

Invasive Elodea:

Management Actions in Alaska and the Future of the Mat-Su



Heather A.M. Stewart

Invasive Plant and Agricultural Pest Coordinator

DNR, Division of Agriculture

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Elodea: Alaska's first submerged aquatic invasive plant

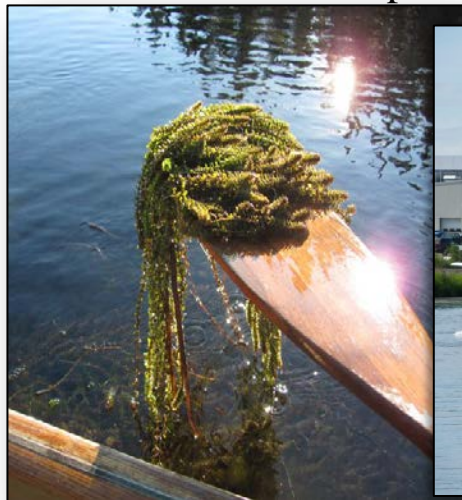
- Reproduces asexually by fragmentation
- Survives in water columns up to 30' deep
- Continues photosynthesis under Alaskan ice conditions when native plants have senesced
- Creates monocultures, lowering biodiversity



Why should we care?

- Lowers lakeshore property values
 - Eurasian Milfoil: 19%
 - Launch sites
 - Shore habitats
- Impedes recreation and impairs safety
 - Fouls boat propellers
 - Swimming
 - Affects floatplane launching

Anchorage Sand Lake



Fairbanks Chena Slough



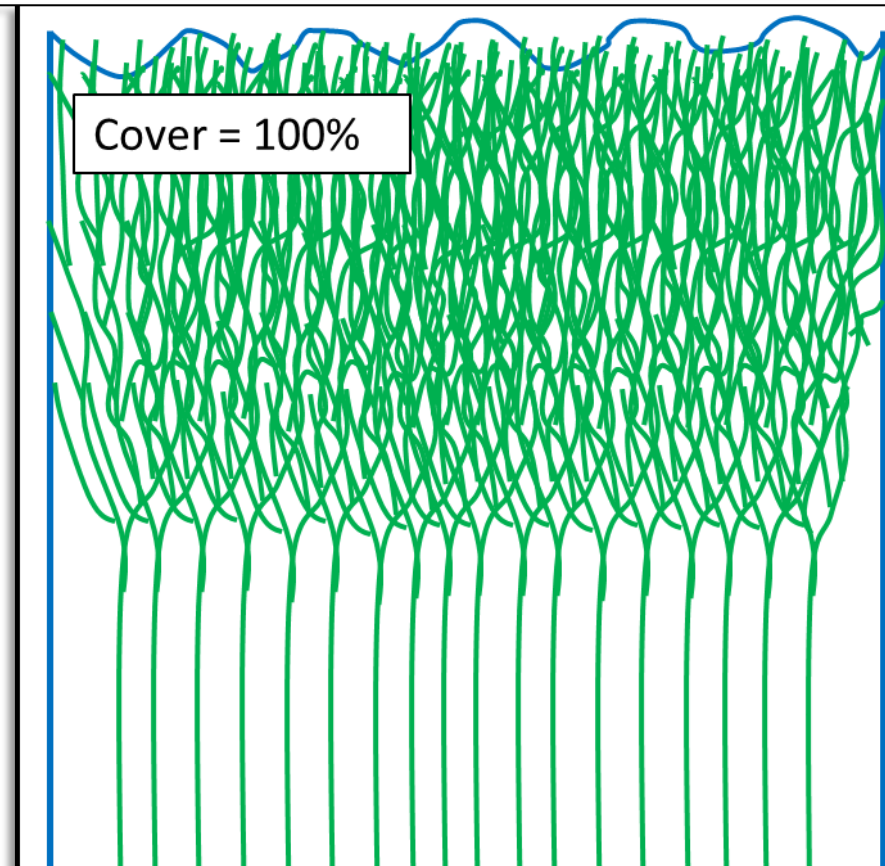
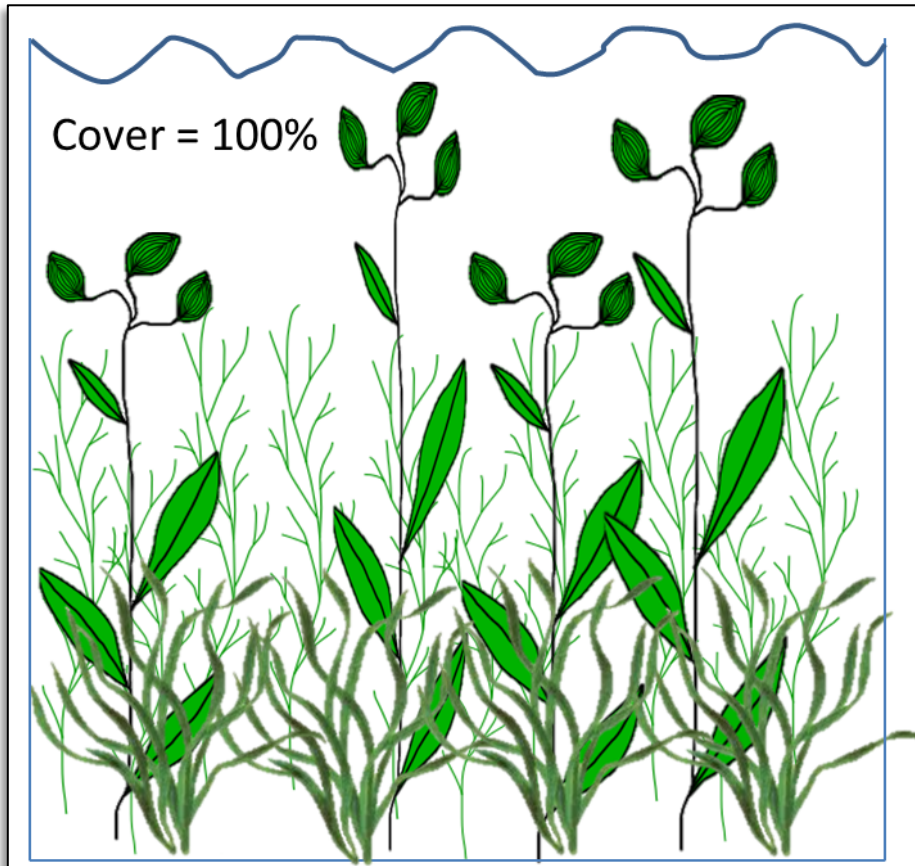
Anchorage Lake Hood



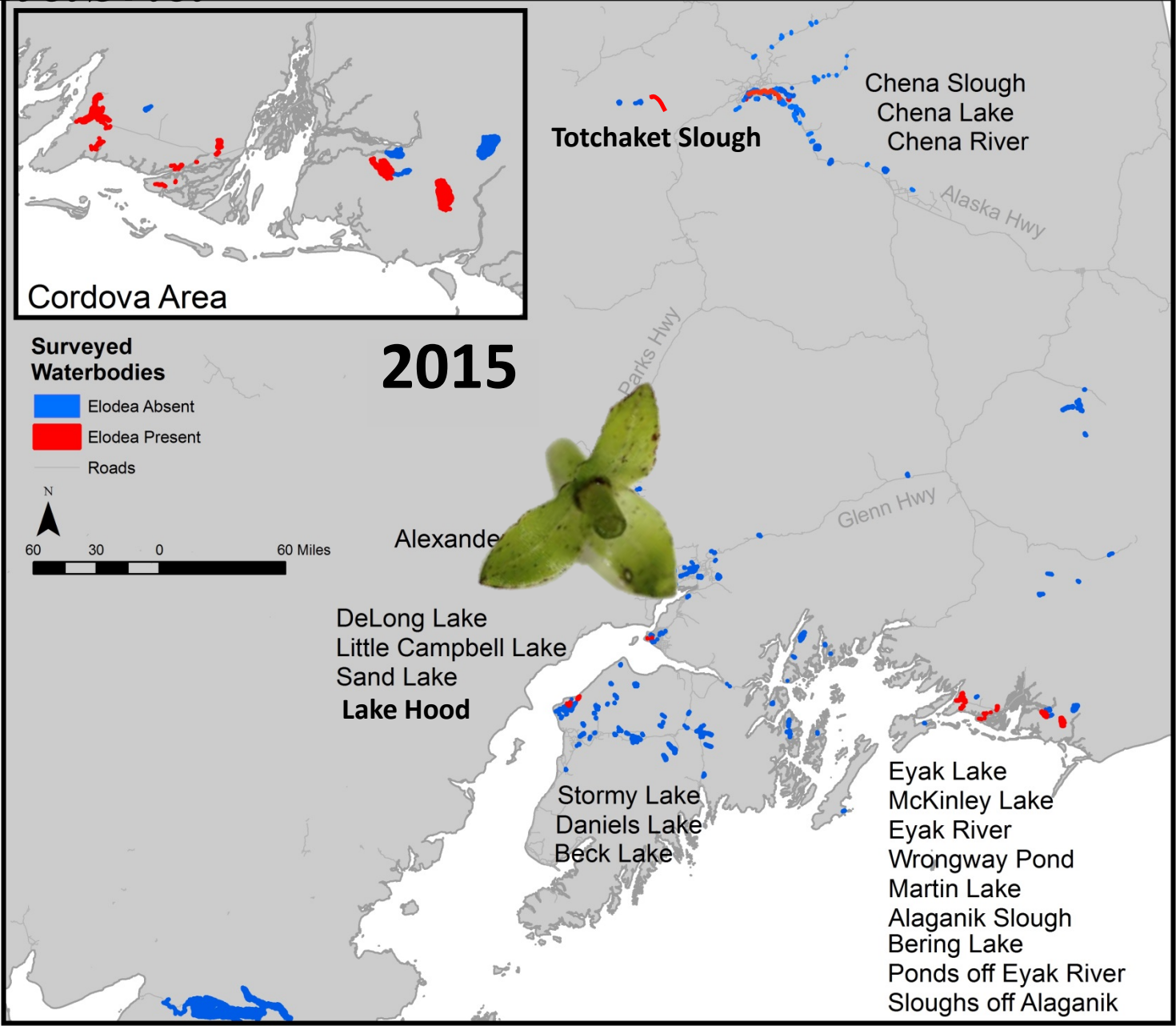
Mat-Su Alexander Lake

Why should we care?

- Degrades salmon spawning habitat
 - Slows stream velocities
 - Increases sedimentation rates
 - Increases dissolved oxygen
 - Prime invasive pike habitat
 - Lowers biodiversity



In Alaska



What's next for the Mat-Su?

- Secured funding from the National Fish Habitat Partnership for Alexander Lake by DNR:
 1. Implement an integrated pest management plan for Alexander Drainage Basin to ***ERADICATE*** Elodea
 - Pre and Post surveys, and how it has possibly spread

Management Decisions and Coordination: *A Statewide Elodea Management Plan*

- Eradication is the goal...
- An adaptive document utilized by federal, state, and local agencies and groups to manage elodea
 - Components include: Need for action, integrated management methods, permit requirements, continued monitoring goals, local efforts, and **implementation**
- *Partners include:* DNR, USFWS, Kenai National Wildlife Refuge, USFS, Anchorage Park Foundation, Homer Soil and Water Conservation District, Fairbanks SWCD, Copper River Watershed Project, Cook Inlet Aquaculture Association





THE STATE
of ALASKA
GOVERNOR SEAN PARNELL

Department of Natural Resources

DIVISION OF AGRICULTURE
Central Office

1800 Glenn Highway, Suite 12
Palmer, Alaska 99645-6736
Main: 907.745.7200
Director's fax: 907.745-7112
Marketing & ARLF fax: 907.745.7242
Inspection fax: 907.745.7254

EXTERIOR QUARANTINE OF AQUATIC INVASIVE WEEDS

Authority: AS 03.05.010	11 AAC 34.130
AS 03.05.027	11 AAC 34.140
AS 03.05.040	11 AAC 34.160
AS 44.37.030	11 AAC 34.170
AS 03.05.090	AAC 34.115

Establishment of Quarantine: The Director of the Division of Agriculture under the authority as the State Quarantine Officer hereby establishes a quarantine at the boundaries of Alaska to prevent the entry of the following aquatic invasive weeds.

PEST: Aquatic plants listed below.

Canadian waterweed	(<i>Elodea Canadensis</i>)
Western nuttallii	(<i>Elodea nuttallii</i>)
Brazilian waterweed	(<i>Egeria densa</i>)
Hydrilla	(<i>Hydrilla verticillata</i>)
Eurasian watermilfoil	(<i>Myriophyllum spicatum</i>)

This list is comprised of the most recent and accepted scientific and common names of the quarantine plant species. Regulated status also applies to all synonyms of these botanical names.

STATES REGULATED: ALL

MATERIALS REGULATED: All plants and plant parts of the regulated plants.

RESTRICTIONS: It is prohibited to import, transport, buy, sell, offer for sale, or distribute plants or plant parts of the regulated species within the state of Alaska. It is further prohibited to intentionally transplant wild plants and/or plant parts of these species within the state of Alaska.

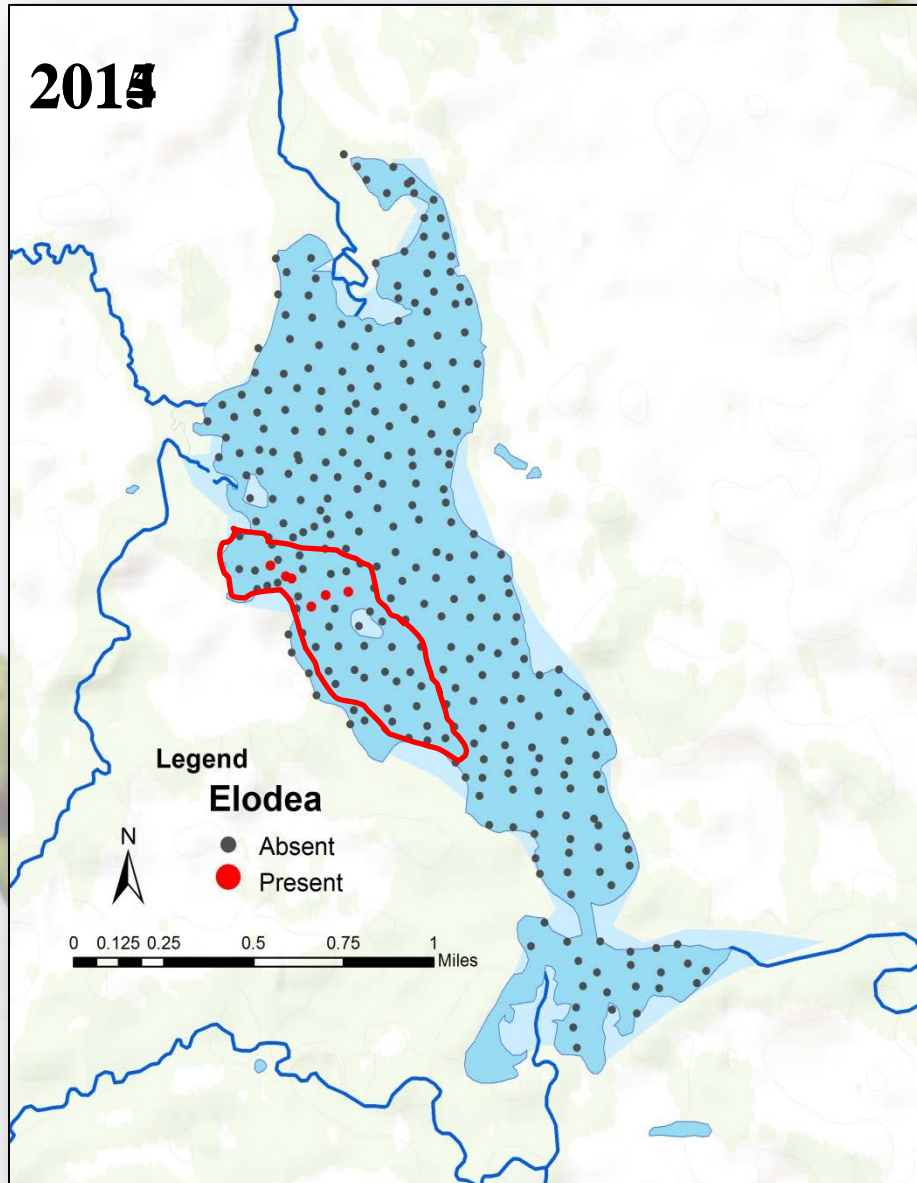
DISPOSITION OF VIOLATIONS: All shipments of quarantined articles arriving in Alaska in violation of this quarantine shall be immediately shipped out of the state or destroyed by burning or other method approved by the Division of Agriculture. All costs for shipment out of state or destruction shall be performed at the expense of the owner, owners, or duty authorized agent.

Franci Havemeister
Franci Havemeister, Director

3/5/14
Date

- Additional species from aquarium trade
- Reported as invasive in other lower 48 states with hardiness to survive Alaska
- DNR has an exemption form for use in education and research
- Stopping known vectors of intentional spread and preventing new infestations to natural systems

Pre-treatment survey



- 2014: Elodea is isolated to one area ~10 acres large (this estimate is generous)
 - Relatively patchy
- 2015: Elodea still isolated, but becoming more established
 - Thicker patches
 - More *floating fragments*
- Very manageable infestation
 - Established ~4-5 years at most
- Eradication is still possible

Fluridone

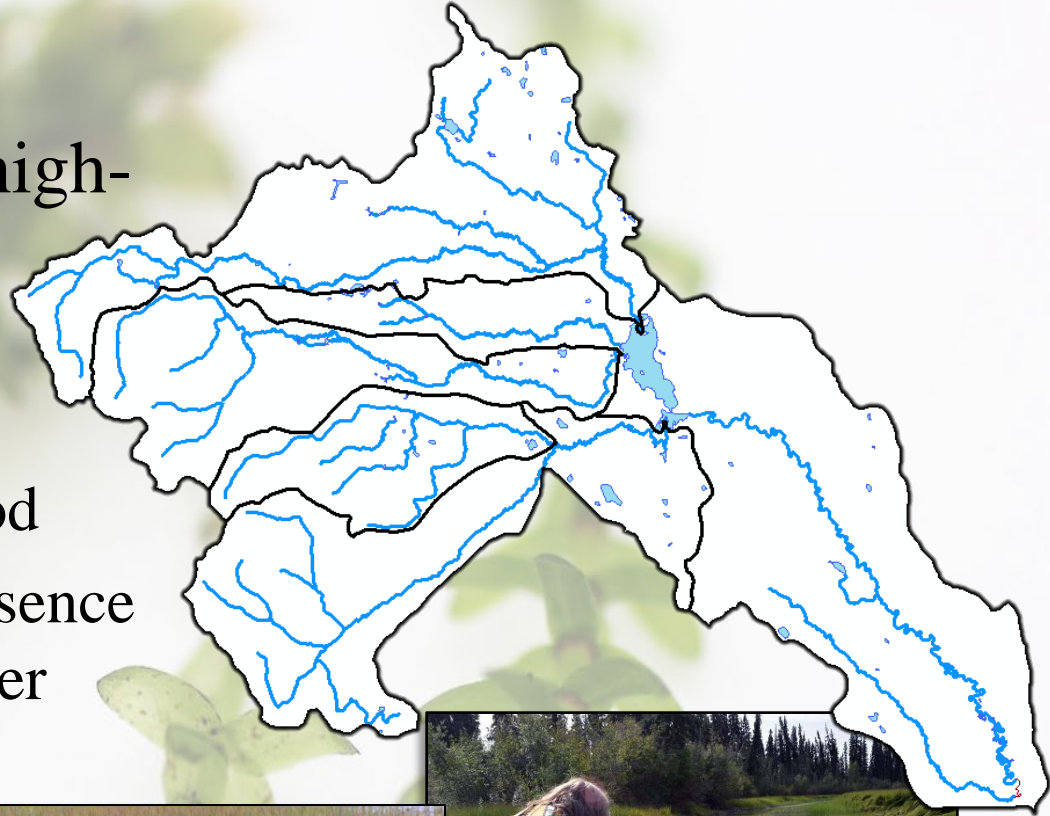
- Absorbed through roots and shoots (systemic)
- Inhibits plant enzyme phytoene desaturase (carotenoids) and Elodea is particularly sensitive
- Inhibits photosynthesis - plant slowly starves and dies at very low concentrations ($\lll 150$ ppb)
- Needs to be in water column for 45 – 90 days
- Applied as liquid or slow-release pellets
- Degrades by photolysis, adsorption, absorption
- **No** restrictions on swimming, drinking or fishing
- Minimal irrigation precautions



What's next for the Mat-Su?

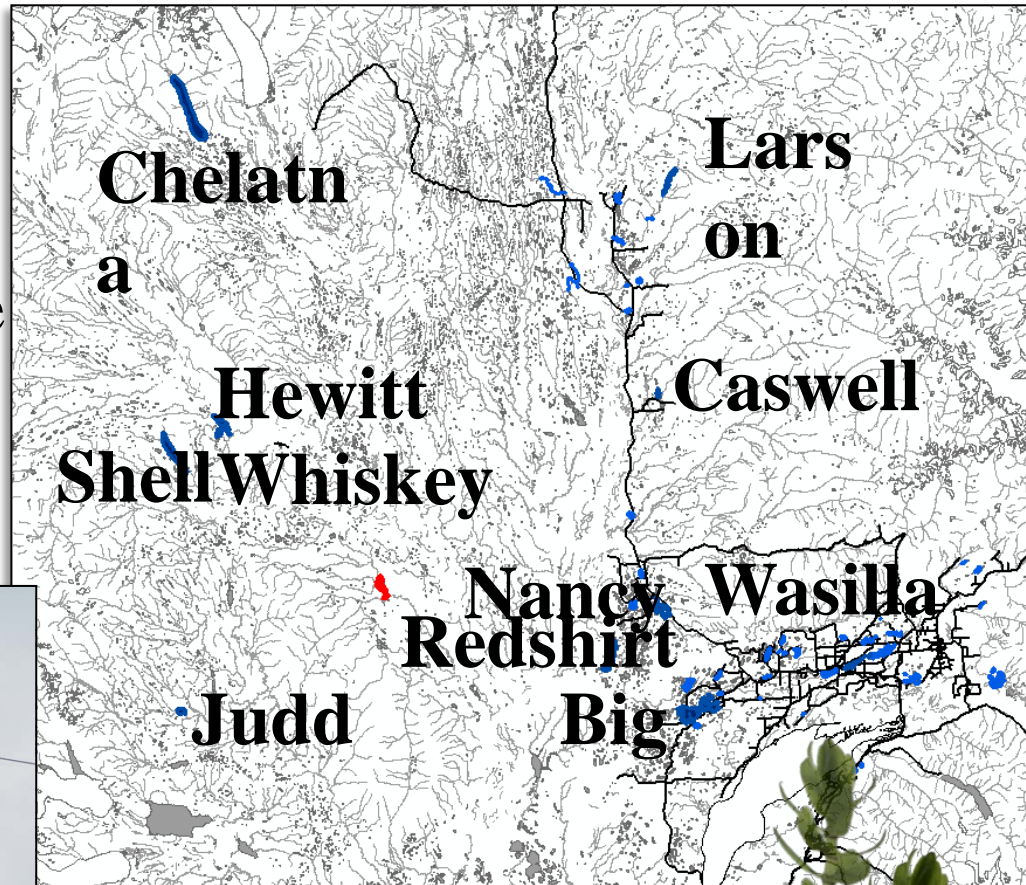
2. Assess existing pathways, and survey high-risk habitat

- Conduct surveys:
Ongoing efforts with pilots from Lake Hood
- Baseline presence/absence of Elodea in Alexander
 - Watershed approach



What's next for the Mat-Su?

- CIAA: 2015 surveys
 - Remote area
 - Floatplane accessible
 - Relatively high risk



What's next for the Mat-Su?

3. Prioritize high-risk user groups for outreach
 - Signage for high priority locations
 - Designs of float plane rudders



**STOP AQUATIC
HITCHHIKERS!**™

Prevent the transport of nuisance species.
Clean all recreational equipment.

www.protectyourwaters.net/prevention/user_seaplane.php



What's next for all of Alaska?

- Continue treatments in Kenai and Anchorage.
 - Survey, survey, survey so that local eradication is achieved
- Continue along the path of permitting: Mat-Su, Fairbanks, Cordova
 - Treat where possible and financially feasible
- Meet our long-term goal of ultimate eradication
- Survey, survey, survey
- Elodea is just the beginning!
 - Continue with education and adaptive management with collaboration

Heather A.M. Stewart

Invasive Plant and Agricultural Pest Coordinator

heather.stewart@alaska.gov

907-745-8721



Thank you