



**Alaganik Angler Access Signs
Cordova Ranger District
Chugach National Forest
USDA Forest Service, Alaska Region
for Fiscal Year 2003**

Objective/Purpose of Project: The purpose of this project was to provide interpretation of natural cycles on the Copper River Delta that affect fish and fish resources along the newly installed Alaganik Slough Angler Access Trail.

Methods or Techniques Used: A fish crew member wrote most of the text for the signs with assistance from the district I&E staff. The artwork was created by a talented wildlife biologist on the district. Many district folks reviewed and edited the signs.

Realized/Expected results: Five signs were created. Topics covered include Pacific salmon life cycles, tide cycles, beaver pond cycles, human use cycles and an introduction to cycles effecting the Copper River Delta (like earthquake uplifts, glaciers, etc).

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Links to sites:

Project Data:

Category	# New Sites	# Sites Restore Enhance	# Presentations	Under 18 Attendance	Over 18 Attendance	# Products	(a) P&M Program Mgmt. Plan \$	(b) P&M Overhead \$\$	(c) NFWL \$\$	(d) NFAF \$\$	(e) NFIF \$\$	(f) NFTE \$\$	Other Res. \$	Total FS \$\$ (a)+(b)+(c) +(d)+(e)+(f)
Totals	0	0	0	0	0	5	0	0	0	22,000	0	0	0	22,000
Fish Watch	0	0	0	0	0	5	0	0	0	22,000	0	0	0	22,000

Photographs

On The Copper River Delta Cycles Are Everywhere



The grand show is eternal. It is always sunrise somewhere.

the dew is never dried at once;

a shower is forever falling;

vapor is ever rising.

John Muir



You are surrounded by wetlands and intertidal sloughs.

The Copper River Delta is a very unique and special place. You are standing in a place of constant change and renewal. The dynamic forces of nature are constantly sculpting the landscape. Glaciers, earthquakes, tides, rivers, and living creatures that call this place home are all interconnected and influence how this area changes and evolves.

The Alaganik Slough Trail will provide you with a firsthand view of the cycles that are occurring on the Delta every day. Interpretive signs will guide you as you explore the many cycles that influence the Copper River Delta.



The Alaganik Slough Trail is 1.1 miles long.

Be a Responsible User

Stay on the Trail

The wetlands are sensitive. You can destroy vegetation if you leave the trail.

Be Quiet

You will have a better chance of seeing wildlife if you walk quietly and slowly along the trail.

Don't Litter!

Wildlife can be harmed by discarded plastic and other garbage.

Recycle Your Fishing Line

Do your part to protect the wildlife and environment. Place used fishing line in the box at the trailhead.



Alaska Region
Chugach National Forest

Alaganik Slough Trail

Beavers Build New Habitat



The uplift caused by the 1964 earthquake drained some of the Delta's wetlands. The uplifted wetlands provide an excellent environment for alder and willow, making the Copper River Delta prime habitat for beavers.



lots of Cow Cutthroat Trout in the beaver pond today

Beavers can alter their environment by building dams. Ponds, created by dam construction, provide the beaver safe access to their food and new habitat for fish and wildlife.

Beavers may use an area for years until they have exhausted their food supply. Even though the beavers have moved on, the ponds they created can continue to provide habitat for many years.



Beavers create good habitat for willows. One of their favorite foods.

Dams will eventually break, draining the ponds and allowing the alder and willow to grow back until the beavers return.

.....and the cycle begins again



A beaver slipped its tail while it waded by its lodge.



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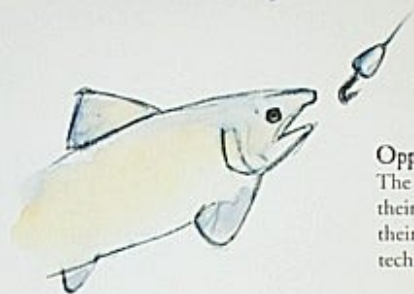
Are You Part Of The Cycle?

People play a role in the natural cycles that occur on the Copper River Delta by enjoying its vast resources. As this area has grown in popularity, it has been challenging to provide a balance between human access and wetlands protection.

The Alaganik Slough Trail strikes this balance. The trail is partially constructed out of Geoblock®, a recycled plastic. The Geoblock® provides a stable footpath, allows light to penetrate, and encourages plants to grow and flourish.



Geoblock has grass growing through holes



Opportunities for anglers

The fish using Alaganik Slough to migrate to their natal streams entice many anglers to test their skills. If you release your fish, use the proper techniques to improve their chances of survival.

Tips to release fish unharmed include:

- Keep the fish in the water
- Keep fingers away from gills and eyes
- Use barbless hooks
- Don't use bait
- Support the fish facing the current until it swims away

Recycle when you re-spool

- Drop unwanted line in recycle box at the start of the trail
- Old line is recycled into new fishing reel handles, knife handles and propellers

When you put your hand in a flowing stream,

you touch the last that has gone before

and the first of what is still to come.

Leonardo Da Vinci



I put my used fishing line in the Recycle Box



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Where Are The Salmon Going?

We forget that the water cycle and the life cycle are one.

Jacques Cousteau



On the Copper River Delta one has a unique opportunity to view the intricate life cycles of the Pacific salmon. Salmon are anadromous fish, which means they live their adult lives in the ocean and return to freshwater to spawn.

Adult salmon migrate back to their natal streams to spawn. With her tail, the female salmon digs a nest in the gravel called a redd. She deposits eggs in the redd and the male fertilizes the eggs. The eggs develop throughout the winter and hatch into alevins. As the alevins absorb the egg yolks they become fry and swim up through the gravel to begin their lives in the stream. After spending up to three years in freshwater, the fry go through physical changes and become smolts. Then the smolts migrate to the ocean to mature into adults.

egg

alevin

fry

smolt

adult

*Beautiful day
this morning.
The fish were
jumping in the
slough.*



Five Species of Salmon Found on the Delta

King salmon = Chinook
Red salmon = Sockeye
Silver salmon = Coho
Pink salmon = Humpy
Chum salmon = Dog



Even in death salmon provide life...

Although the salmon die after spawning, their carcasses continue to play an important role in the ecosystem. The decomposing salmon provide food for aquatic insects and other animals. The carcasses also serve as a nutrient source for the developing juvenile salmon.

....and the cycle begins again



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Ebb and Flow



Between earth and earth's atmosphere, the amount of water remains constant; there is never a drop more, never a drop less. This is a story of circular infinity, of a planet birthing itself.

Linda Hogan

The ocean greatly affects this special place. Tidal fluctuations supply nutrients and help carve the landscape that you see in front of you. Although the open ocean is more than 6 miles downstream from here, this area is influenced by tide cycles. Aquatic species must be tolerant of both saltwater and freshwater to survive here.



14 ft tide today at low tide hip boots



Slough at low tide

Slough at high tide

High tide today is two hours later at the slough than at the ocean. The tide is two hours later here than at the ocean.

Time	High	Low
12:00	1.2	0.2
1:00	1.1	0.3
2:00	1.0	0.4
3:00	0.9	0.5
4:00	0.8	0.6
5:00	0.7	0.7
6:00	0.6	0.8
7:00	0.5	0.9
8:00	0.4	1.0
9:00	0.3	1.1
10:00	0.2	1.2
11:00	0.1	1.3
12:00	0.0	1.4
1:00	0.1	1.3
2:00	0.2	1.2
3:00	0.3	1.1
4:00	0.4	1.0
5:00	0.5	0.9
6:00	0.6	0.8
7:00	0.7	0.7
8:00	0.8	0.6
9:00	0.9	0.5
10:00	1.0	0.4
11:00	1.1	0.3
12:00	1.2	0.2

The science of tides

Tides are caused by the gravitational pull of the sun and moon upon the earth. Although the moon is smaller than the sun, the gravitational pull is much greater due to the moon's proximity to the earth. The sides of the earth that are closest to and farthest from the moon are the areas that experience high tides.



Be Careful.....

Here at Alaganik Slough, tides affect the water level. Caution must be taken when crossing sloughs as the tide may be rising, and the water level may be higher on your return crossing. Consulting tide tables will keep you informed as to the best times to cross the slough. The tide is two hours later here than at the ocean.



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Figure 6: Yellow cedar frames and posts for signs