FISH PASSAGE IN SOUTHEAST ALASKA

Perspectives on Progress, Bottlenecks, and Policy

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OBJECTIVES

- Review progress in regional fish passage inventory, assessment, and restoration prioritization
- Speculate on technical and social bottlenecks limiting further progress
- Discuss why policy updates are needed and are occurring in other regions in Alaska

ASSESSMENT BOTTLENECK

(circa 1995 through present):

- Where are on the road/stream crossings which are fish passage barriers ?
- What is the amount and quality of habitat affected by these crossings?
- How to prioritize their remediation?

INVENTORY AND ASSESSMENT

-TONGASS NATIONAL FOREST

- EPA funded USFS in 1996 for reviewing compliance with Forest Road BMP's
- ADFG-TNF formal Road Condition Survey released 2000. NIAP in 2005 with TNF involvement.
- Upstream Habitat Assessments completed on many anadromous streams by 2012.



TONGASS NATIONAL FOREST INVENTORY AND ASSESSMENT

As of 2016,

- 3,668 total road/stream crossings surveyed.
- 2,019 are fish culverts
 34% (686) rated Red
- 516 structures removed or replaced since 1998.



ADF&G FISH PASSAGE ASSESSMENT PROGRAM

- 20 year statewide effort on state and local roads.
- Database of 2,500+ sites statewide
- Interactive online mapper and published manual.



ADFG SOUTHEAST ALASKA STATE AND LOCAL ROADS INVENTORY

2011-2017

- 724 unique sites surveyed

 40% (295) rated Red
 27% (201) rated Green
 26% (193) rated Gray
- Other State and Private Forest lands survey conducted by AKDNR-Division of Forestry



STATEWIDE ASSESSMENT SNAPSHOT



Southeast Roads and Categorized Fish Barriers, USFS and ADFG Assessment Data Combined

Urban Road Fish Passage

Lemon Creek area, Juneau



0.5 mi

Forest Road Fish Passage

Chichagof Island



Aquatic Resources and Project Opportunities

Hoonah Native Forest Partnership

Clean water and healthy streams are critical to life and prosperity in the Hoonah Native Forest Partnership (HNFP) area. This report summarizes the existing condition of the six watersheds and adjacent shorelines within the partnership area and identifies opportunities for watershed abjacent shorewnes within the partnership area and identifies opportunities for watershed restoration. Waters in the project area come from the abundance of rainfall and migrate downslope through wetlands, lakes and streams. Streams accommodate most of the rainfall and supply drinking through wettenes, takes and streams, streams accommodate most or the ramma and supply on water, support hydro-power, and provide habitats for people, fish, deer and other inhabitants. water, support nyoro-power, and provide nationals for people, rish, deer and other influorants. Natural resource management has resulted in timber harvest and the development of a large road network across project area streams. Aging roads and the result of timber harvest along streams can alter the quality of water and the function of stream habitats. This document characterizes the aguatic resources, summarizes the existing condition of roads and streams, and offers recommendations for restoring or maintaining clean waters and healthy habitats.

Connectivity Patterns on the Landscape



UPSTREAM HABITAT ASSESSMENT

- TWC- Haines Borough Culvert Inventory (2010) and Upstream Habitat Assessment (2014)
- Tongass National Forest UHA's (2005-present)
 - Length and area
 - Channel type and habitat metrics
 - Fish presence and diversity



PRIORITIZATIONS

- North Thorne (USFS, 2006)
- Haines Borough (TWC, 2014)
- Staney Creek (USFS, 2017)



- Tongass Top Five (SEAKFHP, 2018)
- Northern SE Report (ADFG, pending)

ASSESSMENT AND PRIORITIZATION -SUMMARY NEEDS-

- Develop unified fish passage inventory data set
- Conduct upstream habitat assessment on ADFG inventoried sites; high priority Class II USFS sites
- Continue collaboration to prioritize sites and develop remediation plans
- Be cautious of how we discriminate 'resident fish' in prioritization efforts – no basis for this in policy

Circa (every year):

If the needs are so great, what is limiting "shovel ready" fish passage improvement projects in the region?

Four interrelated issues:
Capacity Expertise
Attrition Funding

Capacity, Expertise, & Attrition-

Biologists and Project Managers (agency and NGO) Expertise affects planning to get projects in development

Fish Passage Engineering USFS- High Capacity- High Attrition, 4 P.E.'s in 15 years ADOT- High Capacity - High Attrition, 5 P.E.'s in 15 years Consulting Engineers- High Capacity -largely non-local

Impacts --- Capacity, Expertise, & Attrition-

Biologists and Project Managers (agency and NGO):

- Incomplete/aging data on sites and upstream habitat
- Compartmentalized roles (hydrologists, regulatory, planning) limit 'start to finish' ownership/involvement in projects

Fish Passage Engineering:

- Lack of familiarity with the ecological implications of culverts
- Experience estimating design flows, substrate design
- Variable capacity to conduct construction oversight

Improving Capacity, Expertise, & Attrition-

Trainings & Meetings

- ADFG-FWS Fish Passage Workshops 2010, 2014
- Fish Passage and Restoration Session, AFS-AWRA Mtg. 2014
- Interagency Fish Passage Meeting 2015
- Tongass National Forest Field/Design Training 2016
- USFS National Aquatic Organism Passage Training, 2018

Attrition-

Stick around – and we'll Make Culverts Great Again!

Training Workshop The Stream Simulation Design Approach for Providing Aquatic Organism Passage at Road-Stream Crossings

Dates 7 - 11 May 2018 (4.5 days)

Location Juneau, Alaska 99801 Elizabeth Peratovich Hall; 320 West Willoughby Avenue Tuition None, participants pay travel and per diem

Workshop Hosts USDA Forest Service: National AOP Design Cadre, Alaska Region, Tongass NF, U.S. Fish and Wildlife Service; Southeast Alaska Fish Habitat Partnership (SEAKFHP)

Target Audience Civil Engineers, Geotechnical Engineers, Hydrologists, Geomorphologists, Ecologists, Biologists, Geologists

Pre-Registration Application for the Workshop Debbie Hart (SEAKFHP coordinator) coordinator@sealaskafishihabitat org, 907-723-0258 *Please subbin a pre-registration application to attend the workshop by 3/23/2018. Submit your application early!

Contact for Additional Information Sheila Jacobson, sajacobson@fs.fed.us Neil Stichert, neil_stichert@fws.gov

Workshop Description

This 4.5 day workshop will present the USDA Forest Service's stream simulation method, an ecosystem-based approach for designing and constructing a channel through the road-stream crossing structure that reestablishes physical and ecological



SOCIAL-TECHNICAL BOTTLENECKS- FUNDING

- **ADOT-** Fish passage typically associated with road reconstructions.
 - **Need:** State match funds for standalone fish passage sites to address priority sites between road re-construction intervals.
- USFS- Engineering/Fish/Watershed shops leverage funding internally.
 Need: More consistently coordinated 'team' approach to align funding/sites/construction.

NRCS-Has funding for private lands with eligible partners.Need: Design completed first or wait for NRCS designers.

SOCIAL-TECHNICAL BOTTLENECKS- FUNDING

USFWS- All lands, modest Fish Passage Program funding.**Need:** Typically leverages design work to secure construction funds, slowing pace of projects

AKSSF- Statewide source for restoration /construction funds. Need: Less investment in standalone assessment or design phases

NFWF: aligns with Fish Habitat Partnerships; funds both design and constructionNeed: More consistent funding, SE AK not a focal area

SOCIAL-TECHNICAL: PROGRESS !

ADOT- Haines Highway re-construction 26 culverts; FH-10 Yakutat 3 culverts; others in region

USFS - Trout Unlimited 1,000 Culverts Initiative-5 sites in design
USFS-NRCS Joint Chiefs Initiative-3-5 sites pending design and construction

NRCS- pending completion of HNFP Assessment; funds remaining for future implementation

NFWF/SEAKFHP/USFS- "Tongass Top Five" designs planned in POW and Hoonah



FISH PASSAGE POLICY UPDATES IN ALASKA

- Alaska has a positive history related to fish passage policy
- Policy sets the practice
- Practice is improved through updated procedures



Each crossing decision has a 40-75 year potential impact to ecological and habitat connectivity !

FEDERAL POLICY UPDATE

US Army Corps of Engineers: General Permit Conditions 2017 Nationwide Permit Reauthorization

2. Aquatic Life Movements

No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

FEDERAL POLICY UPDATE

GENERAL CONCURRENCES BETWEEN ADFG AND USFS:

 As of 2015, defines <u>stream</u> <u>simulation as primary design</u> <u>approach</u> on the Tongass National Forest.

TONGASS FOREST MANAGEMENT PLAN:

 Road/Stream Crossing BMPs remain in current Forest Plan Amendment



FEDERAL POLICY UPDATE



FWS STREAM SIM CULVERT

Legacy State Policy 'Gap'

Sec. 16.05.840 Fishway Act 1959

" If the deputy commissioner considers it necessary, every dam or other obstruction built by any person across a stream frequented by salmon or other fish shall be provided with a durable and efficient fishway and a device for efficient passage for downstream migrants.....The fishway or device shall be kept open, unobstructed, and supplied with a sufficient quantity of water to admit freely the passage of fish through it."



STATE POLICY: MOA BETWEEN ADOT AND ADF&G-2001

- Positive agreement to apply agency procedures.
- Technical guidelines could be evaluated with respect to : - Use of OHW vs BFW
 - Constriction allowances
- Consider enhancements for substrate design, survey protocols, inspection requirements as an overall Fish Passage Procedure or Addendum
- Update in progress?

MEMORANDUM OF AGREEMENT

BETWEEN

ALASKA DEPARTMENT OF FISH AND GAME

AND

ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

DESIGN, PERMITTING, AND CONSTRUCTION OF CULVERTS FOR

This MEMORANDUM OF AGREEMENT (MOA) is made and entered into hereen the Alaska Department of Fish and Game, P.O. Box 2532, Jonanu, A.K. 50802-5558, Jonasher refered to at the ADRAO, and the Alaska Department of Througharmon and Public Facilities, 3104 Channel M., Massa, A.K. 50801-1898, Jonesafer Merident on a ADRAO meride into dist remember under the authority of AS 108 (5016), 1805 3804 - 186 - ADRAO meride 95. ADD7409P enters into this spreament under the authority of AS 190 05 001 - AS 108 01352.

10 003 000; 10 20 050 -10 20 000; 10 20 044; 10 20 130(c); 10 20 10(c); 10 20 300 and 5 AAC 95. ADOT & PF enters into this spreament under the authority of AS 19 05 010 - A5 19 05 125. BACKGROUND AND PURPOSE OF THE MEMORANDUM OF AGREEMENT

Anadromous and resident fish populations depend on reliable passage three

Anatomonous and resident fish populations depend on reliable passage through drainage munches when migrating to spawning, reacting and over-winnering grounds. Barriers to fish passage can be a significant factor in fish population decline.

The State of Alaska is commined both to the manimum and conservation of its

The Size of Alaska is committed both to the maintenance and conservation of its fisheries resources and development of as manportation infrastructure in a safe and concourt manuer. Therefore, ADFAG and ADOTAGP and one of the probabilities and procedures identified in this MOA to exame that, where ADOTAGP and the probabilities have determined that cultures are the appropriate stream crossing structure and are millered in Journments construints in this source to explore this, where ADO YARF and ADFAG have determined dhat curvers are the appropriate integration consing structure and are unliked in 643-havene waves of an and an and a structure of a structure and are unliked in determined that currents are the appropriate streams crossing simicitize and are unliked in disb-bearing waters, they are designed and installed to provide efficient full passage and ADF&G/ADOT&PF Fish Pass MOA

08/03/01



Restoration Actions and Floods are Informing New Municipal Policy

2007: Anchorage Fish Passage Design Criteria passes. Including 100-year flood event design – strong desire to improve salmon habitat within city limits.

2008: Kenai Borough Ordinance passes requiring 100 year flood design for all stream crossings in anadromous waters.



Kenai Floods – Crooked Creek



Municipal Policy Improvements "No New Barriers" and "No More Road Failures"

2012: 100+ year flood event hits Mat-Su Borough.

2013: Mat-Su Borough Ordinance passes to implement new fish passage design criteria (100 yr) created by local agencies and engineers.





CONCLUSION



- Progress: assessments largely complete; prioritizations needed.
- Partial Bottleneck: continuity of restoration limited by capacity and attrition in SE AK.
- <u>Partial Bottleneck:</u> updated basic policy is important for consistent implementation and practice.
- <u>Open Bottle:</u> we have the opportunity to prevent future habitat fragmentation by barriers.