Status of Kenai Peninsula Invasive Northern Pike Control

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Native Range

Introduced Range

Pleistocene Glaciation
Problem began in the 1950’s

First introduction was at Bulchitna Lake
Expansion after 50 years

Expansion driven by natural dispersal and additional illegal introductions

Kenai Peninsula pike were introduced in 1970's
Ecological Cost

Salmon fingerlings in pike stomachs; Susitna R. drainage.
Pike impacts are most extreme in shallow weedy systems

... like the Moose R. and Beaver CK that support rearing salmon and trout.

Surface feeding coho salmon smolt in Moose River
Status of pike waters on the Kenai Peninsula

- Northern pike population remains present
- Northern pike population eradicated by ADF&G
- Northern pike population disappeared from an unknown cause
Post-Pike Native Fish Restoration

Stormy Lake Example

Collecting gametes from wild Stormy Lake arctic char for hatchery rearing (2011)

Temporarily holding Stormy L. native fish in offsite net pens (2012)

Transporting native fish by snowmachine

Stocking natives back into Stormy Lake (2013)
Soldotna Creek Native Fish Rescue

- 2014: make Area 1 pike-free
- 2015 - 2017: Relocate native fish from Area 1 to Area 2
+83,374 native fish released into the Mackey Lake system

Rainbow: 3,194
Dolly Varden: 3,279
Juv. coho salmon: 40,340
Sculpin: 3,718
Stickleback: 32,853
Evaluating Eradication Success: Netting and eDNA surveys

Sevena Lake 2016, pre-rotenone treatment
Under-ice netting: what does an empty net tell you?

March 4, 2015

April 2, 2015

All pike carcasses detectable after 48 days
Average detection rates by distance from pike source

Live pike cage

Stocked at very low pike densities, 18 - 239 grams of pike /Ha-m

Distance

Pike cage

1 m = 89%

10 m = 57%

40 m = 27%
eDNA persistence after carcass stocking (simulated rotenone treatment)

Average detection rate:

7 days = 54.2%
35 days = 8.3%
70 days = 0.0%

Conducted at 3 lakes
Samples collected 1m from carcasses
Water temp 15-20°C
Moderate pike densities, 5,410 - 7,219 grams of pike /Ha-m

Plume from decomposition
Cage with decomposing pike carcasses
Pre and post-rotenone TX: eDNA sample locations

Using eDNA to help evaluate the success of a rotenone treatment

- Sampled 4 lakes
- Sampled littoral habitat

- Sampled lakes:
  - West Mackey Lake
  - East Mackey Lake
  - Derks Lake
  - Denise Lake
  - Union Lake
  - Little Bear Lake
  - Mackey Lake Rd
  - Soldotna Creek
  - Sterling Hwy

Legend:
- • = post-treatment sample site
- ○ = pre and post-treatment sample site
**eDNA Sampling Results**

Pre-treatment detections: **82.4%** (N=85)
Post treatment detections: **1.7%** (N= 179)

Post-TX detections (N=3) likely from non-living sources

**Gillnet Catch**

Pre-treatment (78,336 adj. net hours): 1,825 pike
Post treatment (23,472 adj. net hours): No pike
What’s next?
Tote Road Pike Lakes

Removal in 2018?
Concerns:

Removing pike from the entire Susitna drainage is beyond our ability – right now.

Pike are pioneering south along the west side of Cook Inlet

Intentional sabotage of control programs
This presentation is over but efforts against invasive pike aren’t!

Photo courtesy Steve McCurdy (ADFG) Innoko River, AK  1989.
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