Audience: that petulant guy at the 2018 uaf pub event; j falke; oncorhynchus newsletter; maggie; nate

Explorers are those of us who see maps and think, "There most be more to it than what's shown here…"

In Summer 2021 a call came in to our office inviting us to visit a property near a local creek that had recently been cleared as part of a new development. Neighbors had contacted local authorities concerned that the land-clearing may have disturbed wetlands and streams that feed in to the nearby creek that in short order flows in to the Kenai River. Small-scale land clearing and wetland-drainage developments of this nature are not infrequent at the suburban-rural boundary in to which we southcentral Alaskans are quickly expanding. In most cases they are likely to be in compliance with permitting requirements. Some developers even go beyond what's minimally required to help mitigate the impact of new impervious surfaces and stream crossings. Here, it was unclear what we were walking into.

With permission from landowners and collaborators, we arrived on site to find a quarter-mile length of freshly ditched and straightened stream denuded of riparian and benthic structure. We found dozens of juvenile coho salmon and Dolly Varden residing both above and below the disturbed section of stream, which we later successfully nominated to the Alaska Department of Fish and Game's (ADF&G) Anadromous Waters Catalog (AWC).

Now that this particular stream is included on the map, in the future if a developer submits plans to local permitting offices that involve significant earth-moving it will appear in their review. Those plans will ideally be reviewed for compliance with a Fish Habitat Permit from ADF&G, and reviewers will ideally make recommendations to help mitigate impacts of the planned development.

Identifying a salmon stream post-hoc after it has been bulldozed is a situation no one wants to see. Not landowners, not neighbors, not the general public, and not the fish. Arguably not every single wild salmon stream is destined for indefinite preservation as we balance the needs of growing communities and wild fish habitat in our backyards. But we owe it to ourselves to have good information about where wild salmon live to make informed decisions.

So how do we prevent this sort of uninformed travesty from repeating in more yet-unidentified salmon streams? What can we do to at least get these streams on the map?

Currently, Alaska regulations are such that we assume streams and lakes are not salmon-bearing unless otherwise proven. For our bulldozed example above, for this stream to have appeared beforehand on the Anadromous Waters Catalog map the following would have to have occurred:

* Someone would have had to known that this tiny stream existed and might have salmon
* Someone would gain permission from the landowner to visit the property
* Someone would perform a field survey to determine the presence or absence of salmon
* The data would be submitted to ADF&G review as a nomination to the Anadromous Waters Catalog

Aside from working biologists, even the most dedicated Alaskans are unlikely to be able to follow through on all the above steps. And even with a small army of people out performing expensive fieldwork it could take decades to catalog every salmon stream.

Yet, we are beginning to see just these sort of efforts blossom in Alaska

* TU collab
* Fish map app

other option would be to reverse assumption of axndromy, e.g. bm1, but for now until then…

we want to encourage this behavior. how can we help create a treasure map to send out volunteers?'

'etc

use map approach . touch on netmap vs / and nhd approaches…

lots of other easons to have more complete awc: upstream distance used to prioritize culverts … read more on adfg site

one day I hope we might be able to use modeled maps as the map layer rather than solely ground-truthed streams ections. this approach has been highly successful for wetlands mapping

No one

In Fall 2018, a ballot initiative that came to be known as the "Stand For Salmon" initiative asked Alaskans to vote their approval for a paragraph-length summary description of complex updates to anadromous habitat regulations

a friend and I was asked by a sharp

current technique: visually estimate upper extent of anadromy, go to that spot, nominate AC

future technique: ground-truth model, when model is good, use for permitting purposes

to do - decide on best approach/model options: a.) use ~12% gradient on NHD+ as upper estimate ( can use other features from NHD?) b.) use NetMap/statistical approach

As an initial project, Rivulet intends to tackle a challenge related to freshwater salmon habitat management in Alaska. Today, there is an enormous gap between our knowledge of salmon habitat geography and the needs of Alaska's fish habitat managers.

It is estimated that less than half of Alaska's freshwater salmon habitat is documented and mapped; and as a result these streams and lakes lack the legal protection afforded by inclusion in the Alaska Department of Fish and Game's (ADF&G) Anadromous Waters Catalog. When environmental impacts are reviewed prior to development projects, undocumented anadromous streams do not require a Fish Habitat Permit issued by ADF&G. As a result, thousands of stream miles outside of protected areas are vulnerable to development impacts such blockages from road crossings, erosion and runoff from impervious surfaces, and riparian denudement. Threats to these undocumented anadromous habitats come from both small scale developments such as driveway crossings as well as on a large scale such as a mining developments. In order to nominate salmon habitat for inclusion in the Anadromous Waters Catalog, ADF&G requires in-person visual confirmation of anadromous fish at the site location. The work requires hands-on fieldwork by fisheries technicians and volunteers, frequently via little-traveled routes crossing a complex patchwork of land ownership.

Mapping techniques for determining where technicians should prospect for "upper extent of anadromy" have been successfully applied in southeast Alaska by the U.S. Forest Service. In most of the rest of Alaska, these techniques that offer enormous gains in efficiency towards adding AWC nominations have yet to be applied.

Several years experience has shown that the Alaskan public has a strong interest in contributing to the cause.

The experience offers a hands-on experience to seek and find "baby salmon" in surprising places,

Thesis chapters Proof of concept for creating and using "treasure map" with volunteer labor

Existing municipal, state, and federal laws - how and where are there gaps, how could it change? Focus on regional examples in misc places Exploration for how to reverse assumptions on anadromy - what would it take for legal framework to change such that we assume waters "are" anadromous unless evidence suggests otherwise? Upstream: lit review of headwater contributions and their function in downstream nutrition

People to contact: Bidlack Falke Benda Romey