the Army Corps of Engineers).

The project was proposed to last for three years, beginning in 1996. Projects approved for funding in 1997 will be completed in 1998. Monitoring of funded proposals will be carried out by ADFG/ADNR to ensure the proposals are constructed and function as designed. Monitoring will also be used to gather information regarding effectiveness of restoration techniques.

Twelve nominations (sites) were chosen for restoration/enhancement. Construction status of these sites is as follows:

- Kenai Dunes (Completed)
- Rotary Park (Completed)
- Endicott Sonar Site (Completed)
- Ciechanski (In Progress; Expected completion in Spring, 1998)
- Big Eddy (In Progress; Expected completion in Spring, 1998)
- Funny River (In Progress; Expected completion in Spring, 1998)
- Bing's Landing (In Progress; Expected completion in Spring, 1998)
- Kobylarz (In Progress; Expected completion in Spring, 1998)
- Chester Cone (In Progress; Expected completion in Spring, 1998)
- Centennial Park (In Progress; Expected completion in Spring, 1998)
- Slikok Creek [Phase I (In Progress); Phase II (1999)]

During spring/summer 1998, Phase 1 will be completed as follows:

1. Installation of 300 feet of 6 feet wide elevated gratewalk behind the riverbank with 3 river accesses with seasonably removable stairs to the hipboot fishery

2. Restoration of 375 feet of riverbank in front of the elevated gratewalk.

3. Installation of 490 feet of 4 feet wide gratewalk on existing access trail from the Slikok Creek State Recreation Site parking lot to the Kenai River downstream of Slikok Creek.

- Russian River [Phase I (In Progress); Phase II (In Progress); Phase III (1999)]

During spring/summer 1998, Phases I & II will be completed as follows:
Phase I

1. Replace 120 feet of wooden decking with light penetrating decking on existing boardwalk.

2. Installation of 323 feet of elevated boardwalk (220 feet with wooden decking, 123 of light penetrating decking) with railing on river side.

3. Reconstruction of 40 feet of trail and installing fence on river side.

4. Installation of one interpretive node with light penetrating decking along new boardwalk.

5. Design, produce and install one interpretive sign at new interpretive node.

6. Installation of one bank fishing platform (10 feet by 15 feet) with light penetrating decking.

Phase II

1. Completion of pile driving contract for all boardwalks in Phase 2 and 3.

2. Installation of 61 feet of elevated light penetrating boardwalk with railing on river side.

3. Installation of 110 feet of elevated boardwalk with wooden decking with railing on river side.

4. Installation of one interpretive node with wooden decking along new boardwalk.

Signs and interpretive displays were erected at each project site. They include:

- 24 signs that identify the funding source for each project.
- Ten displays dealing with protection of the river's resources.
- Six displays depicting aquatic insects as in important element of the river ecosystem as it relates to salmon fry.
- Four displays depicting interesting facts about salmon fry.

Table 1

Threshold Criteria

1. The project will protect, restore or enhance the historic functional attributes of a site and the surrounding area.
2. The project is located on public land.
3. The managing agency agrees to endorse the project.
4. The managing agency agrees to future maintenance and management of the project in a manner that facilitates and is consistent with the restoration or enhancement endpoint (#1).
5. All elements of the project can be permitted.
6. The project is not a mitigation requirement.

Nomination must be in compliance with all Threshold Criteria.

Evaluation Criteria

1. Potential Habitat Value
   What is the potential habitat value of the project? [Score_ = (20/10/5) x 3.5]

2. Potential Recreation Value
   What is the potential recreation value of the project? [Score = (20/10/5) x 2.5]

3. Disturbance Level
   What is the level of disturbance (human impact) in relation to habitat/recreation values? [Score = (20/10/5) x 2.0]

4. Rate
   To what extent will the project decrease the amount of time needed for riparian habitat to recover? [Score = (20/10/5) x 1.0]

5. Collateral Impacts
   What is the potential for adverse impacts to natural or cultural resources or to the nearby human community resulting from this project?
   [Inverse relationship: Score = (5/10/20) x 3.0]

6. Design/Effectiveness
   How would you rate the project's design to its expected effectiveness?
   [Score = (20/10/5) x 2.0]

7. Vulnerability
   Is the protected, restored or enhanced site vulnerable to natural or human-induced degradation. [Inverse relationship: Score = (5/10/20) x 2.0]

NEED FOR THE PROJECT

A. Statement of Problem

Use of the Kenai River watershed is degrading fish habitat along the riparian zone of the mainstem and, to a lesser degree, the tributaries of the river. Streambanks that provide essential fish habitat are being trampled and denuded of vegetation leading to increasing rates of erosion and sedimentation. Both commercial and residential developments are altering shorelines, changing patterns of runoff and creating the potential for the discharge of non-point source pollutants into the river. Federal and state resource agencies have limited ability to manage these problems that have the potential of threatening the productivity and world class recreational value of this river system.

Commercial fishing, subsistence, recreation and tourism (including sport fishing) are services that were reduced or lost because of the spill. Within the Kenai River watershed, the resources that support these services that were injured by the Exxon Valdez oil spill include pink and sockeye salmon and Dolly Varden. Chinook and coho salmon also contribute significantly to these services. The Exxon Valdez Oil Spill Restoration Plan states that the Kenai River sockeye salmon population is not recovering and that: With regard to sockeye salmon, the objective of habitat protection is to ensure maintenance of adequate water quality, riparian habitat, and intertidal habitat.

The restoration strategy articulated in the restoration plan for recreation and tourism focuses on the: Preservation and improvement of the recreational and tourism values of the spill area. The Plan goes on to discuss strategies for promoting recovery of commercial fishing, recreation and tourism by: ...increasing the availability, reliability, or quality of the resource on which the service depends.

What is needed within the Kenai River watershed is an integrated approach that protects resource habitats, restores degraded streambanks and riparian vegetation, maintains productivity and promotes appropriate, sustained human use of the river.

B. Rationale

The work proposed by this project is a continuation of the on-going effort needed to protect and restore fishery resources. Continuing loss of habitat will exacerbate the injury caused by the spill to both resources and services and lead to diminished productivity. This, in turn, diminishes the value of the commercial, subsistence and sport fisheries and the quality of recreation on the river with significant, adverse implications for the local economy.

The present condition of North America's native fish fauna is attributable, in part, to the degradation of aquatic ecosystems and habitat (FEMAT Report, 1993). Loss and degradation of freshwater habitats are the most frequent factors responsible for the decline of anadromous salmonid stocks (Nehlsen, et. al. 1991). Along with habitat modification or loss, changes in water quality and quantity are often cited as causative factors for degradation of aquatic systems and declines in anadromous fish populations.

The Kenai River Cumulative Impacts Assessment of Development Impacts on Fish Habitat (Liepitz, 1994) was designed to identify and evaluate the cumulative impacts of development actions including public and private land use impacts on Kenai River fish habitat. The study documented that : 11.1 percent to 12.4 percent (18.4 to 20.6 miles) of the river's 134 miles of upland and 32 miles of island shoreline and nearshore habitats have been impacted by bank trampling, vegetation denuding, and structural development along the river's banks. Degraded public land along the Kenai River includes 5.4 miles of trampled riparian habitat and 3.5 miles of developed shoreline.

Based on a review of historic recreation use patterns and habitat impacts in the Slikok Creek and Russian River areas, the project will protect, restore, stabilize, or rehabilitate streambanks where resource damage is occurring; enhance or close existing access points and movement corridors; or re-direct users to other areas of the river on a temporary or long term basis. These actions will be based on the need to facilitate human use of the river in a way that protects fish habitat and minimizes degradation of other sensitive and/or pristine habitats.

This project is designed to promote streambank stability, increase vegetative cover, and mitigate accelerated erosion and sedimentation for the benefit of pink salmon, sockeye salmon, Dolly Varden and other fish species that migrate and rear along the river's banks. Techniques used to achieve these goals will include the use of elevated, grated boardwalks, river access stairs, fishing platforms, and other riparian habitat improvement and protection techniques. These techniques will, at the same time, restore and enhance sportfishing. One example is elevated, grated boardwalks, constructed to protect revegetating streambanks, that will provide river access to anglers with a minimum of impact to the recovering habitat. Post-construction monitoring will examine the effects of the method and the amount of recreational use that occurs in the area.

The education component of the project will produce user information and interpretive displays at strategically located access points along the Russian River and at Slikok Creek. These displays will provide users with information on the natural history of the river's fish, their habitats, ecology of the river system and the best methods that they can use to maximize their recreational experience with a minimum of impact to the watershed and its resources. Signs placed adjacent to work sites will describe the on-going restoration effort and direct the public away from recovering vegetation.

C. Location

All construction, maintenance and monitoring components will be located within the Slikok Creek and Russian River project sites. Planning and coordination will be based in Anchorage. Primary ecological benefits from the project will be realized by the natural systems within the watershed. Secondary benefits will affect the economy of the communities of the Kenai Peninsula and the commercial fishing industry. Improved and enhanced recreation benefits will affect users from southcentral Alaska as well as tourists from outside of the state. Communities that may be affected by the project include: Kenai, Soldotna, Homer, Sterling, Cooper Landing, Anchorage and the unincorporated communities on the Kenai Peninsula.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

It is intended that the project be fully integrated with on-going agency recreation management, permitting and regional planning activities affecting the Kenai River watershed. This includes coordination with the Kenai Peninsula Borough, City of Kenai, Kenai City Council, City of Soldotna, Soldotna City Council, Kenai Peninsula Borough Assembly, and local interest groups.

PROJECT DESIGN

A. Objectives

1. Complete the Russian River angler trail project (Phase III).

2. Complete the Slikok Creek project (Phase II)

B. Methods

Russian River Angler Trail Project - Phase III

1. Installation of 343 feet of elevated light penetrating boardwalk with railing on river side.

2. Installation of one interpretive node with light penetrating decking along new boardwalk.

3. Build 265 feet of trail rerouted away from river bank with fencing on river side.

4. Reconstruct 105 feet of existing trail and installing a fence on river side.

Slikok Creek - Phase II

1. Replacement of existing stairs down bluff to riverbank on access trail from Slikok Creek SRS parking lot, to include gratedeck landing at riverbank

2. Installation of 110 feet of 6 feet wide elevated gratewalk behind the riverbank along toe of bluff slope with 3 river accesses with seasonably removable stairs to the hipboot fishery.

3. Restoration of 300 feet of riverbank upstream of Slikok Creek with biolog and vegetative mat consisting of Blue Joint Reed Grass sod harvested locally. Live vegetative mats shall be no less than 6 square feet and include an intact root system with natural soil at least 4 inches thick. Biologs will be12 inch diameter, 100% coconut fiber, continuous 20 foot length material for erosion control and botanic naturalization. They will be encased in coconut fiber net of 2 inch squares. Biologs shall be placed directly to the outside of ordinary high water, and installed per manufacturer's recommendation. The biolog shall be staked down into the riverbank backslope.

A monitoring program will be used to evaluate the degree of success of each project. The purpose of the monitoring program is to:

1. Determine if the project is in compliance with the Cooperative Agreement.

2. Evaluate whether the project was been successful in meeting the restoration goals set forth in the project description, and

3. Provide data that will help in design of future restoration projects and in the establishment of performance standards.

Monitoring parameters will be chosen that reflect site-specific restoration/enhancement objectives and may include habitat, vegetation and public use measurements The assessment of the existing condition of each site will serve as the baseline for monitoring. Monitoring measurements will be obtained frequently early in the project and could be used to amend the design if necessary. Wherever possible, photo plots will be installed

and photos taken biannually. Once the project is successfully constructed and it is determined that restoration/enhancement is proceeding on an acceptable course and rate, monitoring measurements will be taken less frequently. Projects that are initially monitored monthly during the early stages of vegetation growth and establishment will be monitored biannually thereafter. Habitat and population monitoring parameters may include: vegetation diversity and cover, fish utilization and stream stability. Public use of the sites and impacts to adjacent areas will also be monitored. Site visitation shall be based on counts of individual people by field staff and project personnel.

Observations may be made during winter months to evaluate the effects of ice scouring. The period that a project is monitored will be based upon the amount of time required for achievement of objectives.

C. Cooperating Agencies, Contracts and Other Agency Assistance

The USFS is the lead Trustee Agency for the Russian River Angler Trail portion of this proposal. ADNR is the lead Trustee Agency for the Slikok Creek Trail portion of this proposal. All components of the project will be carried out by personnel from ADNR and USFS. Volunteers supervised by agency staff will assist in the installation of prefabricated structures and in routine maintenance. Coordination will occur with agencies through contract administration and oversight.

SCHEDULE

Russian River Angler Trail Project - Phase III

A. Measurable Project Tasks for FY 99

October 1 to November 1:	Pile driving contract for all boardwalks.
November 1 to April 1:	Materials for all boardwalks, trails, and interpretive node ordered and received.
March 23-27:	Participation in 10th Anniversary Symposium
April 1 to June 15:	Construction of boardwalks, trails, and interpretive node.
June 15 to September 30:	Monitoring of resources in area through summer during high use periods.

B. Project Milestones and Endpoints

June 15:	Complete construction of boardwalks, trails, and I nterpretive node.
June 15 to September 30:	Continue monitoring of project area resources.

Slikok Creek Project - Phase II

A. Measurable Project Tasks for FY 99

July 1 to September 1	Period of construction contract stairs, gratedeck, gratewalk, river access stairs, and streambed restoration

B. Project Milestones and Endpoints

September 1	Complete construction of stairs, gratedeck, gratewalk, river access stairs, and streambed restoration.

NORMAL AGENCY MANAGEMENT

The impacts affecting the Kenai River are occurring at a rate and magnitude far in excess of the management resources that are available to mitigate or restore habitat damage. The proposed project supplements existing efforts to reverse this trend. Moreover, none of the riparian habitat on small parcels that the Trustee Council is acquiring on the Kenai River has been surveyed or evaluated for restoration work. Additional issues relevant to state agency management of the Kenai River are to be found in the following section.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Coordination will occur with agency staffs in DNR, ADF&G and the USFS. Their expertise will be used in defining management objectives, developing criteria, evaluating and ranking potential project sites, conducting archaeological and historical reviews and clearances, performing design to include preparing plans and specifications, bidding construction projects, oversight of project construction, permitting, monitoring public use, and enforcing site restrictions.

Federal funding through the USDA Forest Service has made possible many additional restoration projects in the Russian River area for fish habitat and river bank vegetation. Such projects include closing river banks from foot traffic, constructing access point stairways into river, and revegetating eroded river bank areas. One vital program the Forest Service implemented is Streamwatch, a cadre of volunteers, who are at the Russian River and locations on the Kenai River during fishing season to talk with anglers about their impacts to the river banks. Since its inception in 1994, the Streamwatch Program has doubled in size and has become a resource utilized by other federal, state, and local agencies. Key to the program is the Forest Service leadership, and partnerships with Kenai River Sportfishing Inc. (who provide funding for the program) and Facilities Management Inc. (who provide a free campsite).

The project will build upon pilot efforts that have been implemented or are being developed for the river. In 1994, boardwalks were installed near the Soldotna airport and on numerous private parcels; exclosures have been used with a high degree of success along portions of the Russian River and in units of the state park system. State permitting procedures have also resulted in numerous bank stabilization projects that maintain or enhance fish habitat by using spruce tree revetments, root wads, live willow cuttings, and other protective measures.

The state and federal governments have already committed funds to accomplish several of the objectives identified by this project. Fish and Game Exxon Valdez criminal settlement funds ($3 million) have been dedicated for the construction of habitat protection demonstration projects and land acquisition on the Kenai River. The U.S. Fish and Wildlife Service has provided challenge grant funding to assist the ADF&G demonstration projects. The National Marine Fisheries Service will provide the ADF&G with an additional one million dollars for streambank improvements under an appropriation requested by Senator Stevens. ADNR restitution funds ($7 million) will be used, in part, to construct boardwalks and access platforms that protect streambanks at heavily used state park units at Morgan's Landing, Bing's Landing, and Slikok Creek. Dingle-Johnson funds are being used to provide recreational access, streambank revegetation, and streambank protection structures at The Pillars project site.

The intense public use pressures and development activities on the Kenai River threaten to overwhelm the limited budgets available to resource agencies attempting to manage the river for resource protection and sustained recreational use. That is why supplementary funding is so important. The proposed project, along with those utilizing other available funds, provides a cost-effective method to protect streambanks and minimize further habitat degradation.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

The project design and schedule described in the DPD approved by the Trustee Council for FY96, FY 97 and FY 98 are unchanged

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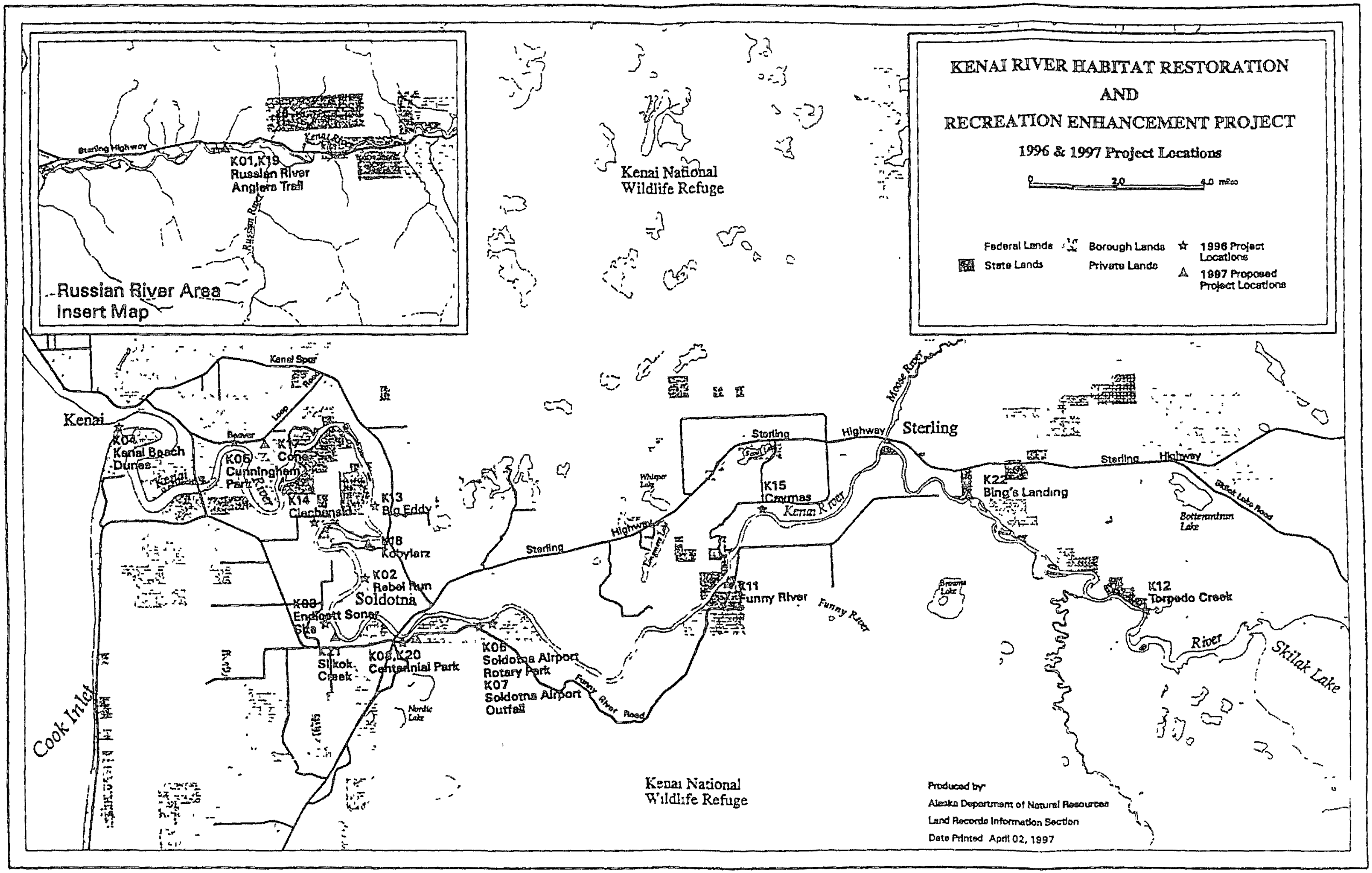

KENAI RIVER HABITAT RESTORATION
AND
RECREATION ENHANCEMENT PROJECT
1996 & 1997 Project Locations
Federal Lands
State Lands
Borough Lands
Private Lands
1996 Project Locations
1997 Proposed Project Locations
Russian River Area Insert Map
Sterling Highway
K01,K19 Russian River Anglers Trail
Russian River
Kenai National Wildlife Refuge
Kenai
Kenai Spur
K04 Kenai Beach Dunes
K05 Cunningham Park
K17 Cone
K14 Ciechanski
K13 Big Eddy
K18 Kobylarz
K02 Rebel Run
Soldotna
K03 Endicott Sonar Site
K21 Slikok Creek
K09,K20 Centennial Park
K06 Soldotna Airport Rotary Park
K07 Soldotna Airport Outfall
Funny River Road
K15 Cramas
Kenai River
K11 Funny River
Sterling
Moose River
K22 Bing's Landing
Skilak Lake Road
K12 Torpedo Creek
Skilak Lake
Cook Inlet
Kenai National Wildlife Refuge
Produced by:
Alaska Department of Natural Resources
Land Records Information Section
Date Printed April 02, 1997

Habitat Protection Efforts

- EVOS funds have contributed over $9,000,000 to purchase 10 parcels containing 1,900 acres for habitat protection and recreational access.
- ADF&G and DNR have closed 21 sections of sensitive river bank covering 19.4 miles of the Kenai Rive to bank angling and/or public access for habitat protection.
- DOT has relocated their Soldotna Maintenance Facility to a new location south of Soldotna and has commenced with the cleanup of the site. The sand and salt pile located near Soldotna Creek, a tributary of the Kenai River was removed in early June, after it became apparent that the salt was killing vegetation in the riparian area near the creek.
- At the confluence of Moose River and the Kenai River, Teacher Cate Bendock's 5th Grade class has adopted the Moose River, a tributary of the Kenai River. The children combined a study of the river's resources with a field project in which 350 feet of damaged river bank was restored and revegetated. Additional access improvements include a trail and stairway. The project was funded by Kenai River Sportfishing, Inc. with additional funding supplied by ADF&G and USFWS.
- Over $500,000 in matching funds from the Exxon Valdez Oil Spill have been provided to private land owners who are willing to share the cost of restoring damaged habitat on their private lands.

Endicott Sonar site elevated gratewalk.

Habitat restoration along the bank of the Kenai River.

Kenai River Special Management Area (KRSMA)

- DNR Commissioner John Shively adopted the revised Kenai River Comprehensive Management Plan in December 1997. The revised plan is the result of a two year planning process that was prompted by Governor Knowles in July 1996 and then spearheaded by the Kenai River Advisory Board. ADF&G, DEC, USFWS, and the USFS have all endorsed the plan and are in the process of implementing many of the plan's recommendations. The final plan should be published and available by August.
- One of the significant recommendations in the plan is the addition of state lands and waters in the vicinity Moose Pass and Cooper Landing. The Administration will be submitting a bill to the Legislature next session to add these lands and waters to the Kenai River Special Management Area.
- New regulations implementing certain recommendations in the Plan will become law on July 1. They include an extension of the non-motorized use of the Upper Kenai River near Cooper Landing, and limitation of jet skis within the KRSMA to just the eastern 2/3 of Kenai Lake.

July 1998

Alaska Department of NATURAL RESOURCES

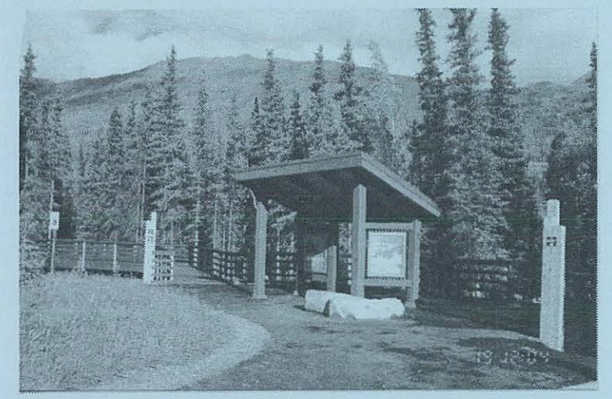
ALASKA STATE PARKS

PROTECTING THE RIVER

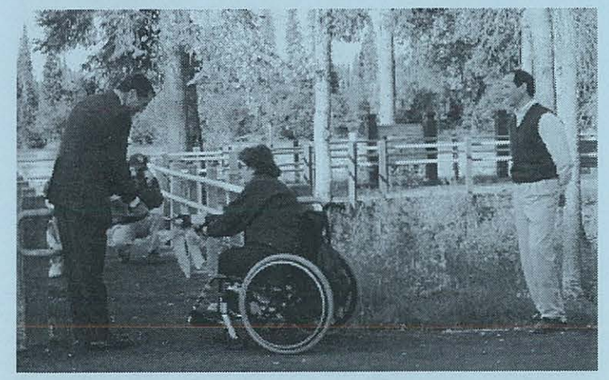
Alaska's Playground - the Kenai River

Hosting nearly a fifth of all sport fishing in the state, the Kenai River is Alaska's most popular sport fishery. Sport fishing for world class Kenai River king salmon, sockeye and coho salmon, and trophy rainbow trout supports a multi-million dollar tourism and sport fish guiding industry. The Kenai River produced the world record sport caught King Salmon weighing in at 97 lb. 4 oz!! Kings commonly weighing 50 pounds or more are taken from the river.

A significant percentage of the Kenai Peninsula Borough's economy is tied to the Kenai River fishery - commercial fisheries within Cook Inlet depend in large part on the Kenai-produced fish, and over 300 sport fishing guides annually serve anglers on the river.



New interpretive kiosks at Cooper Landing.



Governor Tony Knowles, Mayor Mike Navarre, and Jeri Best dedicating the Pillars Boat Launch.

Soldotna Fish Walk.

Near shore habitat important for rearing juvenile king salmon has been substantially impacted by recreational use and development activities. Thousands of booted feet can trample a naturally vegetated river bank into a denuded, eroding wasteland, while development activities that remove naturally occurring vegetation from the river banks causes additional loss of important rearing habitat for juvenile fish.

Approximately 12% of the near shore habitat has been degraded by these activities. A growing Alaskan population and booming tourism industry has caused biologists and resource managers to be concerned about the cumulative effects on the fishery attributed to the overuse and development impacts. Additionally, the quality of the recreational experience is jeopardized as more and more people crowd into overused sites.

Kenai River Accomplishments

Local, state, federal, citizen groups and other private entities have partnered to create a multi-faceted approach to reduce further destruction of habitat, restore damaged habitat, and provide habitat-friendly recreational facilities

Recreation Access

Morgan's Landing Campground

- An ADA accessible trail for wheel chair users and other recreational users with mobility disabilities has been constructed at KRSMA's Morgan's Landing Campground. The trail will provide improved river access from the campground and day use areas, replacing the steep access formerly available.

Bing's Landing

- A new 35-unit campground will be opened at the Bing's Landing unit of the KRSMA in Sterling. Additional river front improvements include boat tie-up and fishing gratewalks, stairways, bioengineering and sanitary facilities.

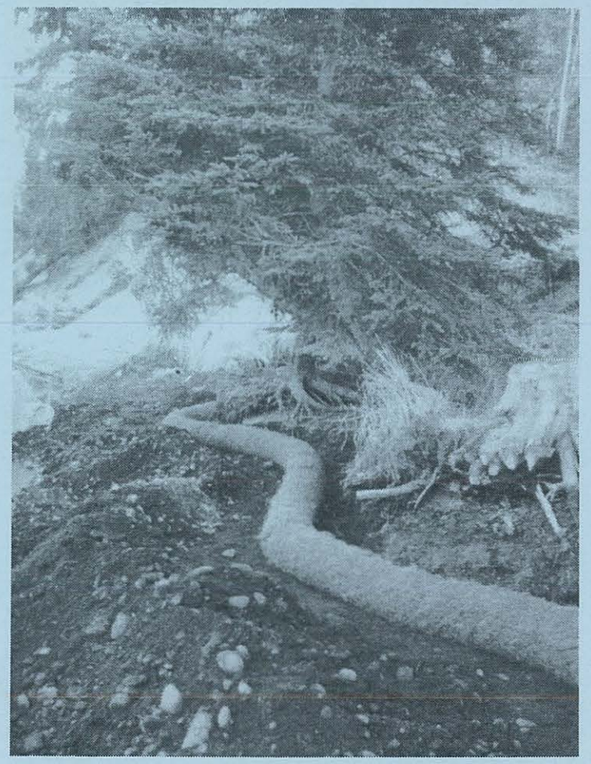
Cooper Landing Boat Launch and Pillars Boat Launch

- The Cooper Landing Boat Launch and Pillars Boat Launch are in their first full year of operation, having been completed last fall. They are each contributing to improved and safer boating access in these sections of the Kenai River. Volunteer Host cabins have been constructed at each site to support improved public information and assistance.

Pillars boat launch dedication.

Other Restoration and Responsible Recreational Access Projects

- Exxon Valdez Oil Spill (EVOS) Trustee Council funded projects at **Funny River, Big Eddy, Ciechanski , Kenai Dunes, Endicott Sonar Site, Centennial Campground , Rotary Park and Bing's Landing** have been completed. These projects provide a variety of angler walkways and fishing platforms, stairway accesses, floating docks, and bank restoration. Restoration projects continue to be conducted at **the USFS's Russian River, the City of Soldotna's Centennial Park, DNR's Slikok Creek, and the Cone and Kobylarz** EVOS small parcel acquisitions.



Coir log to be installed across stream banks for restoration.

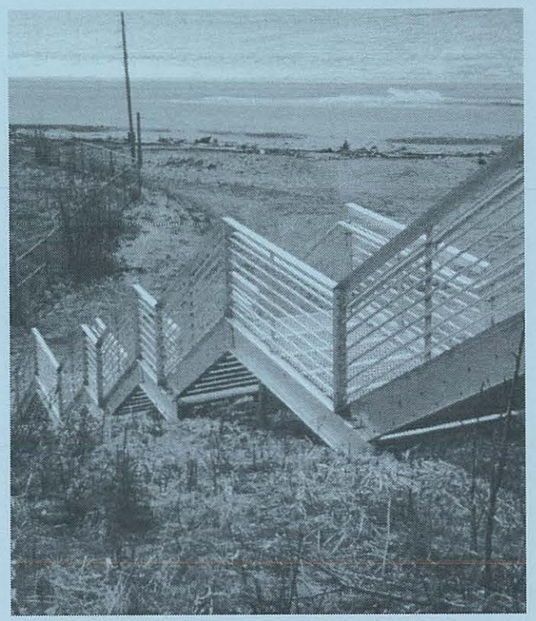
Kenai River Center

In 1995, Governor Tony Knowles and former Mayor Don Gilman established The Kenai River Center to provide a "one stop" convenience center for land owners, commercial operators and others seeking permits or information on the Kenai River.

- The State has awarded the Kenai Peninsula Borough $1.75 million to build a new Kenai River Center. Over the winter, the Borough selected a committee to work on site selection and building design. The City of Soldotna's Airport property adjacent to Funny River Road and overlooking the Kenai River has been selected as the future site for the new Kenai River Center.
- In 1997 ADF&G issued 232 permits, DNR issued 252 permits and the Kenai Peninsula Borough issued permits for bank restoration and protection . Through April, 1998, ADF&G has issued 83 permits, DNR has issued 78 permits, and the Kenai Peninsula Borough has issued 29 permits.
- The Kenai Peninsula Borough has received a $61,000 grant from the Alaska Coastal Management Grants Program to conduct a Kenai River Access Inventory to evaluate all of the public easements and rights of way to the Kenai River.
- The Kenai River Center has received the Walter B. Jones Memorial Award for Excellence in Government by the National Oceanic and Atmospheric Administration.
- The River Center has also received the National Association of Counties 1998 Achievement Award for the promotion of responsible, responsive, and effective government.
- Kenai River Center has been named as a semi-finalist in the 1998 Innovations in American Government. The Innovations Awards are sponsored by the Ford Foundation and administered by Harvard University's John F. Kennedy School of Government in partnership with the Council for Excellence in Government.

Bing's Landing interpretive display.

Elevated gratewalks to enchance public access.



Elevated light penetrating stairway providing access to dip net fishing at mouth of Kenai River,

EXXON VALDEZ OIL SPILL RESTORATION
KENAI RIVER EFFORTS
Restoration Projects and Small Parcel Locations

0 2.0 4.0 miles

Universal Transverse Mercator Projection, Zone 5

- Federal Lands
- State Lands
- Borough Lands
- Private Lands
- Restoration Project Locations
- Small Parcel Locations

Russian River Area Insert Map

Sterling Highway
Kenai River
K01,K19 Russian River Anglers Trail
Russian River

Kenai National Wildlife Refuge

Kenai Spur Road
Loop
Kenai
K04 Kenai Beach Dunes
Beaver
Cone
K17 Cone
Kenai River
K14 Ciechanski
K13 Big Eddy
Mansholt
K18 Kobylarz
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K03 Endicott Sonar Site
Soldotna
Girves
Roberts
K21 Silkok Creek
K08,K20 Centennial Park
K06 Soldotna Airport Rotary Park
Patson
Nordic Lake
Cook Inlet
Funny River Road
Salamatof
Kenai National Wildlife Refuge

Sterling Highway
Sterling
Scout Lk
Whisper Lake
Longmere Lake
Kenai River
River Ranch
K11 Funny River
Funny River
Browns Lake
K22 Bing's Landing
Moose River
Sterling Highway
Skilak Lake Road
Bottenintnin Lake
Stephanka
Kenai River
Skilak Lake

Produced by:
Alaska Department of Natural Resources
Land Records Information Section
Date Printed: September 11, 1998

T6NR11W T6NR10W T6NR9W T6NR8W T6N

T5NR11W T5NR10W T5NR9W T5NR8W T5N

T4NR11W T4NR10W T4NR8W T4N

PARCEL OWNERSHIP

- PRIVATE
- STATE
- NATIVE
- BOROUGH
- FEDERAL
- UNIVERSITY OF ALASKA
- MUNICIPAL
- BOROUGH SELECTION PATENT PENDING
- NATIVE ALLOTMENT

REVISION BLOCK

Last Revised/By:	Last Revised/By:

NORTH

THE INFORMATION DEPICTED HEREON IS FOR A GRAPHIC REPRESENTATION ONLY OF BEST AVAILABLE SOURCES. THE KENAI PENINSULA BOROUGH ASSUMES NO RESPONSIBILITY FOR ANY ERRORS ON THIS MAP.

KENAI PENINSULA BOROUGH
GIS DIVISION

KENAI RIVER PARCEL OWNERSHIP

SCALE: 1" = 2 MILES | DATE: 3/31/1998

Civil Settlement

Science, Subsistence, Archaeology

The following projects on the Kenai Peninsula were funded by the Trustee Council.

23 **Alaska Sea Life Center** **$26,500,000**

Partially funded this $55 million research and education facility in Seward. Criminal fund provided another $12.5 million. The following projects are funded at the SeaLife Center.

- **Pink Salmon** • *improves understanding of genetic variation in pinks*
- **Rockfish** • *identifies genetic structures of rockfish and pollock*
- **Pigeon Guillemot** • *attempts to establish a new guillemot colony in Seward*
- **Harbor Seal** • *explores harbor seal health, diet, and metabolism*
- **River Otter** • *seeks to understand the effects of oil contamination in otters*

24 **Clam Restoration**

Pilot project to establish subsistence clam populations. Littleneck clams and cockles are being reared in Seward and seeded on beaches near Nanwalek and Port Graham.

25 **Port Dick Creek Restoration**

Port Dick Creek restoration will strengthen native salmon stocks (see photos).

26 **Common Murre Population Monitoring**

Two-thirds of all seabirds killed by the spill were common murres. This project provides data about their recovery at Barren Islands and Chiswell Islands.

27 **APEX - Alaska Predator Ecosystem Experiment**

This project compares reproductive abilities and diets of seabirds in Prince William Sound with similar data from Cook Inlet, helping scientists understand long-term ecological changes taking place in the north Gulf of Alaska.

28 **Port Graham Pink Salmon Subsistence Project**

Because local runs of coho and sockeye salmon are at low levels, subsistence users are relying more on pink salmon. This project helps produce pink salmon for subsistence purposes.

29 **Lower Cook Inlet Waste Management Plan**

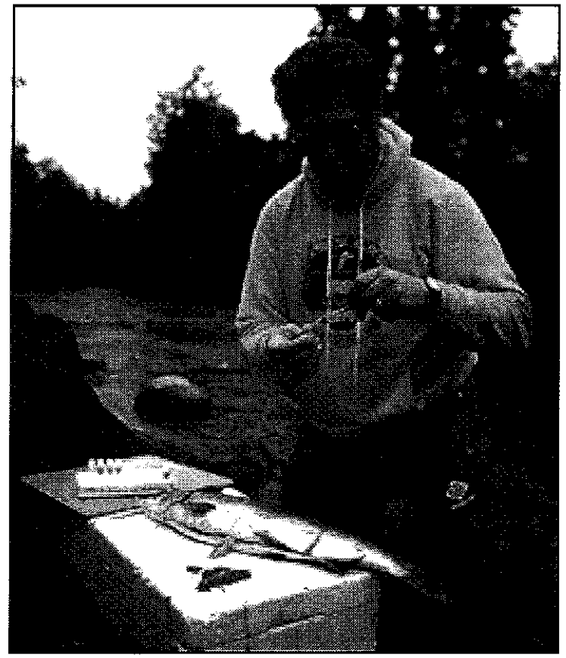
A waste management plan, including some facilities, will help reduced marine pollution by eliminating sources such as waste oil and hazardous household waste.

30 **Homer's Mariner Park**

Plan for restoration of this highly stressed intertidal habitat for benefit of shorebirds, intertidal biota, and recreational users.

31 **Kenai River Habitat Restoration**

Approximately 19 miles of the Kenai River's 166 miles of shoreline have serious habitat loss. Public lands have 5.4 miles of degraded shoreline. This project restores and protect salmon habitat on public lands.



Researchers with the Alaska Department of Fish and Game took genetic samples from salmon on the Kenai River to identify which fish spawn in which streams. Using genetic markers, fisheries managers are able to alter the fishery to ensure adequate escapement of salmon into the tributaries of the Kenai River.

32 **Kenai River Sockeye Salmon Genetics**

Improves management of Kenai River and other Upper Cook Inlet sockeye salmon stocks through genetic identification (see photo).

33 **Sockeye Salmon Overescapement**

Produced scientific evidence to help evaluate the effects of overescapement and improve future forecasts of sockeye in the Kenai River.

34 **Archaeological Site Monitoring & Stewardship**

Archaeological sites injured by vandalism and oiling are being monitored and volunteers are trained to provide long-term protection.

35 **Community Involvement/Traditional Ecological Knowledge**

Residents of Port Graham, Nanwalek, Seldovia, Seward and six other communities in spill region serve as liaisons between the Trustee Council, researchers, and communities.

36 **Youth Area Watch**

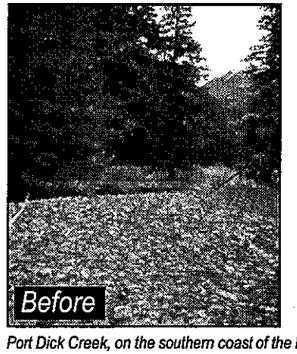
Students take part in ongoing restoration projects, giving them the skills and knowledge to participate in restoration activities now and in the future.

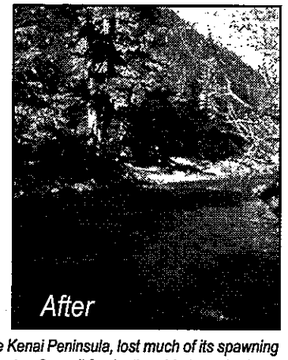
37 **Community Based Harbor Seal Management**

Village technicians in Port Graham, Seldovia, Nanwalek and six other communities are trained by the Alaska Native Harbor Seal Commission to collect biological samples from subsistence harvests for analysis.

38 **Salmon Stream Assessment, Protection, Enhancement**

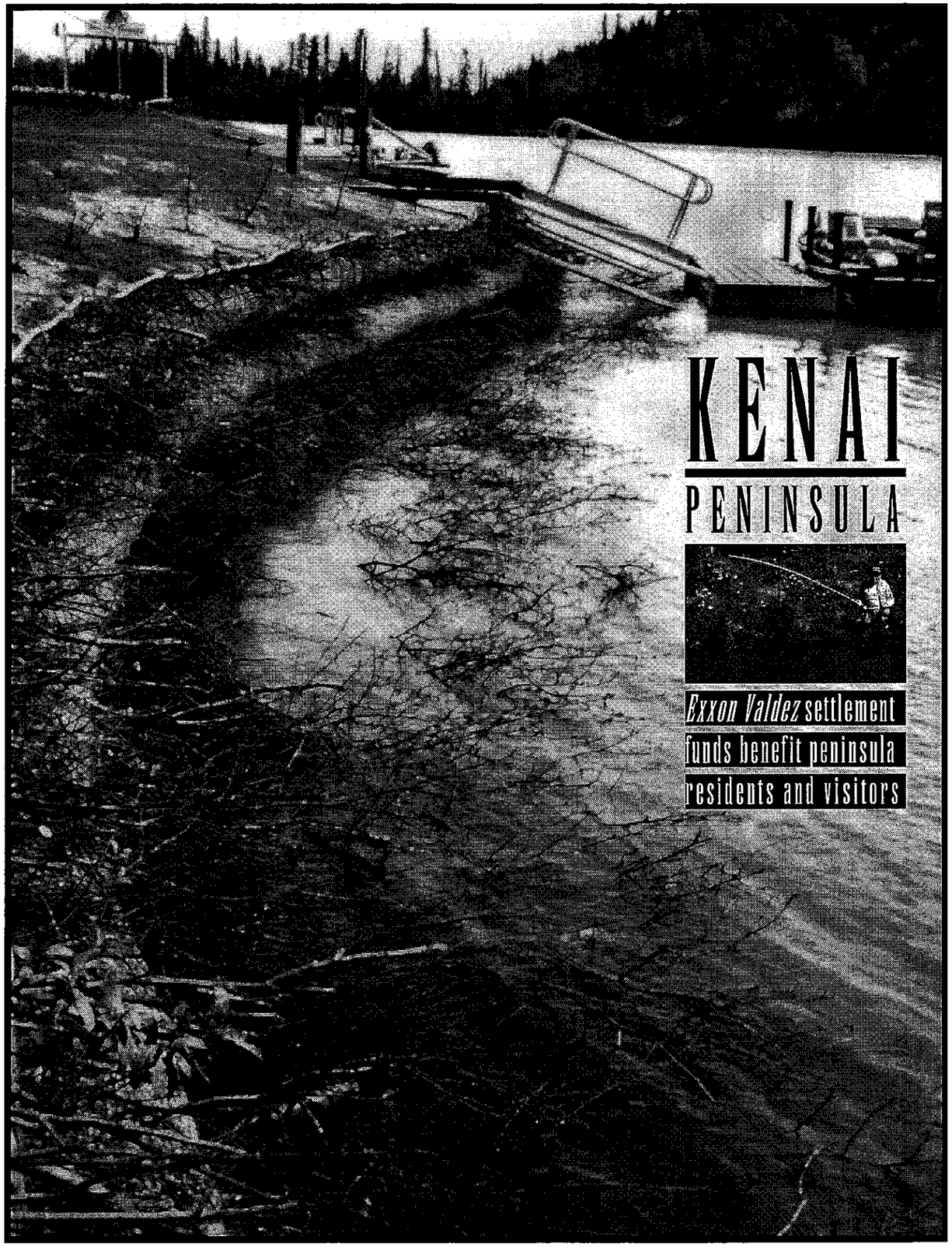
Provided inventory and assessment of four major salmon streams in Lower Cook Inlet resulting in habitat improvements to Port Graham River and Windy Creek for better spawning success.

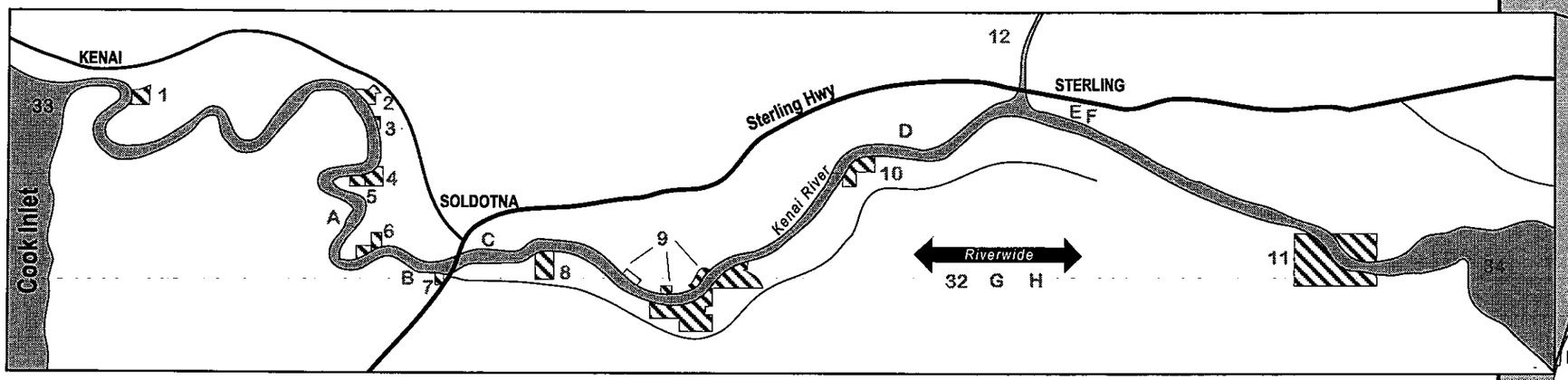


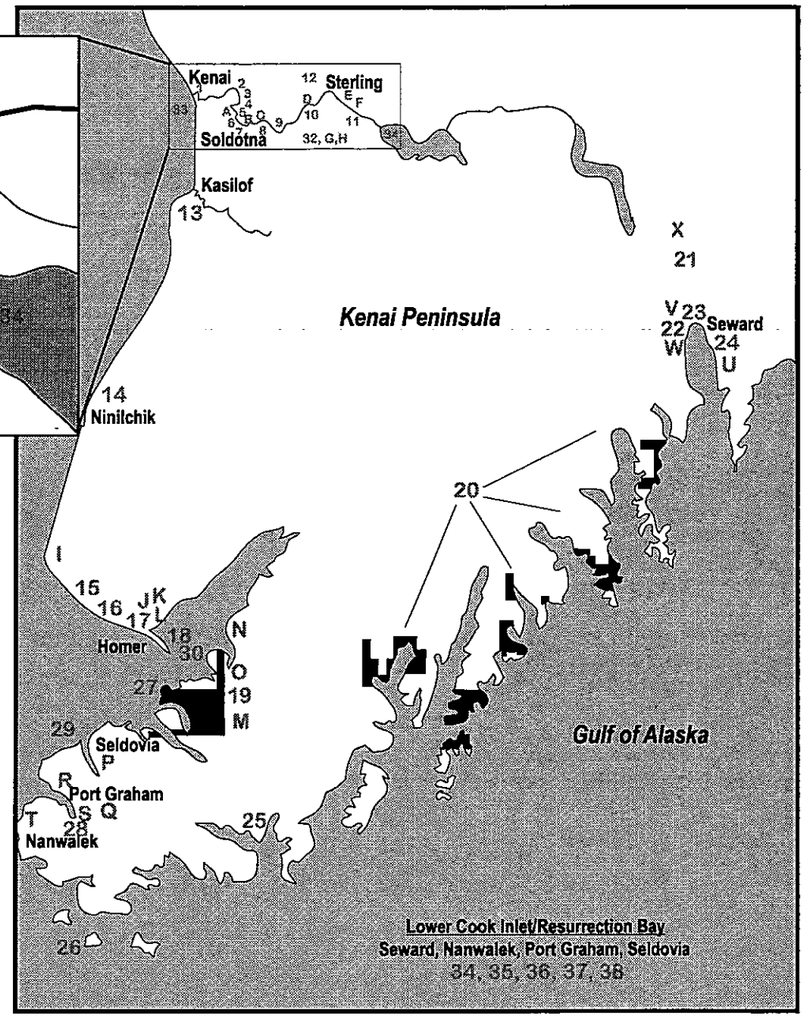


Port Dick Creek, on the southern coast of the Kenai Peninsula, lost much of its spawning habitat after the 1964 earthquake. Using Trustee Council funds, the old streambed was excavated and returned to its pre-earthquake status. The Department of Fish and Game estimates that the new habitat will produce a harvestable surplus of 10,000-11,000 chum salmon in 2006. Port Dick Creek was heavily oiled in 1989.

Exxon Valdez Oil Spill Trustee Council
Restoration Office: 645 G Street, Anchorage, AK 99501
907-278-8012 or 800-478-7745 (within Alaska)







Civil Settlement

The following habitat on the Kenai Peninsula has been protected (or is being considered for protection) by the Exxon Valdez Oil Spill Trustee Council through use of the $900 million civil settlement with Exxon. In addition, research and restoration projects were funded on the peninsula (See Back Page).

1 Cone Parcel **$600,000**
100 acres near the mouth of the river along the Kenai River flats. Acquistion complete.

2 Oberts Parcel (The Pillars)
30 acres with 1400 feet of undisturbed shorelline in vital habitat area. Appraisal complete.

3 Oberts Parcel (Honeymoon Cove)
4.2 acres of undisturbed shoreline in high-impact recreational area. Appraisal complete.

4 Oberts Parcel (Big Eddy)
31.7 acres with about 1,200 feet of riverbank adjacent to the Kobylarz Parcel. Appraisal complete.

5 Kobylarz Parcel **$320,000**
20 acres with 1100 feet of riverbank frontage located on the Kenai River at Big Eddy. Acquisition complete.

6 Girves Parcel **$1,835,000**
110 acres in a high use area of Soldotna. Acquisition complete.

7 Roberts Parcel **$698,000**
3.3 acres at confluence of the Kenai River and the Sterling Highway. Acquistion complete.

8 Patson Parcel **$375,000**
76.3 acres on the Kenai River by the Soldotna Airport with 1/4-mile of river frontage. Offer accepted.

9 Salamatof Parcels **$2,540,000**
1,377 acres on the Kenai River with approximately 3 miles of riverbank frontage. Acquistion complete.

10 River Ranch Parcel **$1,650,000**
146 acres with more than one mile of Kenai River Frontage. Acquistion complete.

11 Stephanka Parcel
803 acres with 4 miles of Kenai River frontage. Part of the KNA package below. Acquistion complete.

12 Kenai Native Association **$4,000,000**
Protects 3,254 acres in the Kenai River/Moose River drainage. Federal criminal fund also provided $443,000.

13 Coal Creek Moorage **$260,000**
53 acres located at the confluence of Coal Creek and Kasilof River. Acquistion complete.

14 Cooper Parcel **$48,000**
30 acres two miles upstream from mouth of the Ninilchik River. Offer under consideration.

15 Tulin Parcel **$1,200,000**
220 acres with 3/4 mile of shoreline, ranked high for its recreational value. Acquisition complete.

16 Overlook Park **$279,000**
97 acres just below scenic overlook, with 3/4 mile of shoreline near tidal pools. Acquistion complete.

17 Baycrest **$500,000**
90 acres adjacent to Overlook Park. Offer under consideration.

18 Beluga Slough/Mud Bay **$996,100**
106.7 acres at the base of Homer Spit and along Beluga Slough. Acquisition complete.

19 Kachemak Bay State Park **$7,500,000**
Partially funded $22 million package to acquire 23,800 acres of park inholdings. Acquisition complete. Criminal fund provided another $7 million.

20 English Bay **$14,128,074**
32,537 acres acquired as part of Kenai Fjords National Park & Alaska Maritime National Wildlife Refuge. Criminal fund provided another $1,240,000.

21 Grouse Lake **$211,000**
64 acre recreational site along western shore of Grouse Lake. Acquistion complete.

22 Lowell Point **$531,000**
19.4 acres includes 700 feet of shoreline popular for hiking, kayaking, and fishing. Acquistion complete.

23-39 Science, Subsistence, Archaeology
*See **Back Page** to learn about research, monitoring and other restoration projects on the peninsula.*

Criminal Settlement

The following projects (in various stages of completion) are being funded through the $100 million criminal settlement paid by Exxon. This settlement was split evenly between the state and federal governments and is used for restoration purposes.

Kenai River Improvements

A Slikok Creek Access **$125,600**
Ladders and boardwalks to and along river for fishing access, interpretive displays. (ADNR)

B Habitat Restoration **$50,000**
Restore and protect severely damaged riparian habitat at Riverbend Campground. (ADF&G)

C Soldotna Creek Park **$300,000**
Habitat restoration, such as elevated grate walk, vegetated biogrid, bank revegetation. (ADF&G)

D Morgan's Landing Access **$90,000**
Ladders and boardwalks for fishing access, facilities for disabled fishers, interpretive displays. (ADNR)

E Bing's Landing Access **$200,000**
Ladders and boardwalks to and along river for fishing access, interpretive displays. (ADNR)

F Bing's Landing Campground **$593,000**
36 new campsites, plus latrines and signs at Bing's Landing State Recreation Area. (ADNR)

G Private Waterfront Projects **$60,000**
Restoration of Kenai River habitat using elevated walks, bio-engineering, revegetation. (ADF&G)

H Public Lands Protection **$250,000**
Riverbank restoration at Endicott sonar site, Kenai Keys, Slikok Park, Centennial Park, Sportsman's Lodge, Ciechanski, and various campsites. (ADF&G)

I Halibut Campground **$300,000**
New 20-unit campground in the Anchor River area. (ADNR)

J Homer Spit Access **$80,000**
Handicapped access and ramps at the Homer Spit Fishing Hole. (ADNR)

K Beluga Slough Trail **$300,000**
Trail construction for wildlife viewing, interpretation, benches in Homer slough. (ADNR)

L Mud Bay Boardwalk **$55,000**
Construct boardwalk and viewing decks at Mud Bay on the Homer Spit. (ADNR)

M Kachemak Bay State Park Improvements *(ADNR)*

Campsites **$60,000**
21 new campsites throughout the park with tent platforms, food caches, fire rings and toilets.

Public Use Cabins **$200,000**
5 new public use cabins for Halibut Cove, Leisure Lake, Moose Valley, Sadie Cove.

Trail System **$310,000**
Construct hiking trails throughout the park.

Mooring Buoys **$20,000**
New buoys in Tutka, China Poot, Mallard Bays and Halibut Cove areas.

Grewingk Tram **$100,000**
Tram to link popular areas of the park and the trail system.

N Halibut Cove Lagoon Dock **$190,000**
Construct public dock in Halibut Cove for access to Kachemak Bay State Park. (ADNR)

O Saddle Trailhead **$73,000**
Stairway, viewing platform, and interpretive signs at access to Saddle Trail in the state park. (ADNR)

P Otterbahn Trail **$70,000**
Seldovia-area trail includes picnic shelter. (ADNR)

Q Port Graham Coho Project **$438,800**
Restore the natural run of coho in Port Graham area stream to improve subsistence harvest. (DCRA)

R Port Graham Incubation **$139,600**
Temporary incubation facility after hatchery destroyed by fire. (DCRA)

S Port Graham Skiff Dock **$82,500**
Docking facilities for Port Graham (DCRA)

T Nanwalek Sockeye Project **$424,000**
Provides sockeye rearing pens and stocking to restore a natural run and improve subsistence. (DCRA)

U Resurrection Bay Cabins **$159,000**
Construct two cabins, buoys, trails and latrines in Thumb Cove. (ADNR)

V Resurrection Bay Trailhead **$240,000**
Develop day use parking, beach trailhead and interpretive exhibits. (ADNR)

W Caines Head State Recreation Area (ADNR)

Alpine & South Beach Trails **$80,000**
Construct hiking trail from North Beach to alpine and extend Caines Head trail to South Beach.

Calisto Canyon Cabin **$50,000**
Construct public use cabin.

North Beach Latrines **$50,000**
Construct two latrines at North Beach.

Tonsina Bridge **$50,000**
Construct 125-foot bridge across Tonsina Creek.

X Darling Parcel
99 acre parcel along the Snow River in the Chugach National Forest. (USFS)

Legend

Uses of Exxon Civil Settlement

1 *NUMERALS designate Trustee Council projects*

For more information on these projects call the Restoration Office at 907-278-8012 or 800-478-7745.

Uses of Exxon Criminal Settlement

A *LETTERS designate state and federal projects*

For more information on these projects contact the agency identified at the end of each project description:

Dept. of Natural Resources (Division of Parks)	*269-8700*
Dept. of Fish & Game (Habitat Division)	*267-2277*
Dept. of Community & Regional Affairs	*269-4588*
U.S. Forest Service	*271-2619*