



Washington Department of Fish and Wildlife

Aquatic Invasive Species



Sediment Management Annual Review Meeting
Sep 30, 2020
Seattle District Office

Washington Department of Fish and Wildlife (WDFW) Aquatic Invasive Species (AIS) Unit

Prevention Team



- 1 Coordinator Olympia
- 3 Biologist Olympia
- 1 Technician Spokane

Mandatory Aquatic Conveyances Inspections Team



- 1 Captain Western WA
- 1 Sergeant Spokane
- 9 Seasonal inspectors

Ballast Water Team



- 1 Inspector La Connor
- 1 Inspector Ridgefield
- 1 Support Olympia

Washington Invasive Species Council Top 50

Here

1. Apple maggot
2. Brazilian elodea
3. Brown marmorated stink bug
4. Butterfly bush
5. Common crupina
6. European chafer
7. Feral swine
8. Flowering rush
9. Garlic mustard
10. Hydrilla
11. Infectious amphibian diseases
12. Invasive frogs and crayfish
13. Invasive knapweeds
14. Invasive knotweeds
15. Invasive milfoils
16. Invasive tunicates
17. Invasive zooplankton
18. Leafy spurge
19. Mediterranean white snail
20. New Zealand mud snail
21. Northern pike
22. Nutria
23. Parrotfeather
24. Phragmites
25. Poison hemlock
26. Puncturevine
27. Purple loosestife
28. Rush skeletonweed
29. Scarlet lily beetle
30. Scotch broom
31. Scotch thistle
32. Spartina
33. Spotted wing drosophila
34. Tamarisk
35. White nose syndrome/Pd

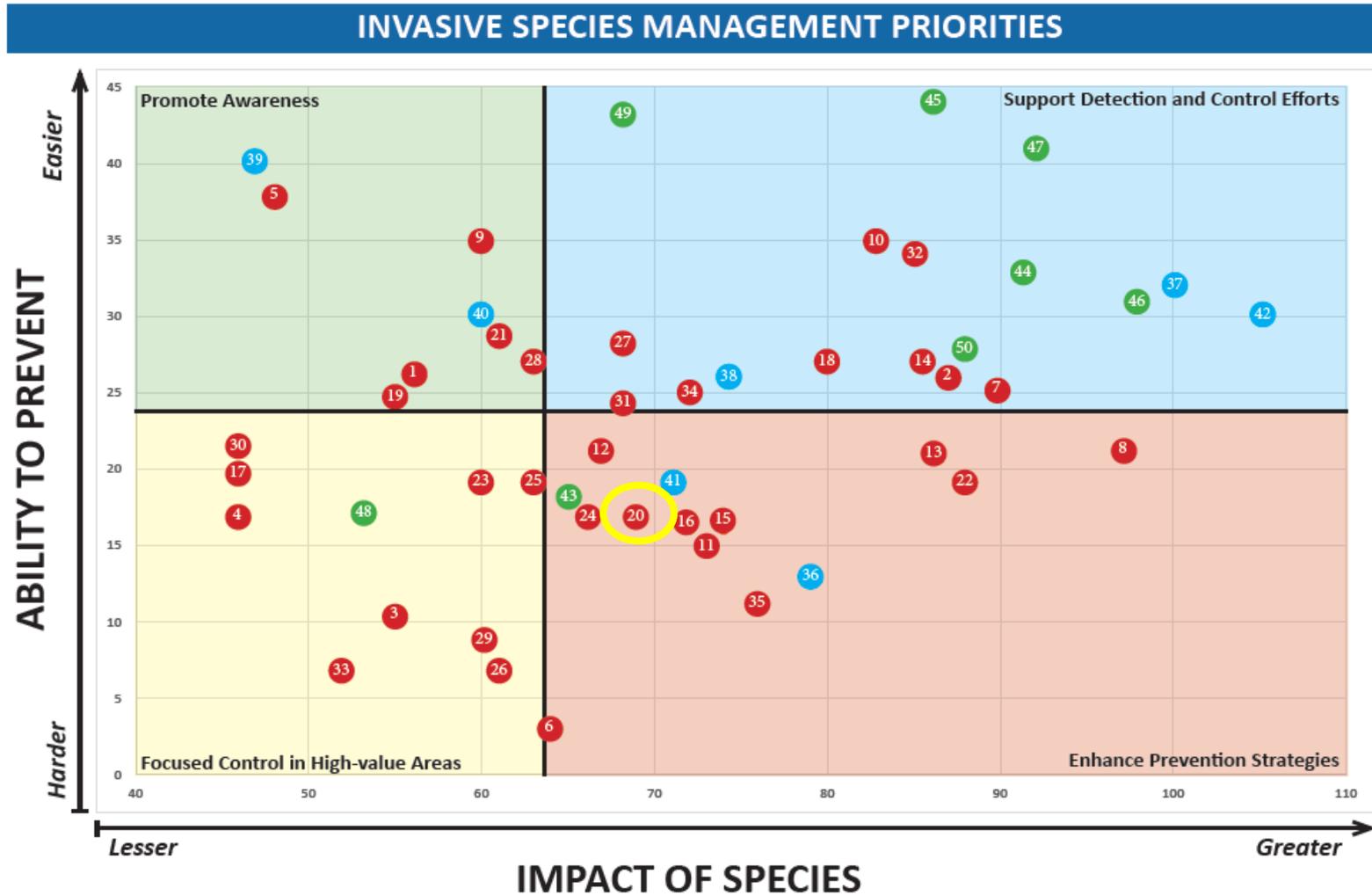
Near

36. Caulerpa
37. Gypsy moths
38. Invasive crabs
39. Japanese beetle
40. Northern snakehead
41. Overbite clam
42. Zebra and quagga mussels

Far

43. Asian carp
44. Emerald ash borer
45. Infectious fish diseases
46. Invasive longhorned beetles
47. Kudzu
48. Onion leaf miner
49. Sirex woodwasp
50. Starry stonewort

44. Emerald ash borer
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Learn more about invasive species by visiting invasivespecies.wa.gov and wise.wa.gov

2017

IMPACT OF SPECIES

Learn more about invasive species by visiting invasivespecies.wa.gov and wise.wa.gov

2017

Prevention Team



Top Priority



Zebra & Quagga Mussels

Second Priority



European Green Crab

Everything Else

- African clawed frogs (ACF)
- New Zealand mudsnails (NZMS)
- Other AIS
- Decontaminations
- Permitting/regulations
- Outreach and education
- Technical assistance

WDFW AIS Regulations

- Lead agency for managing invasive species of the animal kingdom statewide RCW 77.135.020
- Prohibited and regulated species RCW 77.135.040
 - Prohibited Level 1 worst of the worst zebra and quagga mussels
 - Prohibited Level 2 none
 - Prohibited Level 3 NZMS, ACF, etc.
 - Difference between the levels is Response.
 - Regulated Type A all nonnative fish classified as food and game
 - Regulated Type B all non-native aquatic animals not listed previously, aquarium and live food markets
 - Regulated Type C all non-native aquatic animals do not meet criteria for Type B
- WDFW Habitat Program lead agency for issuing Hydraulic Project Approval permit to conduct work in or near state waters RCW 77.55
 - The Habitat program notifies the AIS unit when the process needs to be upgraded, but Dredging projects should contact WDFW Habitat Program and the AIS

State Plant Regulations

- Washington State Department of Agriculture
 - Lead agency for managing spartina and purple loosestrife
RCW 17.26.015
- Washington State Noxious Weed Control Board
 - Individual counties managing weeds RCW 17.10
- WDFW aquatic conveyance clean and drain requirements RCW 77.135.110
 - Visible native and nonnative aquatic animals, plants, or other organisms and raw water

Federal Lacey Act

18 USC 42-43

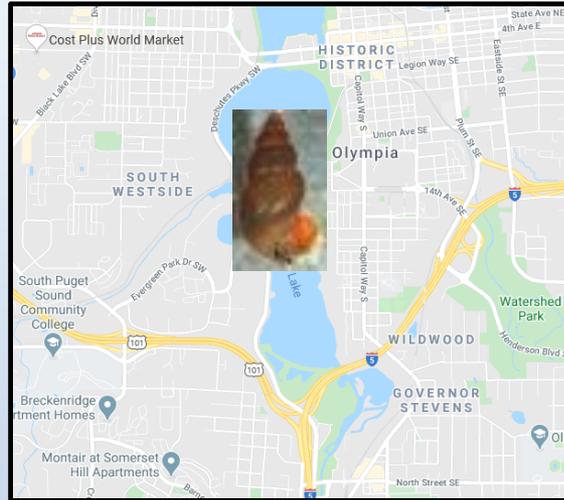
16 USC 3371-3378

- Importation and interstate transport of animal species
- Regulation of transport or use within a state is the responsibility of each state

Potential AIS Concerns for Dredging Projects

- All AIS
 - Animals and plants
- AIS mechanism for distribution?
 - Fragmentation
 - Parthenogenesis
 - Asexual
 - Sexual
- Are there known AIS in dredging project?
- Is the dredged material from freshwater going to marine?
 - During transport risk of AIS escapement?
 - Dredged material going to upland site?
- Equipment decontamination?

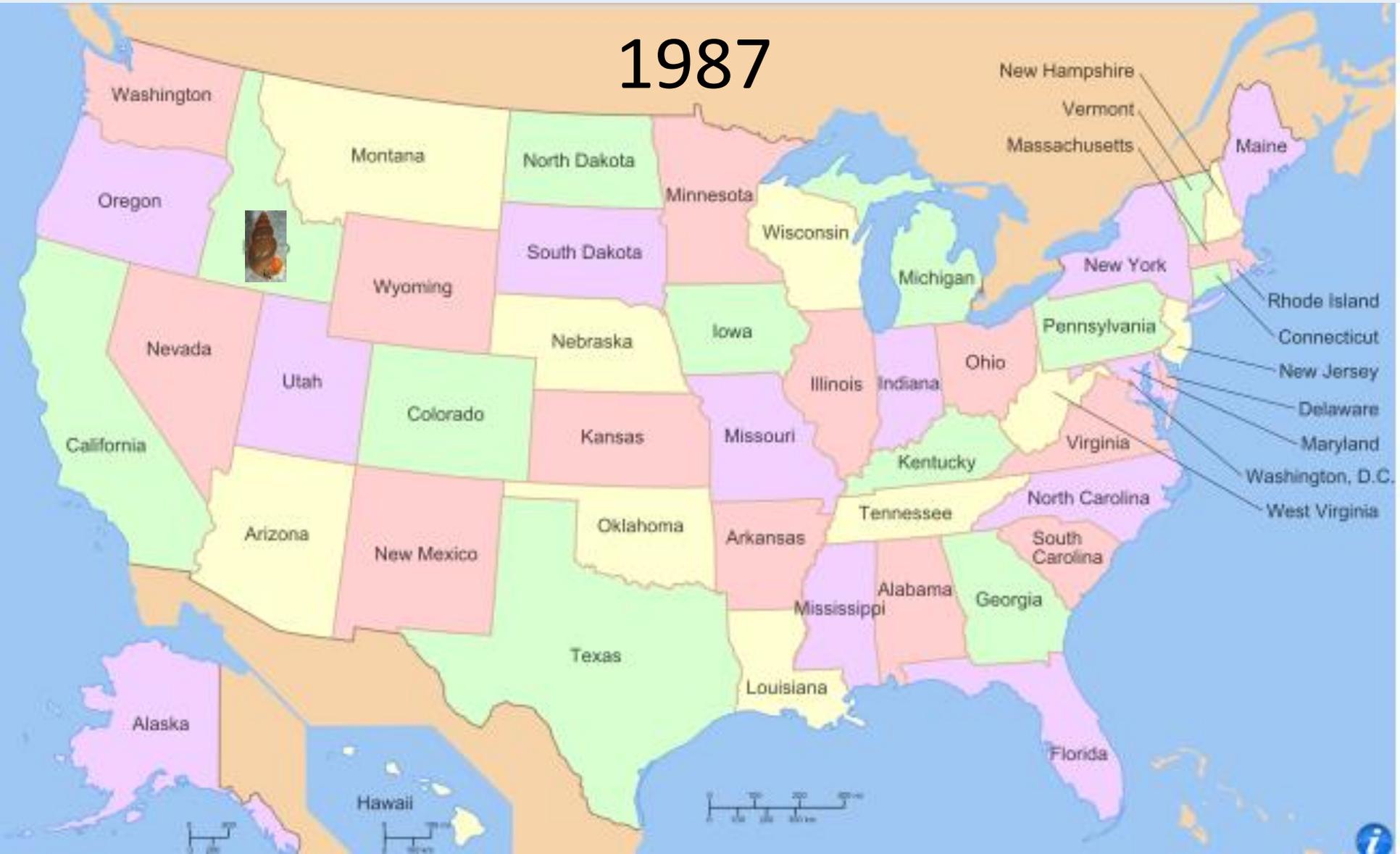
Capitol Lake Dredging Project



- NZMS present
- If dredged material placed in Puget Sound...
- Issues
 - Parthenogenic clones
 - High tolerance for salinity (established Columbia River Estuary)
 - Escapement from transport

NZMS Invasive History United States

1987



NZMS Invasive History United States

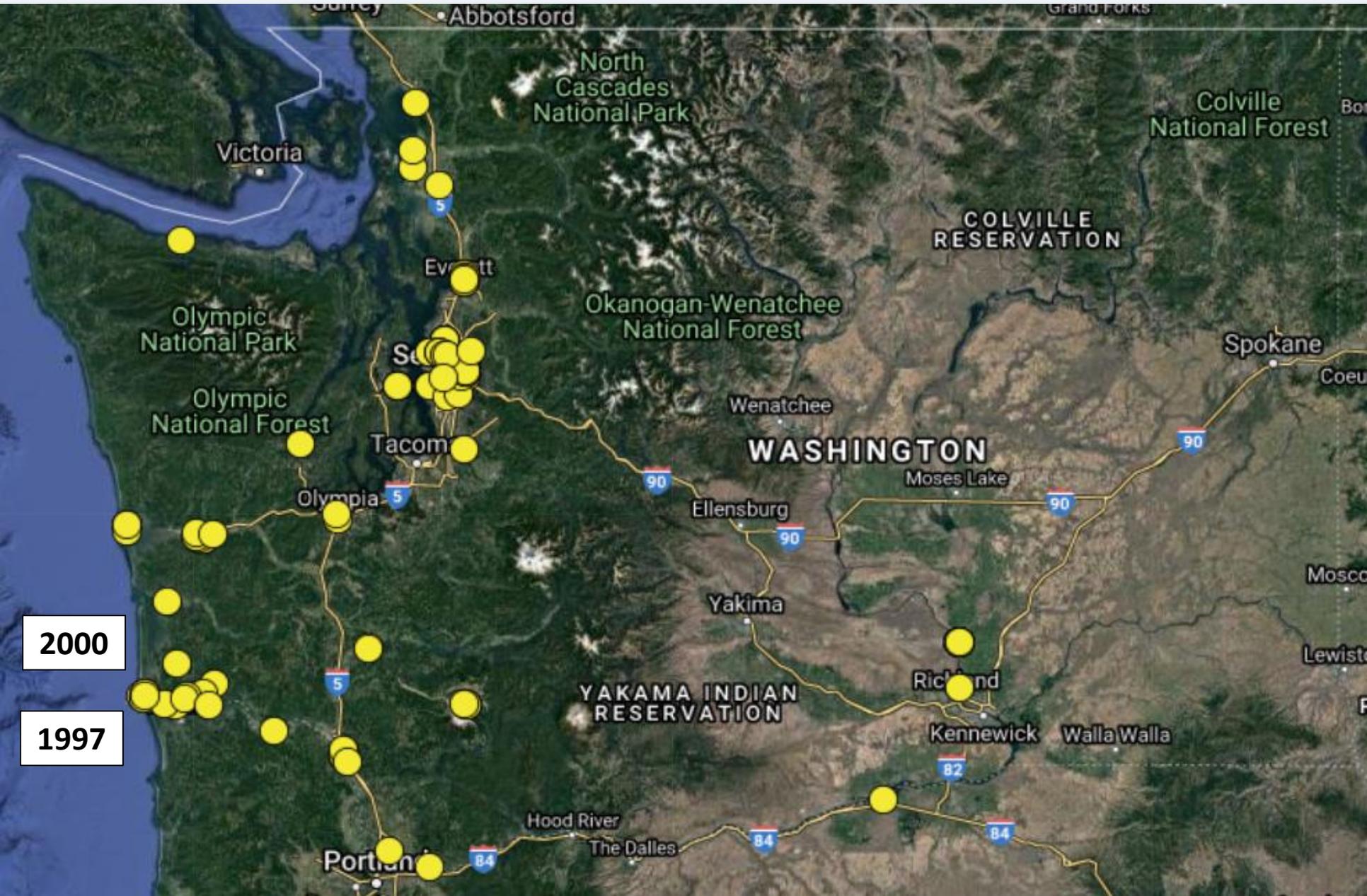
Present

2000

1997



NZMS In Washington



NZMS Potamopyrgus Antipodarum



- Native to New Zealand
- Live for about 1 year
- Very small less than 6 mm
- Nocturnal grazers
- Tolerant of temperatures 34° C and salinities up to 15ppt
- Densities up to 500k m²

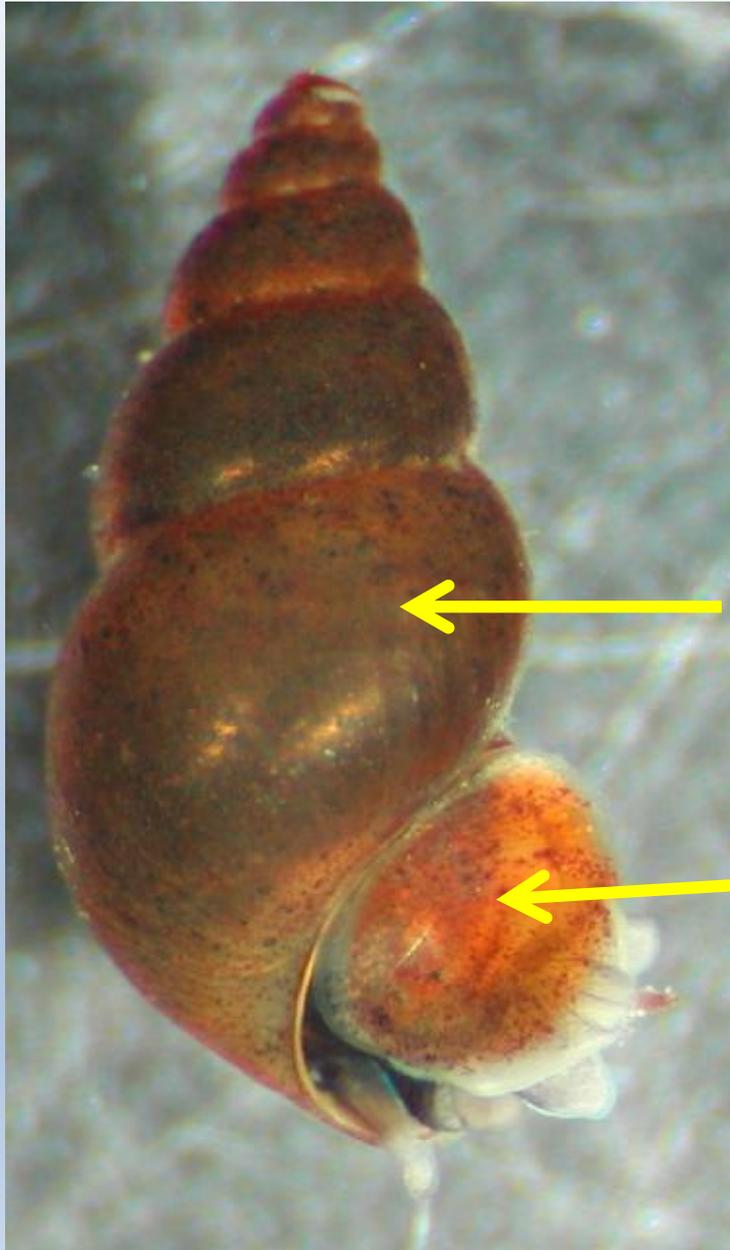
NZMS Potamopyrgus Antipodarum



- Reach sexually maturity at 3 mm
- Western population parthenogenetic clones – it only takes one female
- Spawning in summer and autumn
- Brood 20-120 embryos



Identification



- Full grown shell, fairly elongate with 5-6 whorls, maximum length usually 5mm, occasionally 6 mm
- Shell is usually horn colored but ranges from light brown to black and may be encrusted with algae, etc.
- Operculum –only visible on live snails
- Dextral –opening to the right of the animal

New Zealand mudsnail



Lymnaeidae



Fluminicola sp.



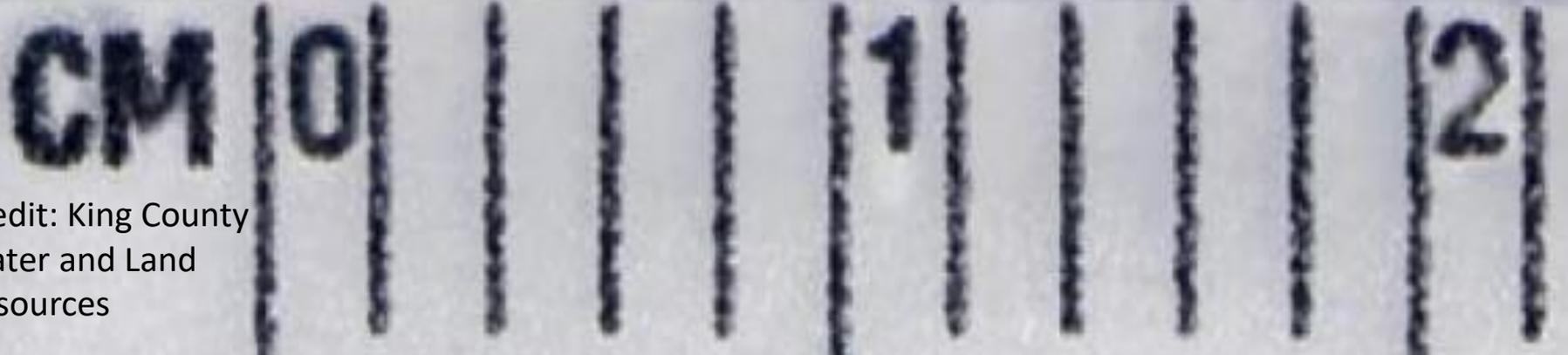
Raised Ridges



Juga sp.



Size



Credit: King County Water and Land Resources

NZMS Invasive Risks

- Consume primary production
- Compete with native grazers and detritivors
- Alter food sources for invertebrate and vertebrate predators
- Dominate secondary production in food webs
- Less preferred/nutritious prey for native fish

Predators



Parasitic flatworm in New Zealand



Signal crayfish

Signage (NZMS at site)

ALERT!
THIS WATER CONTAINS INVASIVE NEW ZEALAND MUDSNAILS

STOP
the spread of invasive New Zealand Mud Snails (NZMS).

AVOID
contact with the stream to prevent their spread.

DECONTAMINATE*
any boots and gear after contact with this stream.

NZMS have a negative impact on fish and native invertebrates. There is no way to control them once established. NZMS are tiny, multiply rapidly by cloning, and are easily transported on boots and other wet gear. Transportation of this species is prohibited under Washington law.

DECONTAMINATION PROCEDURES
NZMS are hard to kill. You must follow these procedures:

- Freeze gear 48 hours at 24°F (-4°C) or below.
- Soak for at least 5 minutes in hot water (at least 180°F). NOT RECOMMENDED FOR GORE-TEX.
- Dry gear at least 48 hours under low humidity (or 2 hours in a clothes dryer). Gear must be completely dry at least 24 hours.
- Soak gear for minimum of 10 minutes in Antifreeze/Ferrous 402*. Please water must be disposed of down a sewer drain, not a storm drain or near a water body.

ATTENTION DOG OWNERS

Please keep dogs out of this stream to avoid the spread of NZMS to other bodies of water. NZMS can be easily transported on dog paws.

Visit Washington Department of Fish and Wildlife for more information: <http://wdfw.wa.gov/iaf/>

WARNING
ACTIVE INFESTATION

Prevent the spread of harmful New Zealand mudsnails!
BOATERS, FISHERS, KAYAKERS, PADDLEBOARDERS

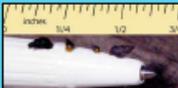


STOP AQUATIC HITCHHIKERS!
Be A Good Steward.
Clean. Drain. Dry.
<http://www.wa.gov/iaf/>

- ✓ **CLEAN** off watercraft, trailer, motor, tackle, boots, and gear by washing and scrubbing on-site.
- ✓ **DRAIN** all water from boat, motor, tackle, boots, and gear before leaving the area.
- ✓ **DRY** for at least 3 days anything that has been in the water, or freeze small items for 1 day.



- New Zealand mudsnails displace animals that are food sources for salmon, steelhead, and trout.
- Mudsnails attach themselves to watercraft, plants, debris, boots, shoes, and nets.
- Mudsnails live in brackish and fresh water. They are often found on mud, rocks, plants, and wood.
- New Zealand mudsnails are up to 1/8 inch long, cone-shaped, and have a light to dark brown or black shell with 5–6 whorls and a retractable cover.



ACTUAL SIZE IS 1/8 INCH OR LESS



MUDSNAILS CAN BE TRANSPORTED IN BOOT LACES

To report invasive species, call **1-866-INVADER**



ALERT!!
These waters contain

New Zealand Mud Snail



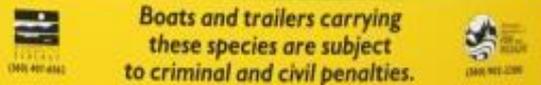
Under Washington law transport or distribution of these species is

PROHIBITED

PLEASE! Clean your boat and trailer before leaving the area:

- Remove **ALL** aquatic plants and animals
- Drain **ALL** water
- **NEVER** empty aquariums or bait.

Boats and trailers carrying these species are subject to criminal and civil penalties.



Signage (general AIS)

Protect Your Waters From Aquatic Invasive Species

BEFORE and AFTER launching boat

CLEAN

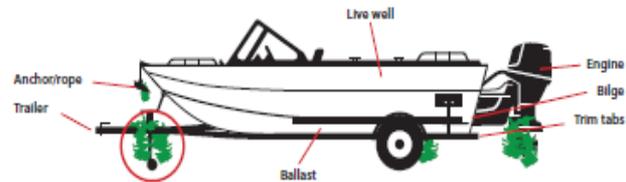
Clean interior/exterior of boat, trailer, & vehicle of any organic matter such as aquatic plants & mud. Dispose organic matter & unused bait in trash.

DRAIN

Drain bilge, ballast, wells & buckets before you leave area. Keep bilge plug out during transport.

DRY

Dry equipment before launching watercraft into another body of water.



For information on FREE boat inspections,
call 1-888-WDFW-AIS (933-9247) or visit wdfw.wa.gov/ais.

**Before you launch a boat that is not registered in Washington,
you MUST purchase an Aquatic Invasive Species Prevention Permit.**

How to buy:

- Online at fishhunt.dfw.wa.gov
- Find a license dealer near you at wdfw.wa.gov/licenses/dealers

Funds from permit sales supports efforts to keep Washington's waters free of aquatic invasive species and manage infestations when prevention fails.

Avoid Citations or Fines

Failure to possess an Aquatic Invasive Species Prevention Permit —
Infraction — RCW 77.15.160

Possession of aquatic conveyance not meeting clean drain
requirements — Infraction — RCW 77.15.110

Introduction or possession of prohibited species — up to class C
felony — RCW 77.15.160 (4)



Pathways

Dredging



Pathways



Restoration



Surveyors



Hikers



Bucket Biologist

Pathways



Pathways



Aquaculture



Pet Trade



Schools



Fish Stocking

Pathways



Pathways



Float Planes



Mercy Releases



Anything that touches the water



Live Food Trade

Starting a Dredging Project

- Step 1 Contact WDFW
 - Contact AIS Unit
 - <https://wdfw.wa.gov/species-habitats/invasive>
 - Apply for HPA
 - <https://wdfw.wa.gov/licenses/environmental/hpa>

Resources and Tools

- United States Geological Survey Nonindigenous Aquatic Species National Database
 - <https://nas.er.usgs.gov/>
- WDFW AIS Decontamination Protocol
 - <https://wdfw.wa.gov/publications/01490>

Report AIS

<https://wdfw.wa.gov/species-habitats/invasive>

The screenshot shows a web browser window displaying the Washington Department of Fish and Wildlife (WDFW) website. The browser's address bar shows the URL wdfw.wa.gov/species-habitats/invasive. The website header includes the WDFW logo, a search bar, and navigation links such as "Home", "Species & Habitats", "Fishing & Shellfishing", "Hunting", "Licenses & Permits", and "Places to go". The "Species & Habitats" menu item is highlighted. Below the header, a breadcrumb trail reads "Home / Species & Habitats / Aquatic invasive species". The main content area features a section titled "Aquatic invasive species" with a sub-section "Species & Habitats". The text explains that aquatic invasive species can be spread unknowingly and provides information on reporting them. A "More information" section contains three links: "Search for aquatic invasive species", "Aquatic invasive species prevention permits", and "Preventing the spread of invasive species".

For the latest WDFW closures, restrictions, and updates see the [WDFW COVID-19/Coronavirus response page](#).

Select Language | Translation limitations and disclaimer

About WDFW News Get involved Civil Rights/Accessibility

Home **Species & Habitats** Fishing & Shellfishing Hunting Licenses & Permits Places to go

[Home](#) / [Species & Habitats](#) / [Aquatic invasive species](#)

Species & Habitats

- Species in Washington
- Living with wildlife
- At-risk species
- Habitat recovery and protection
- Aquatic Invasive Species**
- Wildlife diseases

Aquatic invasive species

If you work or play in Washington's many waterways, you may be unknowingly spreading aquatic invasive species destructive to the state's environment and economy. But you can also be a part of the solution, helping to stop or slow the spread of these damaging species.

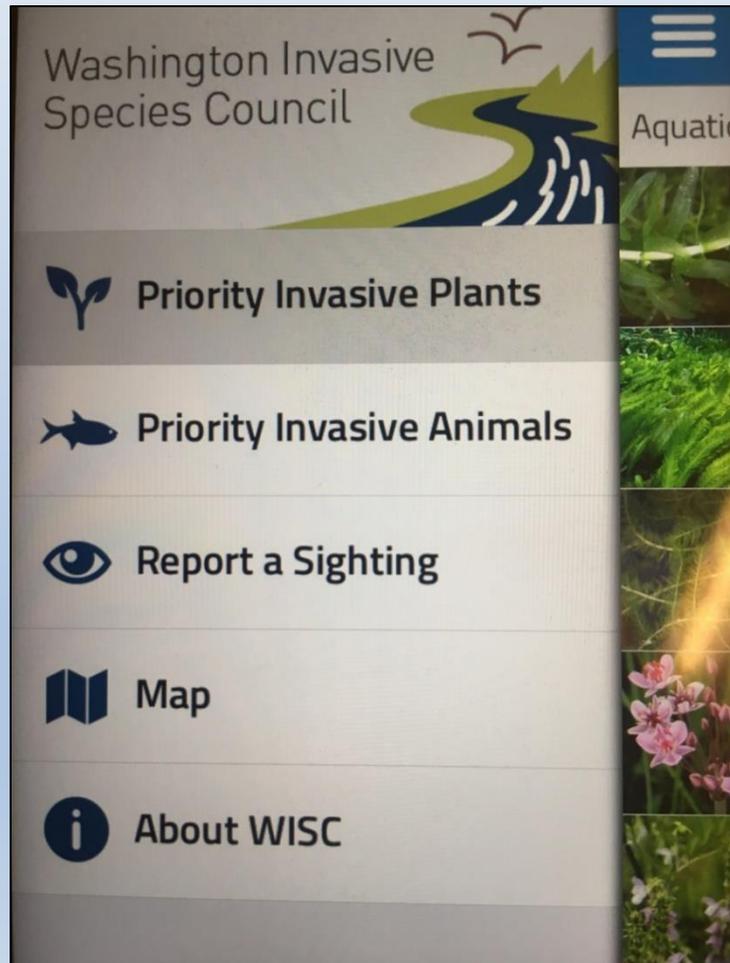
The Washington Department of Fish and Wildlife encourages the public to report possible invasive species. You can report non-native, invasive species through the [Washington Invasive Species Council](#). Please call WDFW's Aquatic Invasive Species hotline with any questions at 888-WDFW-AIS.

More information

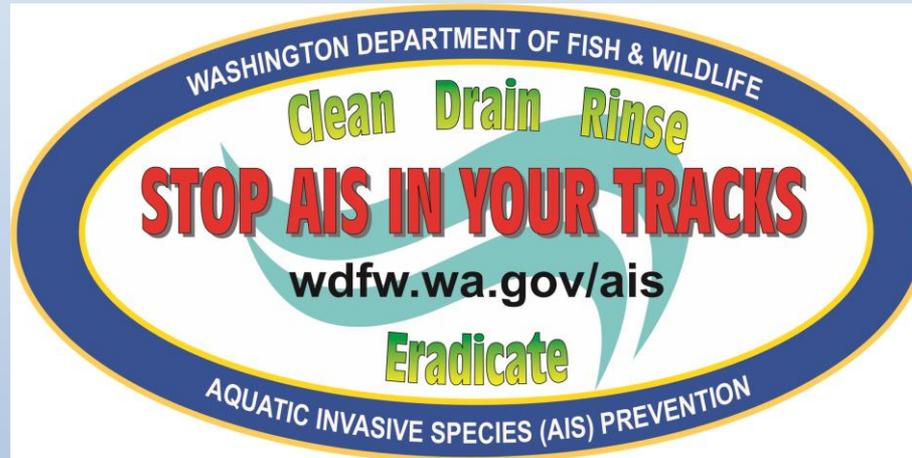
- [Search for aquatic invasive species](#)
Use this search function to find information on non-native aquatic animal species, including biology and current classification.
- [Aquatic invasive species prevention permits](#)
These permits are required for operators of watercraft not registered in Washington, seaplanes, and commercial transporters of specified vessel types.
- [Preventing the spread of invasive species](#)
Learn the proper techniques to help prevent destructive invasive species from spreading in Washington, or decontaminate potentially infested gear.

App Report AIS

<http://www.invasivespecies.wa.gov/report.shtml>



Questions



WDFW AIS Unit
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Jesse.Schultz@dfw.wa.gov