

Fish Passage in the Mat-Su Borough: Progress and Goals

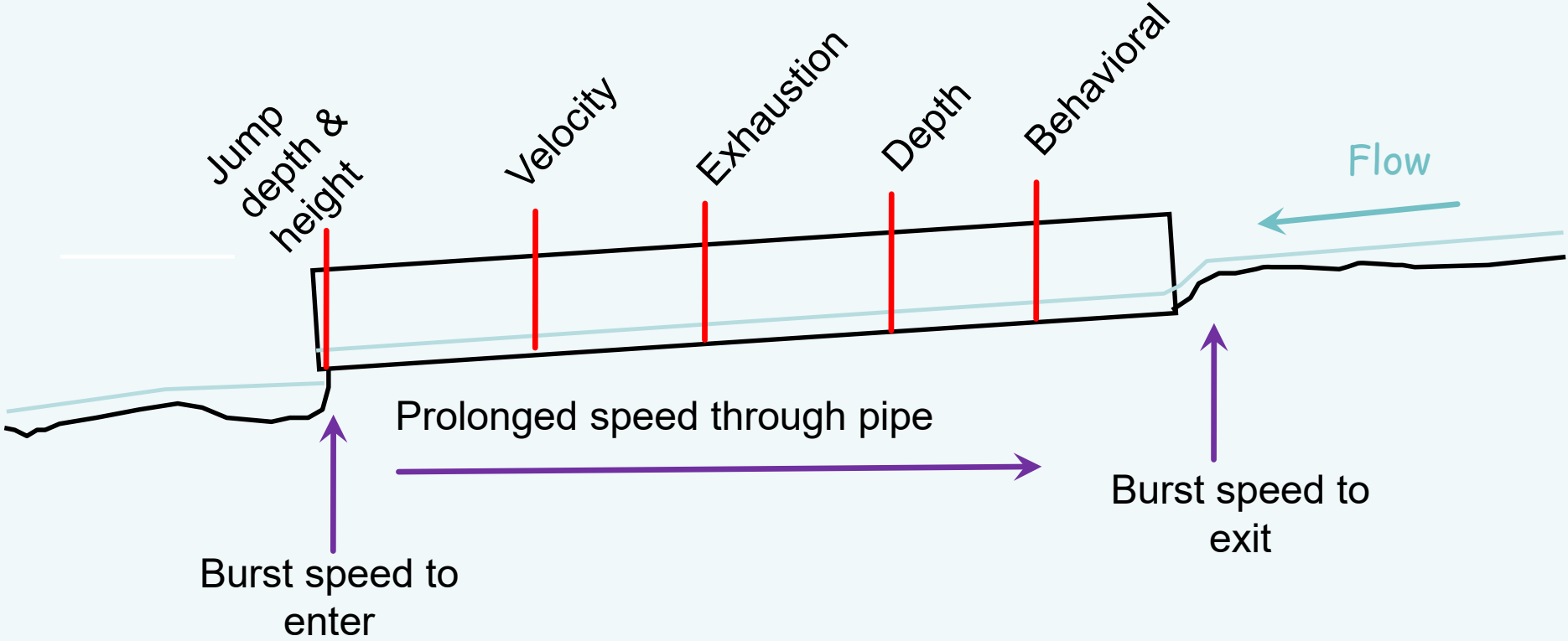
Gillian O'Doherty

Alaska Department of Fish and Game
Sport Fish




Research and Technical Services



Barriers to Movement (Passage Gates)



ADFG Assessment Program: Survey, assess and rate sites in relation to fish passage

-  Green: conditions at the crossing are likely to be adequate for fish passage,
-  Gray: conditions at the crossing may be inadequate for fish passage and
-  Red: conditions at the crossing are assumed to be inadequate for fish passage.

The Red, Gray, Green Classification is based on:

- a 55mm Coho
- Culvert Type
- Measured Critical Values
 - Slope
 - Perch Height
 - Constriction Ratio
- Other
 - Backwatering
 - Tidal influence
 - Fish ladders
 - Damage

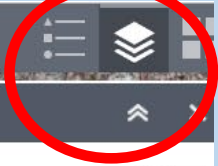


Additional Factors used to Rate Sites

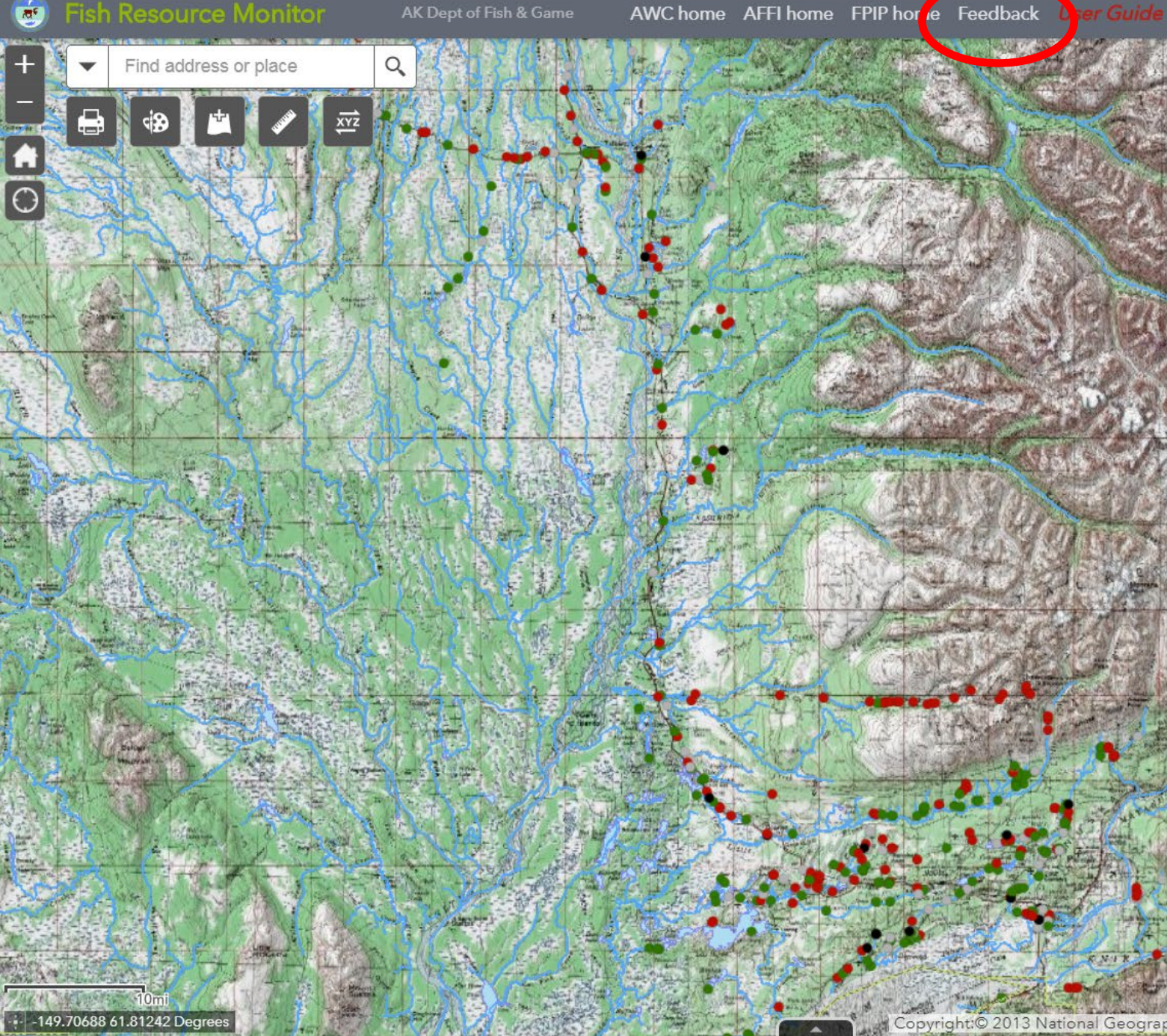


Database & Mapper

- ADF&G maintains database of all inventoried & assessed culverts
- Interactive mapper
 - Locate sites
 - Create and print reports
 - View photos
 - View culverts, roads, AWC & Freshwater Fish Inventory data at one time



Find address or place



Layer List

- WatershedBoundaryDataset_HUC6
- AWC_quads - quads_250k
- AWC_quads - quads_25k
- AWC_quads - quads_63k
- Coastline
- Habitat Boundary
- Fish Passage - Culverts
- AWC 2018 Layers
- Freshwater Fish Inventory Points (AFFI)
- PLSS

10mi
-149.70688 61.81242 Degrees



Fish Passage Site 20501154

Coordinates (dec. deg.): 61.56167°, -149.57138° **Datum:** NAD83 **Elevation:**
Legal Description: S017N002W14 **Quad Name / ITM:** Anchorage C-7
Region: South Central **AWC Stream #:** 247-50-10330-2050-3030
Road Name: Foothills Boulevard **Stream Name:** Lucille Creek

Site Comments: None

Multiple surveys have been conducted at this site — click on the drop down arrow to the right of the survey date below to choose a different report for this site.

Survey UPDATE-1154

Project Supervisor: Gillian O'Doherty, ADFG
Observers: Mark Eisenman

Survey Date: Jul 07, 2017



Overall Fish Passage Rating: Green

Tidal: **Step Pools:**
Backwatered: **Construction Year:** 2017

Comments: Culvert has been replaced with a stream simulation fish passage culvert June/July 2017

Culvert Measurements

No measurement data available.

Stream Measurements

Stream Substrates Upstream Downstream **Stream Slope(deg.):**
Dominant: **Stream Flow Stage:**
Subdominant:

No stream width data available.

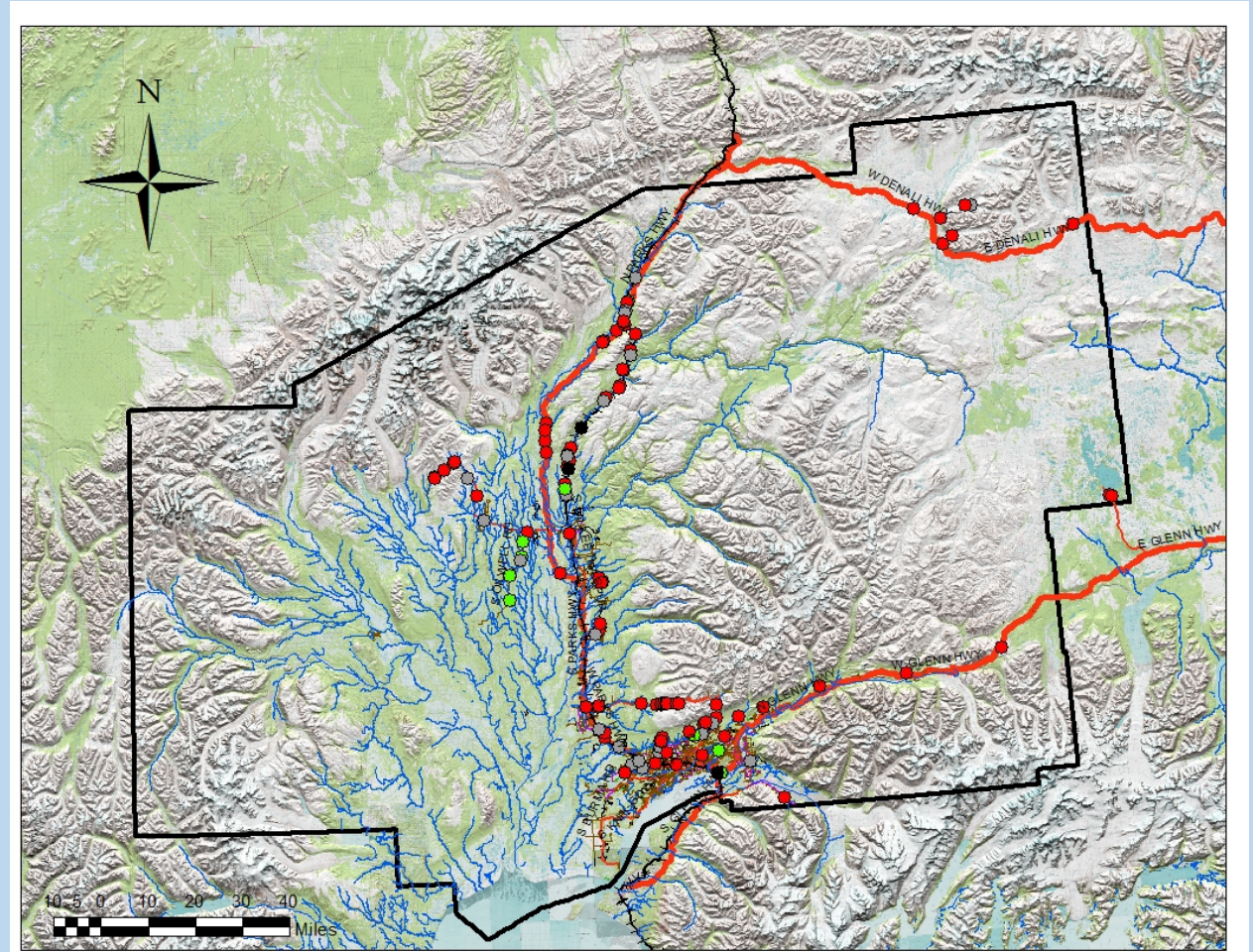
Early Prioritization efforts:

- Miles upstream (manually counted)
- Species of fish
- Species of salmon
- Acres of lakes
- Looked at condition of structure
- Borough Wide
- 100+ streams (25%) with no mileage data
- 150 streams (38%) with poor quality fish data

Site	Road	Name	Stream Miles	Lake Acres	Lake Acres Rating	Salmon	FWFish	Barrier Multiplier with Cond	Score	Rank
20502068	Valdez Mining District Road	Windy Creek	25.29	0	0	0	1	1.5	22.836	1
20501394	Parks Highway	Trapper Creek	33.79	154	3	2	2	1	21.274	2
20502065	Valdez Mining District Road	Valdez Creek	17.76	0	0	0	1	1.5	16.059	3
20501417	Talkeetna Spur Road	Answer Creek	14.88	74	1	2	1	1.5	14.217	4
20501480	Petersville Road	Ninemile Creek	20.3	218.5	3	2	0	1	13.08	5
20501434	Big Lake Road	Lucille Creek	17.43	0	0	2	1	1	10.808	6
20401337	Fishhook Road	Wasilla Creek	16.94	0	0	4	0	1	10.764	7
20400584	Alascom Drive	Trail Creek	10.62	265	3	0	0	1.5	10.458	8
20501435	Beaver Lake Road	Meadow Creek	10.22	128	2	4	1	1	7.182	9
20501173	Cameo Road	Goose Creek	10.12	400	3	2	1	1	7.022	10
40500290	Denali Highway	Unnamed	9.525	0	0	0	0	1	5.715	11
20502150	Parks Highway	Chulitna River tributary	8.6	0	0	2	0	1	5.46	12
20501429	PARKS Highway	Unnamed	5	78	2	1	0	1.5	5.325	13
20501398	Petersville Road	Seventeen Mile Creek	5.12	63	1	1	0	1.5	5.133	14
20501383	Parks Highway	Horseshoe Creek	4.2	0	0	5	0	1.5	4.905	15
20501238	Willow Creek Parkway	Shirley Lake outlet	6.6	371.2	3	1	0	1	4.71	16
20501375	Parks Highway	Hardage Creek	4.9	0	0	1	0	1.5	4.635	17
20501807	Alaska Railroad	Susitna River tributary	5.49	0	0	5	0	1	4.044	18
20501426	PARKS Highway	Grey's Creek	12.06	0	0	3	0	0.5	3.843	19
20500285	Denali Highway	Unnamed	5.7	0	0	0	3	1	3.57	21
20400585	Glenn Highway	Unnamed	1.2	0	1	0	0	0.5	0.36	191
20100581	Glenn Highway	Startup Creek	11.46	0	0	0	0	0.5	3.438	23
20502151	Parks Highway	Chulitna River tributary	5.325	0	0	1	1	1	3.395	24
40500292	Denali Highway	Unnamed	3.7	0	0	0	0	1.5	3.33	25
20501081	Alaska Railroad	Meadow Creek tributary	2.7	72	1	2	1	1.5	3.255	26
20501449	Church Road	Meadow Creek	5.23	0	0	0	1	1	3.188	27
40500273	Denali Highway	Unnamed	3.53	0	0	0	0	1.5	3.177	28
20500284	Denali Highway	Unnamed	3.19	0	0	0	3	1.5	3.096	29
20400590	Glenn Highway	Unnamed	4.3	0	0	3	0	1	3.03	30
20501139	Alaska Railroad	Little Meadow Creek	8.413	241	3	2	1	0.5	2.9989	31
20501471	Montana Creek Road	Buddy Creek	4.38	0	0	1	3	1	2.928	32
20501387	Parks Highway	Unnamed	8.22	272	3	2	0	0.5	2.916	33

Two-tiered method became necessary- desk top exercise followed by site visits, walking streams and fish surveys

- Multiple prioritizations needed
 - Salmonid bearing waters
 - Road ownership
 - Targeting species (Chinook)
 - Dropped structure condition
- Data gaps to be filled
 - Fisheries information
 - Road ownership
 - Streams not well mapped



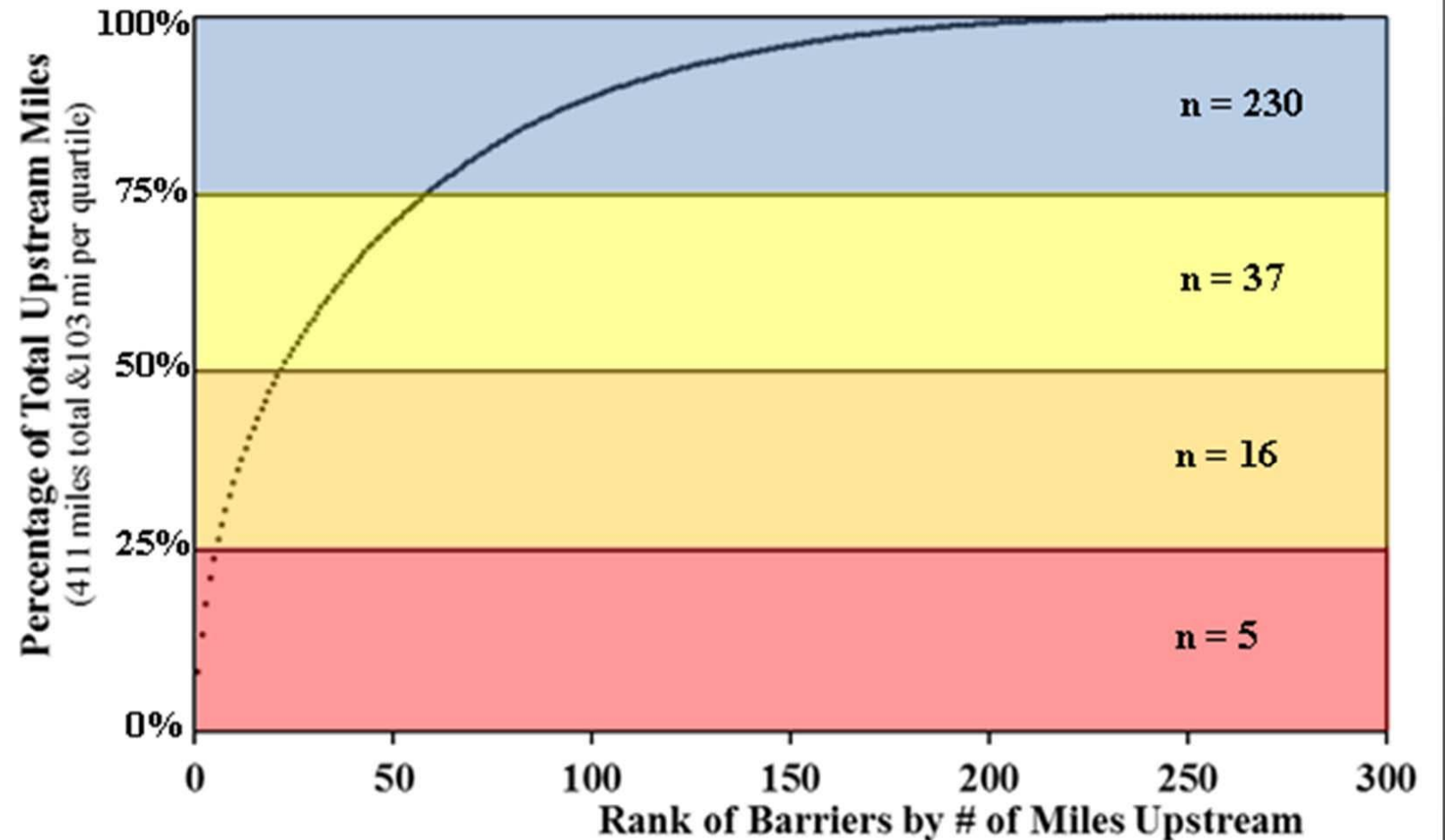
Culverts located on unmapped streams- 2015

US Fish and Wildlife 2015 Prioritization

- Added estimate of cost-benefit
- Some additional stream data but not all

1) Upstream Miles Ranking

2) Cost-Benefit Ranking (\$/mile)



Filling data gaps 2012-2017

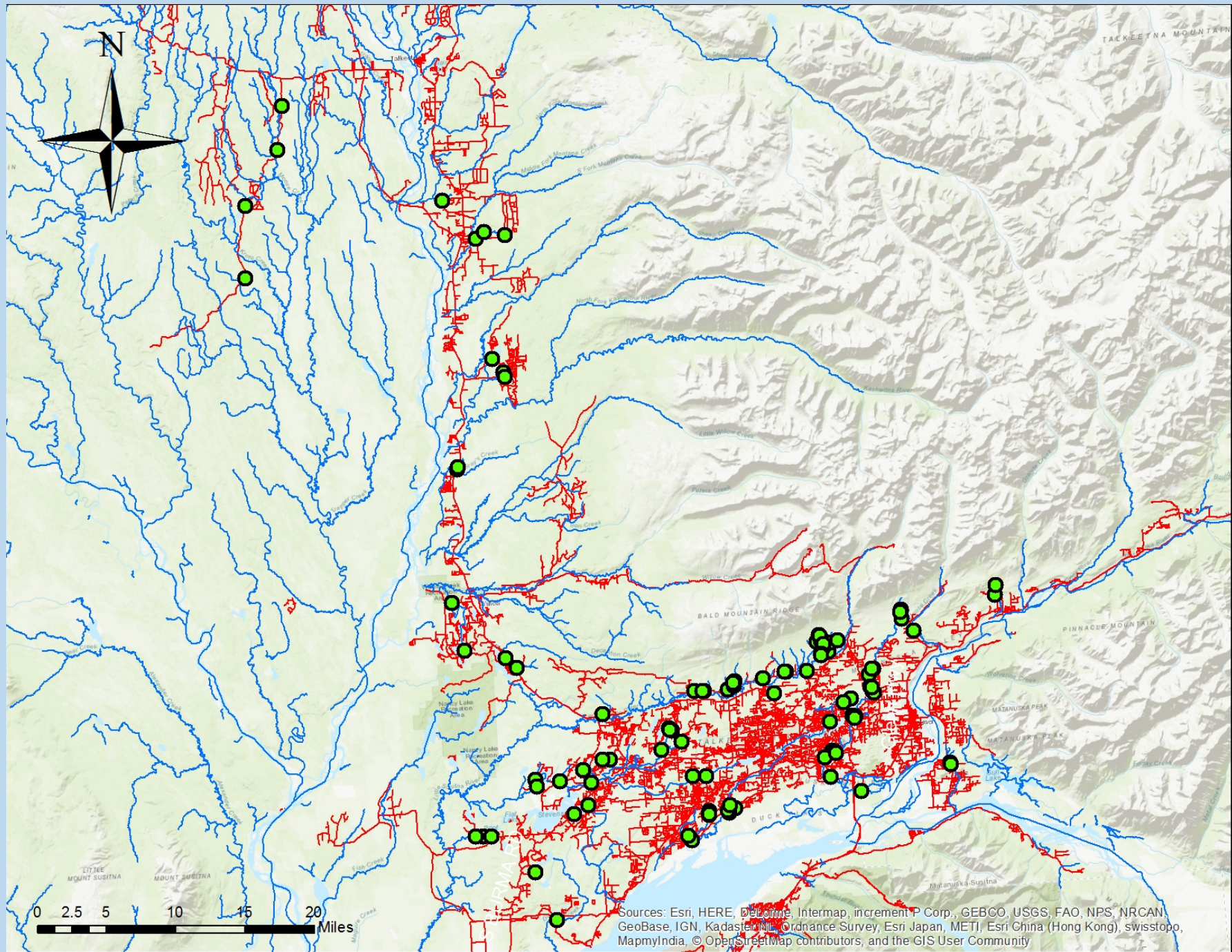
- NHD+-
 - Culverts are built into stream network allowing modeling
- Fish sampling on unmapped streams 2017- ADFG project
 - 104 total sites sampled, fish were found at 64 sites (61%), 25 unmapped, with anadromous fish, salmon, being found at 31 sites (30%) , 14 unmapped sites. This project was able to nominate over 21 miles of streams and 171 acres of lakes to the AWC.
- Calculating upstream miles
 - Model using NHD+, ADFG has first draft working to complete
- Still no way to apply habitat QUALITY across entire Borough evenly
- Cost difficult to estimate- best done after initial prioritization

Umbrella Prioritization → 2019

Replacement Projects- 111: primarily MSB owned

Site	Road	Name	Score	Rank	Stream Miles	Lake Acres	Lake Acres Rating	Salmon	FWFish	Barrier with Cond	Multiplier
20501435	Beaver Lake Road	Meadow Creek	7.182	9	10.22	128	2	4	1	1	
20501173	Cameo Road	Goose Creek	7.022	10	10.12	400	3	2	1	1	
20501238	Willow Creek Parkway	Shirley Lake outlet	4.71	16	6.6	371.2	3	1	0	1	
20501471	Montana Creek Road	Buddy Creek	2.928	32	4.38	0	0	1	3	1	
20501526	Unknown	Buddy Creek	2.58	37	3.8	0	0	1	3	1	
20501409	Susitna River Road	Trapper Creek	2.14	47	2.9	0	0	2	2	1	
20501466	Hidden Hills Road	Caswell Creek	1.935	58	1.9	0	0	1	0	1.5	
20501154	FOOTHILLS BOULEVARD	Lucille Creek	1.694	69	2.24	0	0	2	1	1	
20401290	Fairview Loop Road	Cottonwood Slough	1.572	75	2.37	0	0	1	0	1	
20501092	Birch Road	Twin Lake outlet	1.546	77	1.91	38.4	1	1	1	1	
20401288	Home Built Circle	Neklason and unnamed lakes	1.373	83	3.41	102.4	2	2	0	0.5	
20401302	Marble Way	Cottonwood Creek	1.368	84	1.78	0	0	2	0	1	
20501436	Beaver Lake Road	Lynda Lake Portage	1.343	87	3.06	169.3	3	1	2	0.5	
20401303	Edlund	Cottonwood Creek	1.266	89	1.61	0	0	2	0	1	
20501077	Ridgecrest Road	Little Meadow Creek	1.156	101	0.51	70.4	1	4	1	1	
20501143	Settler Bay Drive	Crocker Creek	1.02	111	1.2	0	0	2	0	1	
20401271		Anderson Lake outlet	0.97	112	0.7	99	2	1	0	1	
20501462	Caswell Lakes Road	Caswell Creek	0.827	120	1.84	147.2	2	1	0	0.5	
20401301	Riverdell	Cottonwood Creek	0.822	121	0.87	0	0	2	0	1	
20501223	Royal Lane	O'Brian Creek	0.804	122	1.09	0	0	1	0	1	
20501182	Crystal Lake Road	Rainbow Lake to Long Lake connection	0.778	125	0.38	146	2	1	0	1	

Locally owned culverts from top 100 in original prioritization effort. Green = replaced, Blue = planned replacement



2000 - 2018 196.16 stream miles opened up

Funding to date has been a mixture of

- Local (MSB, landowners)
- Federal (USFWS Fish Passage Program, NOAA, AKSSF, MSB-NFHP)
- State (ADFG, AKRR, other)

Map Forward:

Continue working in focal areas

Update prioritizations with new data to Id “missed” streams

Define long term goals, examine cost-benefit

Reach out to new partners

Seek additional funding ex: USACE mitigation projects

Monitor results and disseminate

Questions?