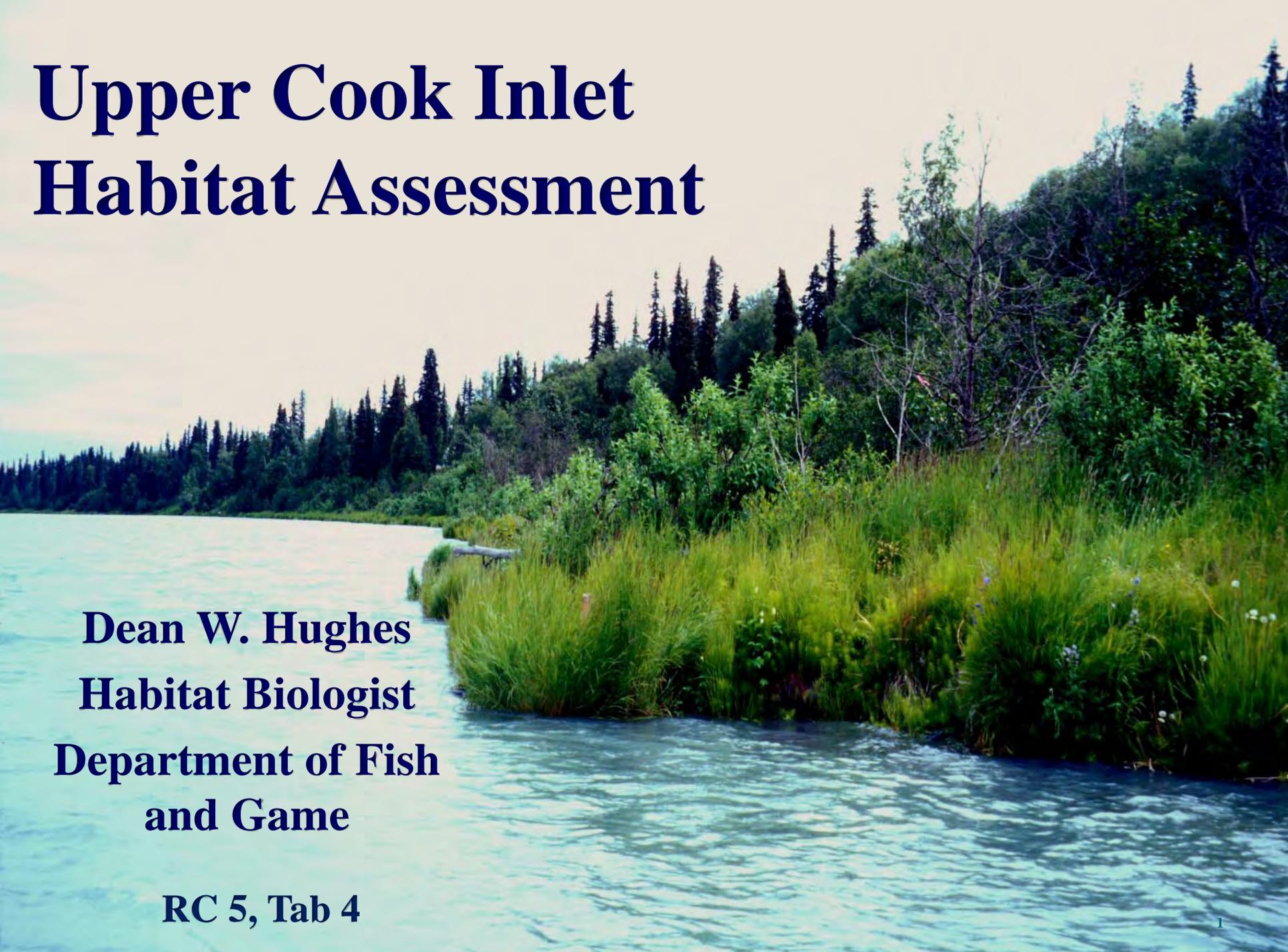


Upper Cook Inlet Habitat Assessment



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RC 5, Tab 4

This presentation will address:

- What fish and riparian habitat is and why it is important
- Potential impacts to fish and riparian habitat
- Which entities are involved in habitat conservation and how it is accomplished
- ADF&G's role in historic and existing habitat assessment activities
- Results of existing habitat assessments and activities
- ADF&G's future role and activities

What is Fish Habitat? – “a place where fish can get the food, water, shelter and space it needs to live.”

Characterized by the presence of :

- Access to rearing and overwintering
- Slow water in the nearshore
- Woody debris
- Overhanging vegetation
- Undercut banks
- Complex, irregular shorelines
- Clean, oxygenated water
- Food
- Access to spawning for adults
- Clean, oxygenated gravel for spawning for adults



What is Riparian Habitat – A type of habitat occurring along the bank of, and is influenced by, a stream or lake, typically consisting of water tolerant trees and shrubs such as alder, cottonwood and willows.

The riparian area is defined in Alaska Administrative Code 5 AAC 57.180 (e): Riparian Habitat Fishery Management Plan for the Kenai River Drainage Area, **“...''riparian habitat'' means all areas within 10 feet in either direction from the Kenai River waterline.”**





10 feet

10 feet

OHW

Why is riparian habitat important?

- Water quality and quantity
 - Filter contaminants
 - Reduce sediment
 - Water retention
- Large woody debris and overhanging vegetation
 - Shelter from predators
 - Shade helps maintain cool water temperatures
- Food source for rearing fish
- Nutrients for system
- Resistance to erosion
- Refuge for juveniles during flood events

Potential impacts to fish and fish habitat

- **Land use practices**

- Removing vegetation
- Hardening/straightening of banks
- Fertilizing lawns/dumping clippings

- **Development in riparian areas**

- Impermeable surfaces
- Surface and subsurface flow fragmentation
- Road runoff
- Septic
- Wetland fragmentation
- Increased sedimentation
- Decreased contaminant filtration

River Miles 24.5 – 26.5



1975



1998

Habitat management is accomplished by many entities involved in maintaining and increasing the suitability of habitats for fisheries resources in the Mat-Su Basin and on the Kenai Peninsula

- Board of Fish
- Alaska Department of Fish and Game
- United States Fish and Wildlife Service
- Alaska Department of Natural Resources
- United States Army Corps of Engineers
- Exxon Valdez Oil Spill Trustee Council
- Mat-Su Fish and Wildlife Commission
- Kenai River Special Management Area Board
- Mat-Su and Kenai Peninsula Boroughs
- Mat-Su and Kenai Peninsula Fish Habitat Partnerships
- Local Area Sportfishing Associations
- Local Watershed Groups
- Local Soil and Water Conservation Groups

Habitat maintenance and conservation occurs through several methods including:

Protective habitat regulations

- Multi-agency permitting process
- Borough set backs and Habitat Ordinances
- Other State, Federal and Local Restrictions

BOF and ADNR adopted habitat closures (riparian habitat plan)

- Land use restrictions or closures
 - ~17.5 miles of shoreline closed to fishing
- Clean outboard motor regulations
- Passenger limits to reduce boat-wakes

Education and Outreach



What is ADF&G's role?

Historic Habitat Assessments

- 1984-1985 – Fisheries, Rehabilitation, Enhancement and Development Division - Riverbank Erosion Studies (Barrick)
- 1986-1988 – Sport Fish Division Juvenile Chinook Salmon Studies (Bendock)
 - Seasonal abundance/movements and habitat preference
- 1993 and 1997 – CZMA Section 309 Study – Cumulative Impact Assessment (Habitat Division)
 - Documented structures and dimensions
 - Estimated habitat features

What is ADF&G's role?

Historic Habitat Assessments (cont.)

- 1996-2001 – Division of Sport Fish Angler Impact Studies
 - Angler counts versus streambank trampling
 - Stream bank physical variables
 - Angler use patterns
 - Bank position change (across years of the study)
 - Photo imagery analysis (before/after fishing season)
 - Bank compaction (before/after fishing season)
- 2001-2002 - Photogrammetry Study - Used aerial photography to investigate feasibility of:
 - Detecting bank position change
 - Detecting vegetative changes

What is ADF&G's role?

Current Assessment and Mitigation Activities

- Division of Habitat
 - Reviews projects and write permits that avoid, minimize and mitigate impacts to fish habitat
- Division of Sport Fish
 - Cost Share – 1995- Habitat projects on public and private lands
 - Culvert assessment, replacement and research - 2003
 - Anadromous Waters Catalog and Atlas (AWC)
 - First mention in Title 5 of the Fish and Game Code in 1963
 - First edition of catalog and atlas printed in 1968

What is ADF&G's role?

Current Assessment and Mitigation Activities (cont.)

- Alaska Freshwater Fish Inventory (AFFI)
- Education and Outreach
 - Culvert workshops
 - Habitat Rehabilitation workshops
 - Aquatic Education Program
 - Outreach to the public



Results of ADF&G programs?

Cost Share Program

- **Statewide** – over 650 fish habitat rehabilitation and protection projects
- **Kenai River** – since 1995, 623 fish habitat rehabilitation and protection projects
 - Projects removed 3,765 feet of structures detrimental to rearing salmon
 - Projects conserved 40,593 feet of fish habitat
 - grated walkways (10,347 feet)
 - cabled spruce trees (30,246 feet)
 - Projects rehabilitated 9,210 feet of shoreline

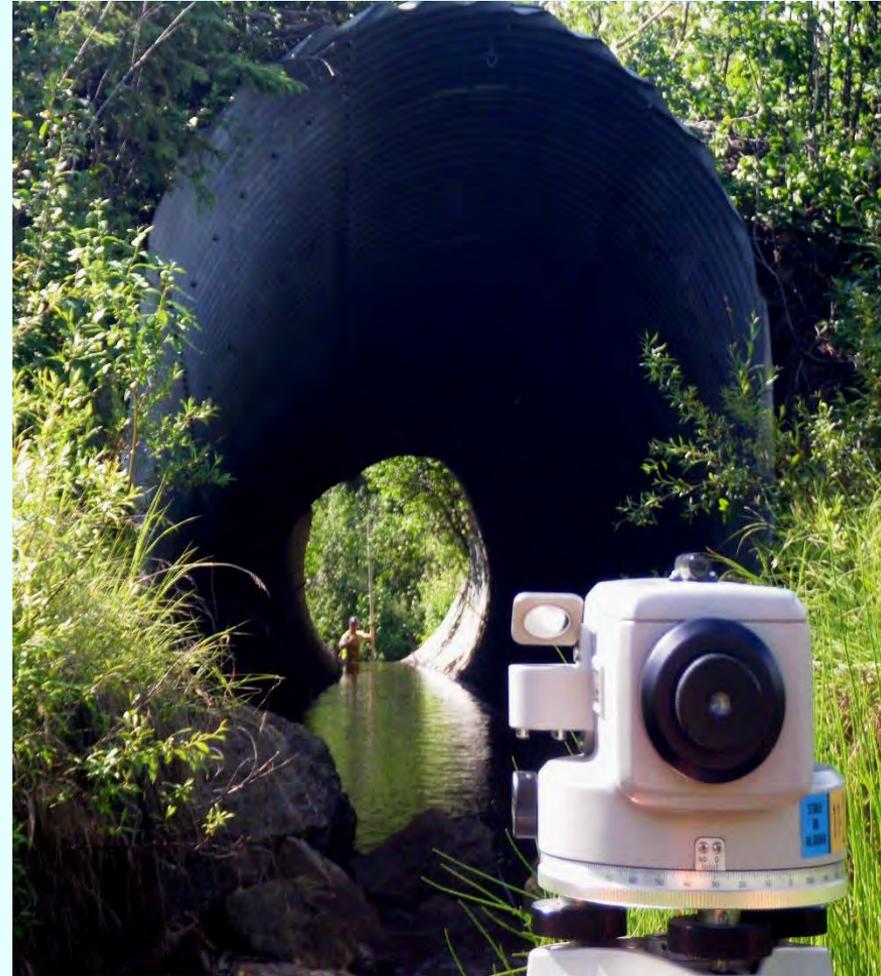


Results of ADF&G programs?

Culvert fish passage assessment, replacement and research

Culvert Assessments

- **Statewide** – ADF&G assessed 2,493 culverts, 614 are believed to pass juvenile fish and 1,182 believed to be a barrier to juvenile fish
- **Upper Cook Inlet** – ADF&G assessed 854 culverts, 239 are believed to pass juvenile fish and 417 believed to be a barrier to juvenile fish



Results of ADF&G programs?

Culvert fish passage assessment, replacement and research (cont.)

Culvert Replacements

- **Upper Cook Inlet**, ADF&G replaced a total of 26 culverts opening over 62 miles of spawning and rearing habitat
- **Mat-Su drainages**, ADF&G replaced 10 culverts opening 38.6 miles of spawning and rearing habitat
- **In the Kenai and Kasilof River watersheds**, ADF&G replaced 16 culverts opening 23.4 miles of spawning and rearing habitat



Results of ADF&G programs?

Culvert fish passage assessment, replacement and research (cont.)

Fish Passage Research

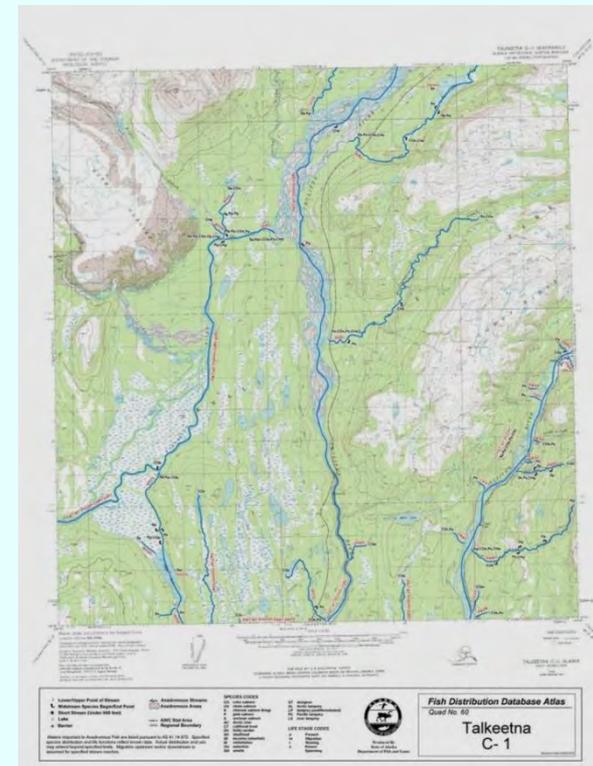
- Slikok Creek (2006-2008), tributary to the Kenai River
- Buddy Creek (2013), tributary of Montana Creek, Mat-Su



Results of ADF&G programs?

Anadromous Waters Catalog

- **Statewide** the AWC lists 18,120 anadromous water bodies, estimated to be less than half of the water bodies used by anadromous species
- In **Upper Cook Inlet**, 1,327 salmon streams and 288 lakes are listed and protected under the AWC
 - includes 6,498 miles of streams and 195,200 acres of lakes
- In the **Kasilof watershed**, 32 streams and 3 lakes are listed and protected under the AWC
 - includes 151 miles of streams and 73,600 acres of lakes.
- In the **Kenai watershed**, 139 streams and 34 lakes are listed and protected under the AWC
 - includes 397 miles of streams and 48,000 acres of lakes



Results of ADF&G programs?

Alaska Freshwater Fish Inventory

- **Statewide** – Since 2003, 1,283 new water bodies were nominated for inclusion in the AWC, resulting in 4,952 miles of streams for protection
- **Upper Cook Inlet** – approximately 150 new water bodies were nominated for inclusion in the AWC, resulting in nominating 564 miles of previously unlisted anadromous fish habitat to the AWC.



Results of ADF&G programs?

Education and Outreach

- 10 Culvert workshops
- 25 Restoration workshops
- Aquatic Education Program
 - Salmon in the Classroom formalized in 1996
 - 2012 – 144 schools participated, 11,637 students
 - 2013 – 127 schools participated, 12,498 students
 - Mobile Aquatic Classroom Online in 2001
 - 2012 – 7 events, 2,621 participants
 - 2013 – 4 events, 1,792 participants
 - Public Outreach (BOW, GASS, State Fair, Ice Fishing Jamboree, clinics)
 - 2012 total contacts – 39,284 people
 - 2013 total contacts – 40,327 people



Results in the public with a better understanding of fish habitat, why it is important, and their role in conserving it ²⁰

What ADF&G will do in the future?

- Continue to support our existing programs
- Continue to pursue land acquisitions 3rd party custodian and conservation easements for fish habitat
- Continue to actively participate in the Mat-Su and Kenai Peninsula Fish Habitat Partnerships, Kenai River Special Management Area Board, and EVOS Trustee Council
- Pursue funding to address issues identified in the recently compiled document, “*A Comprehensive Inventory of Impaired Anadromous Fish Habitats in the Matanuska-Susitna Basin*”
- Continue to seek educational opportunities to engage the public about fish habitat, riparian areas and good stewardship of those areas
- Continue to pursue funding, partnerships and strategies to improve and protect fish habitat and riparian health