

Whatcom Boat Inspections

Aquatic Invasive Species Awareness Course



Part 1

What are aquatic invasive species and why should I care?

Aquatic Invasive Species (AIS) are non-native plants, animals, and pathogens that live primarily in water. They thrive in a new environment, and can cause economic loss, environmental damage and are harmful to human health.

AIS Transportation Pathways

Boat hulls,
motors,
trailers, and
equipment

Bilge tanks,
live wells,
and engine
cooling
water

Float planes

Aquarium
trade (as
frozen or
live aquatic
food & bait)

Aquariums
or bait
containers

Fishing gear

Waterfowl
and other
animals
(such as
pets)

Deliberate
release by
individuals

AIS can be transported by a variety of different **pathways** which include:

- Becoming attached to boat hulls, motors, trailers, and equipment
- Being transported in bilge tanks, live wells, and engine cooling water
- Becoming attached to float planes or
- Field gear
- Through aquarium trade (as frozen or live aquatic food & bait)
- Being released when aquariums or bait containers are emptied into water bodies
- Being transferred by waterfowl and other animals (such as pets)
- And accidental or deliberate release by individuals

**AIS
101**

AIS Primary Pathway: Boating



Lake Whatcom and Lake Samish are both popular recreational sites for boaters visiting from all over the United States and Canada making boating a primary **pathway** for the introduction and spread of AIS to and from Whatcom County lakes. This is why the current AIS program focuses on these lakes.

Damage boats
and
equipment

Clog water
intake pipes
and impede
flows

Create
drinking
water taste
and odor
issues

Make
hazardous
and
uninviting
shoreline

Damage
docks, piers,
and other in-
water
structures

Compete with
native species
and spread
toxic algal
blooms

AIS introductions can lead to a variety of economic, recreational, and environmental impacts to aquatic ecosystems because they can:

- Attach to and damage boats and recreational equipment
- Clog water intake pipes and impede the flow of water to municipal water supplies, irrigation operations, and power plants
- Create long-term taste and odor issues in drinking water
- Make shoreline areas hazardous and uninviting for recreational users and waterfront property owners
- Compete with native species and spread toxic algal blooms

**AIS
101**

Prevent Introduction of AIS

A prevention program can stop AIS from being introduced.



It can take several years for some AIS to become established and for their impacts to become known. However, once a species becomes established it becomes increasingly difficult and costly to manage the population. By having a prevention program and inspecting watercraft before they launch in Whatcom County lakes, we can increase our chances of stopping aquatic invasive species from being introduced in the first place.

**AIS
101**

AIS Primary Pathway: Boating



Lake Whatcom and Lake Samish are both residential lakes located near Bellingham in Whatcom County, Washington. Both lakes are located very close to Interstate-5, the main Interstate Highway on the West Coast, making them very vulnerable to aquatic invasive species that could have hitched a ride on recreational boats travelling along this route. However, Lake Whatcom is particularly vulnerable as it is a major source of drinking water. While inspection efforts are currently focused on these two lakes, the Aquatic Invasive Species Prevention Program aims to protect all Whatcom County waters by educating Whatcom County boaters to take steps to prevent the spread of aquatic invasive species when going from one waterbody to another.



Lake Whatcom



Lake Whatcom is an open, multiple-use lake that is the drinking water source for over 95,000 residents of Whatcom County and supports a variety of fish and wildlife species, both native and nonnative. The watershed is also home to over 15,000 residents, and is an active recreational site for residents and visitors alike. The introduction of aquatic invasive species into Lake Whatcom could seriously compromise the municipal water supply resulting in millions of dollars in damages and mitigation costs.



Lake Samish



Lake Samish is an open, multiple-use lake that supports a variety of fish and wildlife species, both native and nonnative. In addition to being home to a year-round Kokanee fishery, this lake is a source of drinking water for many lakeside residents, and is also an active recreational site for residents and non-residents.



Examples of AIS



This section of the course includes detailed information on several species that are already present in Whatcom County lakes as well as some species of real concern. After completing this section, you should have a better understanding of what aquatic invasive species are, how they spread, and how they could potentially impact Whatcom County waters.



Aquatic Plants



Fragrant
Waterlily



Purple
Loosestrife



Eurasian
watermilfoil



Garden
Loosestrife



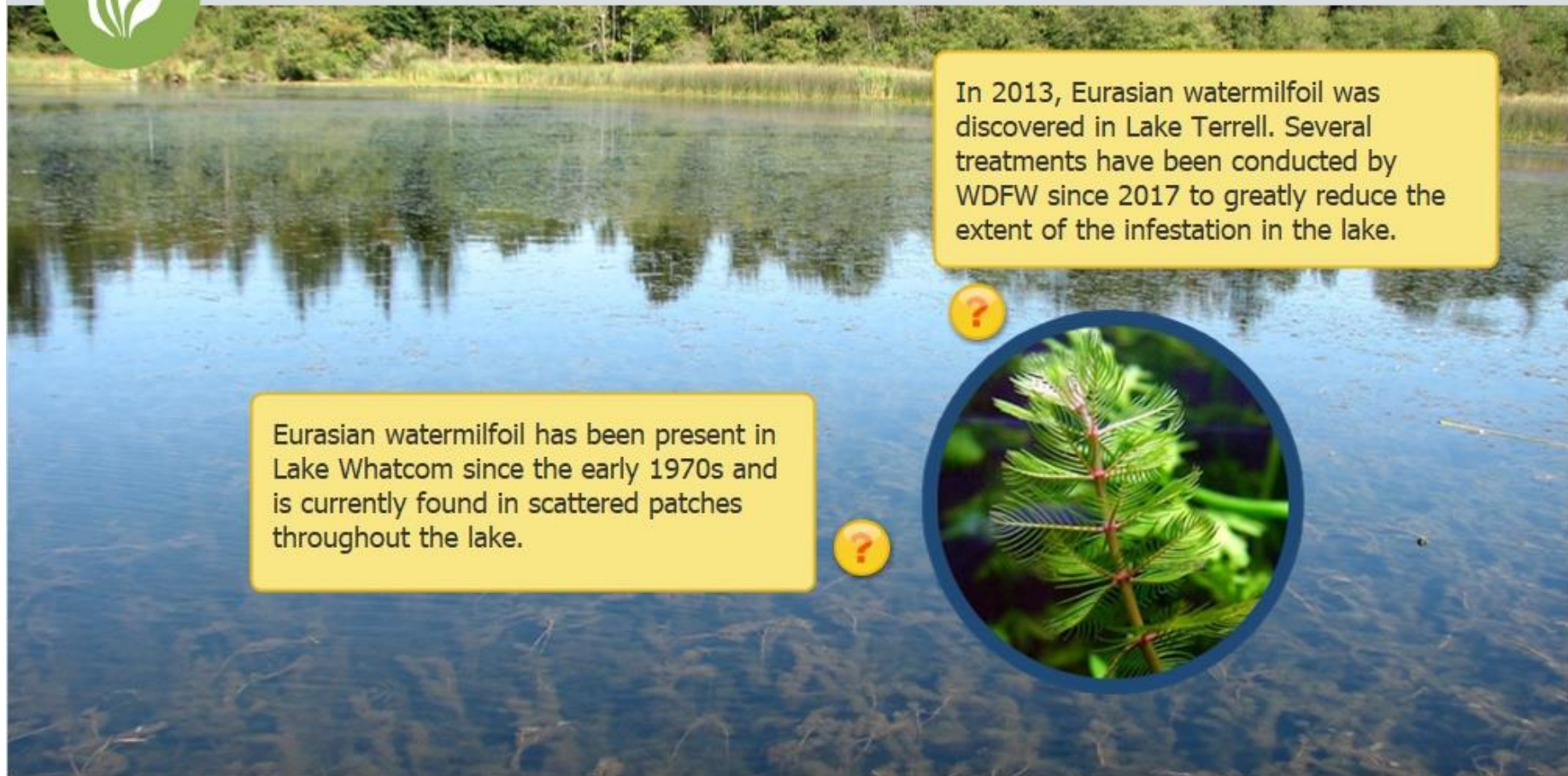
Curly-leaf
Pondweed

Invasive aquatic plants of concern in Whatcom County include: Fragrant waterlily, purple loosestrife, Eurasian watermilfoil, garden loosestrife, and curly-leaf pondweed. All of these plants have already become established in Lake Whatcom. Lake Samish, on the other hand, is home to only one aquatic invasive plant: the fragrant waterlily.

To prevent the spread of aquatic invasive plants, all plants and fragments should be removed and be disposed of on site in a dry-land location away from the water every time you leave a waterbody. Cleaning off any plants from watercraft and gear is important not only to prevent these plants from spreading but also because other organisms can hitchhike on plants. In Washington State, traveling with aquatic plants on your equipment, boat or trailer on any public roadways is a misdemeanor.



Eurasian watermilfoil



In 2013, Eurasian watermilfoil was discovered in Lake Terrell. Several treatments have been conducted by WDFW since 2017 to greatly reduce the extent of the infestation in the lake.

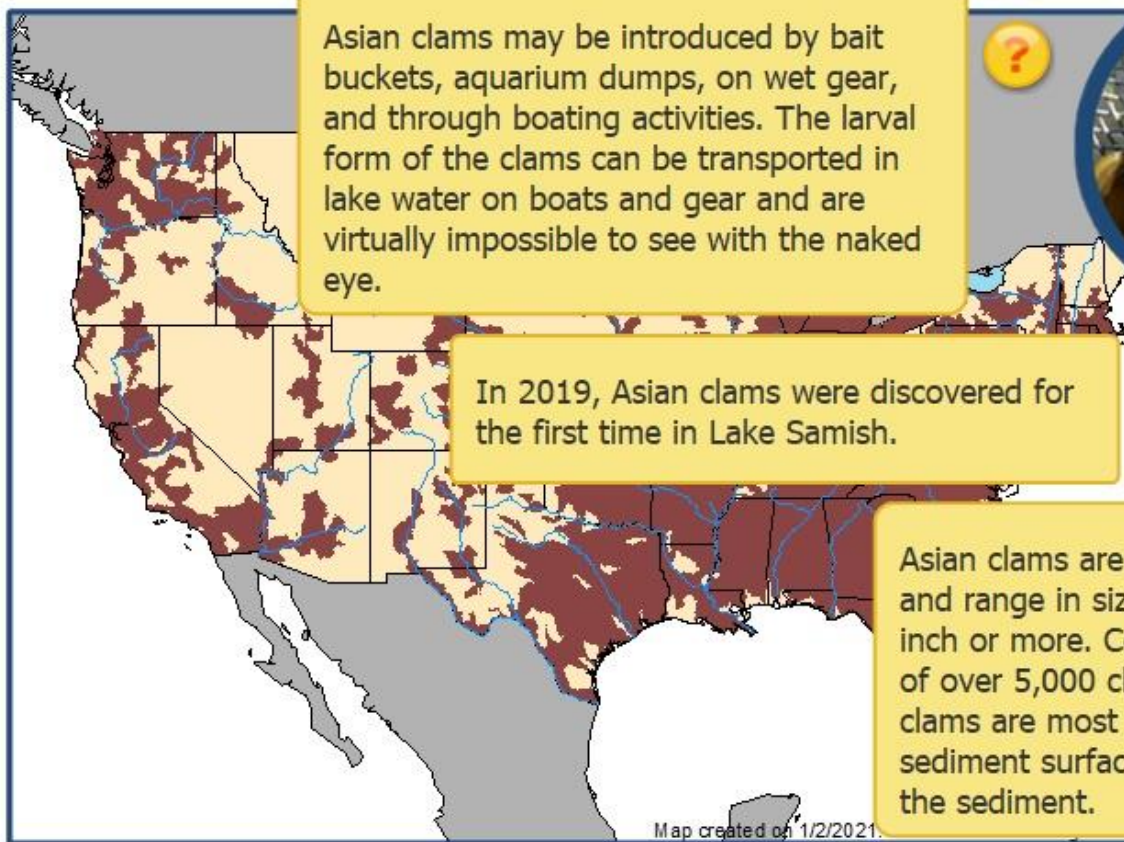
Eurasian watermilfoil has been present in Lake Whatcom since the early 1970s and is currently found in scattered patches throughout the lake.



A fingernail-sized piece of Eurasian watermilfoil is all it takes to start a milfoil problem in another lake, but like other submersed aquatic plants they are unable to spread on land and can dry and decompose quickly. Eurasian watermilfoil has feather-like leaves and can reproduce rapidly, forming dense mats along the surface of the water. This results in reduced light and can have negative impacts on native plant populations and water quality.



Asian Clams



Asian clams may be introduced by bait buckets, aquarium dumps, on wet gear, and through boating activities. The larval form of the clams can be transported in lake water on boats and gear and are virtually impossible to see with the naked eye.

In 2019, Asian clams were discovered for the first time in Lake Samish.

Asian clams are brown to golden in color and range in size from $\frac{1}{4}$ inch up to 1 inch or more. Colonies can reach densities of over 5,000 clams per square yard. Asian clams are most often found on the sediment surface or slightly buried below the sediment.



Asian clams were discovered in both Lake Whatcom and Lake Padden in 2011 and in Lake Samish in 2019. These clams have the potential to cause dense algal blooms, and can make recreational areas hazardous and uninviting when their shells accumulate on beaches and in swimming areas.

Our best management option is to prevent the spread of Asian clams to new waterbodies by cleaning, draining, and drying boats (including any gear) and never dumping bait buckets or aquariums into waterbodies.



New Zealand Mudsnails

New Zealand Mudsnails tolerate a wide range of salinity levels, temperatures and water quality conditions making it incredibly easy for them to adapt to new environments.

These snails are found in Washington State in the Lower Columbia River, Capitol Lake in Olympia, in at least three tributaries of Lake Washington, and in the Chehalis and Snohomish Rivers.

In 2018, New Zealand mudsnails were found in Lake Padden. This is the first time they've been seen in Whatcom County.



New Zealand Mudsnails reproduce by cloning, so it only takes one snail to start a new population. That one snail reproducing can exponentially increase the population by 12 million in just three seasons.

Because they are so small, they can be transported very easily on boats and equipment such as boots, waders, tackle, etc. While they are not considered a primary food source, New Zealand mudsnails can also pass through the digestive system of fish and waterfowl unharmed.

To prevent their spread to Whatcom County waters, you should clean and dry everything that comes into contact with water, even the family dog!



Zebra and Quagga Mussels



Credit: US Forest Service



Among the most damaging aquatic invasive species that could appear in Whatcom County are the zebra and quagga mussels. Zebra and quagga mussels have shells that are typically marked by alternating light- and dark-colored stripes and range in color from yellowish to darker brown in color. These very small freshwater mussels have wreaked havoc throughout much of the United States since their detection in the Great Lakes in the late 1980s.



Zebra and Quagga Mussel Distribution



Source: U.S. Geological Survey, Nonindigenous Aquatic Species Database, April 2011

Zebra and Quagga Mussels first appeared in North America in the mid-1980s when they were brought to the Great Lakes by large, transoceanic ships in ballast tanks.

In 2007, quagga mussels were discovered in the western US at Lake Mead, 1,000 miles farther west than any other known quagga mussel infestation at the time. Since that time, the mussels have continued their westward spread by hitchhiking on recreational boats. Today, either one or both species are now documented in California, New Mexico, Arizona, Nevada, Colorado, and Utah.

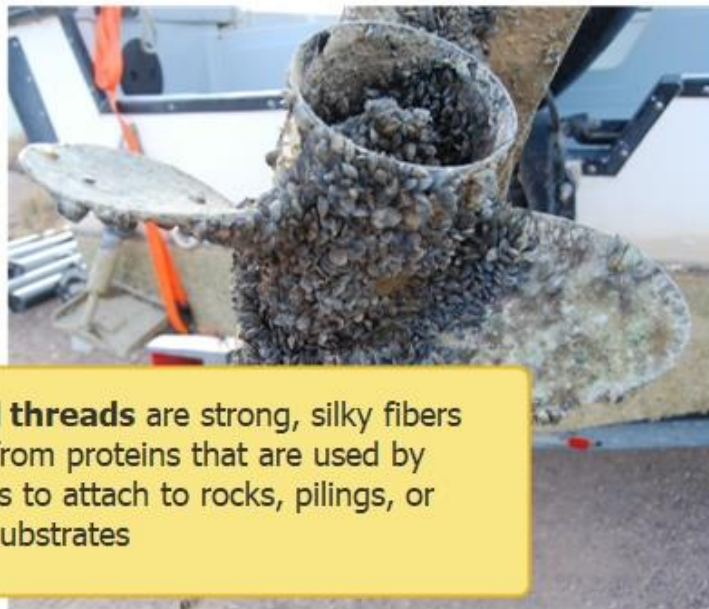
The closest currently known infestation of quagga mussels to Washington is located in Nevada - approximately a 16-hour drive from Whatcom County. This may seem really far away, but adult mussels can live out of the water for up to 30 days when the air temperature and humidity are ideal.



Expert Hitchhikers



Credit: Portland State University, Center for Lake and Reservoirs



Byssal threads are strong, silky fibers made from proteins that are used by mussels to attach to rocks, pilings, or other substrates

Credit: National Park Service

Since their initial introduction, the primary vector for spreading zebra and quagga mussels to uninfested waterbodies has been via trailered watercraft. Unlike native North American mussels, these mussels are capable of attaching themselves to a large variety of substrates using **byssal threads**. This adaptation allows zebra and quagga mussels to spread easily to uninfested waterbodies by hitching a ride on boat hulls, motors, and recreational equipment.



Potential Damage

Billions of dollars in damages

> \$1 Billion in control costs

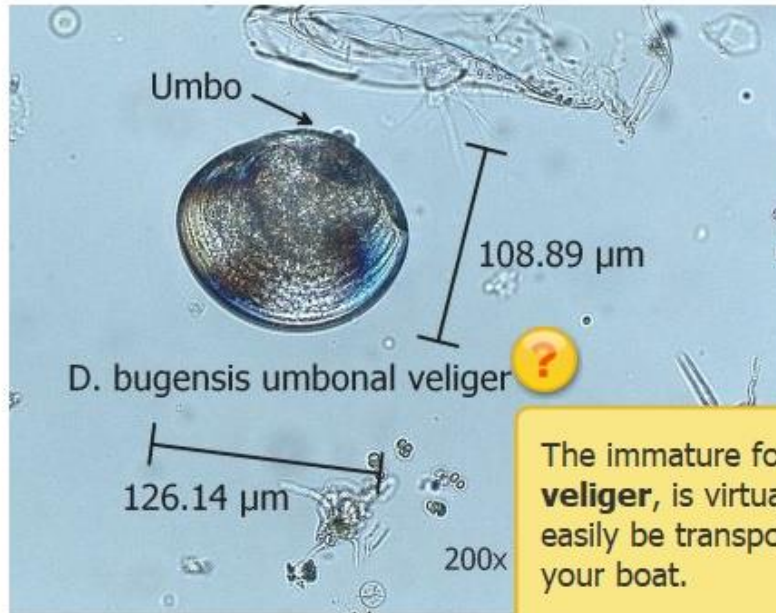
Mussel densities of well over 100,000 per square yard have been observed in several waterbodies, resulting in billions of dollars in damages and estimated annual control costs of at least \$1 billion nationwide.

If these mussels were to become established in Lake Whatcom, they could:

- Clog water intake pipes resulting in reduced flows to municipal water supplies
- Increase water treatment costs
- Damage dams, piers, docks and pilings
- Create long-term taste and odor issues in drinking water supplies
- Cover beaches and swimming areas with sharp shells
- Damage boats and equipment
- Decrease property values



Difficult to Detect



The immature form of the mussel, or **veliger**, is virtually invisible and can easily be transported in lake water left on your boat.

While adult mussels are fairly visible and easier to spot, it is the immature form - veligers or larvae - which are virtually invisible in the water that pose the bigger detection problem. This is why it is very important to clean, drain, and dry everything that has been in a lake so as not to move these organisms between waterbodies.

You can view a map of the current distribution of quagga and zebra mussels here:

http://nas.er.usgs.gov/taxgroup/mollusks/zebramusel/maps/current_zm_quag_map.jpg

Part 2

What strategy are local jurisdictions using to prevent the spread of AIS?

The goal of the Aquatic Invasive Species (AIS) Program is to protect Whatcom County's natural resources, infrastructure, recreation, wildlife, and economy from the impacts of aquatic invasive species by

1. preventing the introduction of zebra and quagga mussels, and other aquatic invasive species, into Whatcom County waters, and
2. stopping the spread of established aquatic invasive species into new waters.



The AIS Program in Action

Inspecting and
decontaminating
watercraft and
recreational
equipment

Educating the
public on ways to
prevent the spread
of AIS

Monitoring lakes to
ensure early
detection of new
infestations

Local jurisdictions are carrying out the AIS program by inspecting and decontaminating watercraft and recreational equipment, educating the public on the importance of keeping invasive species from entering water bodies and on ways to prevent their spread, monitoring lakes for the presence of new aquatic invasive species and to determine program effectiveness, and modifying the AIS program as necessary to protect Whatcom County's lakes.



Spreading the Message



ent
com County

One of our best prevention strategies is the use of education and outreach via websites, radio, television, newspapers, brochures, mailings, community meetings, and one-on-one discussions with boaters and the public. All of our education and outreach efforts are designed to help the public to understand the threat that invasive species pose to Whatcom County waters and steps they can take to help prevent their spread.



Required AIS Inspection

Required Inspection: **Motorized Boats**

Jet skis

Sailboats

Kayaks

Canoes

Rowboats

Exempt: **Paddle boards**

Kite boards

Small inflatables < 10 ft



The Aquatic Invasive Species Programs requires that all watercraft be inspected and permitted prior to launching and while operating on Lake Whatcom or Lake Samish. This includes motorized boats, including jet skis, and non-motorized watercraft such as sailboats, kayaks, canoes, and rowboats. The only exceptions are paddle boards, kite boards, and small inflatables that are less than 10 feet in length. Since the presence of a permit is the only way to tell whether a boat has been inspected or not, you still need to have your watercraft inspected and permitted at least once each season even if your boat never leaves the lake.



CLEAN · DRAIN · DRY



1. CLEAN



2. DRAIN



3. DRY

Inspectors remind boaters to follow these three simple steps to prevent the spread of aquatic invasive species:

- CLEAN - Remove all aquatic plants, animals, and mud then, thoroughly wash everything, especially in crevices and hidden areas.
- DRAIN - Drain water from your boat, trailer, tackle and gear, including wells, bilge, and engine cooling water before leaving the area.
- DRY - Allow sufficient time for your boat and equipment to completely dry before entering other waters.



AIS Check Stations

One-on-One Contact

Risk Determination

Physical & Visual Inspection



Aquatic invasive species check stations allow for one-on-one contact with boaters to determine where and when their boats were last used, particularly in the last 30 days. Inspectors use this information to make an initial risk determination and then conduct a physical watercraft inspection of the outside of the boat, as well as any internal compartments and equipment on board. Inspectors both look and feel for any evidence of aquatic invasive species or standing water using flashlights, mirrors, and magnifying glasses.



Inspection Process



Inspectors begin the inspection by introducing themselves and by giving you a brief overview of the AIS Program and the purpose of the inspection. They will then ask you questions about your boat, such as registration number, length, type, how many compartments, and where and when it was last used. They will also ask you about any other waterbodies where you have taken your boat in the past. All of this information will help the inspector to make an initial risk determination.

Inspectors don't just rely on your answers to their questions when making a risk determination though, they also rely on visual and physical evidence. Inspectors will start the inspection process at one end of the watercraft. They will then work their way around the boat looking and feeling for any sign of mud, vegetation, mussels, snails, or other species that may be attached to the hull. They'll also look at any equipment on board and, in the case of trailered vessels, they will check the trailer rollers and bunks for any sign of attached plants.

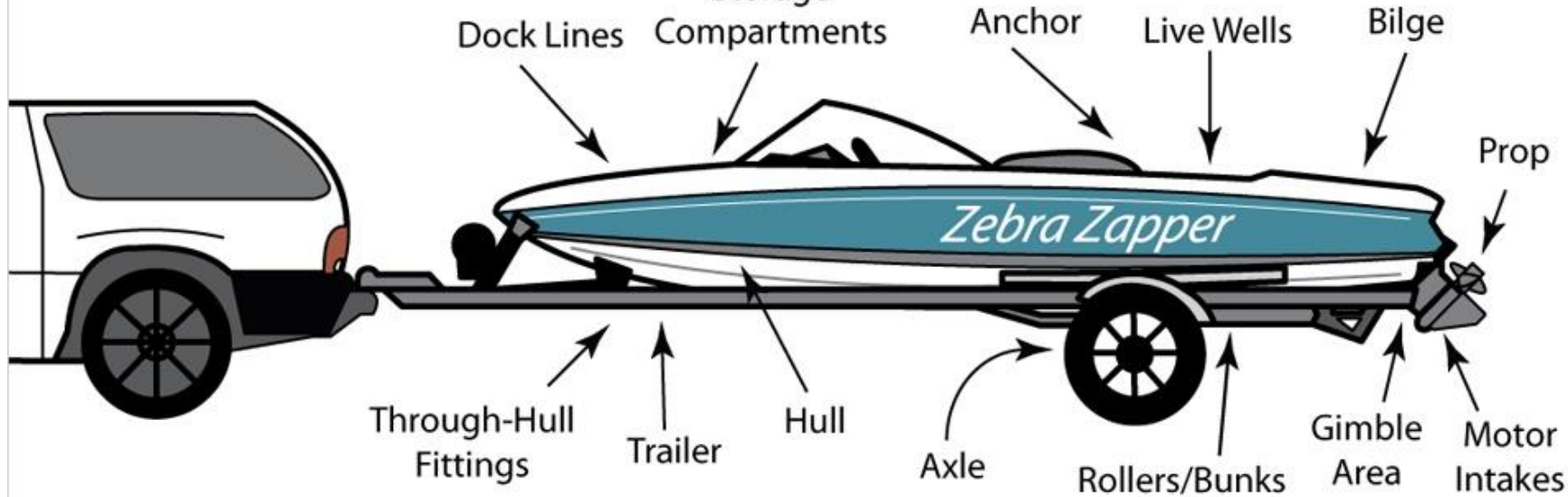
Inspectors pay special attention to more complex boats with intakes, upper and lower motor areas, trim tabs, and propellers as there are lots of hard-to-see places where aquatic invasive species can hide. The inspectors will also ask you to open up any internal compartments on board so they can check to see if the boat has been completely drained or if there is standing water present.



Be Ready for Inspection



Storage



Planning ahead can help you get through the boat inspection process in minimal time. The inspection process itself can take as little as 5 minutes.

Remember: inspections include looking into compartments only accessible by boarding your boat. Boat inspectors are looking for wet and dirty areas that could be harboring invasive species. The inspection process will take longer if there is a lot of gear blocking access to compartments that have to be checked. Equipment and areas on your boat, such as lines, anchors, live wells, bilges, ballasts, and engines, that are found wet, damp, or dirty may require decontamination.



Wire Seals



Boats launching at a location with an Aquatic Invasive Species Check Station are required to be inspected every time they launch unless they have been tethered using an AIS Program wire seal. If you plan on returning to the same location on your next visit, you can ask an inspector to tether your boat to your trailer to speed up your next launch.

Please Note: Wire seals are not available for hand-carried, non-motorized watercraft. These watercraft will need to be inspected every time; however, inspections should not take longer than 5 minutes depending on the size of the craft.



Non-motorized Watercraft



1. CLEAN



2. DRAIN



3. DRY

Aquatic invasive species can collect in any water left in cockpits and hatches, cling to outer hulls, rudders and paddles, and even hide out in your gear. Paddlers need to follow these three very simple steps every time they haul out of a waterway to prevent the spread of aquatic invasive species:

CLEAN - Start at the stern and look for any plant fragments or mud. If you have a hose available, spray down the boat and flush it out. If you don't have access to high-pressure water, you can give the boat a rinse using your bailer bag and then take a quick-dry towel to wipe it off.

DRAIN - Immediately after exiting a body of water it's important to clean your boat and also to drain out any water. It's helpful to have two people to drain a canoe or kayak but you can also do it on your own. Tip your boat from bow to stern and from side to side to get any water out of the decking, cockpit and any hatches.

DRY - The best thing you can do to dry your canoe or kayak is to use a synthetic, quick-dry towel. You'll want to use it to dry out the inside and outside of your watercraft. Then, lay your gear out and inspect and dry it off as best as you can with the towel.

Inspectors will be checking both the inside and outside of your paddle-craft for any evidence of aquatic invasive species or standing water so as long as you clean, drain, and dry your watercraft beforehand, you should be through the inspection line in no time!



Decontamination



 **CLEAN**

 **DRAIN**

 **DRY**

If any evidence of aquatic invasive species or standing water is found, the boat will not be allowed to launch and may need to be decontaminated. As long as you clean, drain, and allow sufficient time for your boat and equipment to completely dry before showing up at an Aquatic Invasive Species Check Station, it is very unlikely that your boat will require a professional decontamination.



Decontamination Process



If deemed necessary, you may be required to have your boat decontaminated using high-pressure, hot water. The goal of decontamination is to kill and remove all visible mussels or suspected aquatic invasive species.



Decontamination Levels

From local waterbodies: **No charge to clean off plant fragments**

From AIS waterbodies: **\$25 for 30-minute hot (or evidence of AIS) high-pressure wash**

Complex boats w/ AIS: **Fee for full decontamination at a marina**

For boats that are coming from local waterbodies and are found to be carrying plant fragments, inspectors will remove the fragments and clean the area in question on site for no charge.

Boats that have indications of other invasive species or that were last used in an area known to have invasive species may require decontamination using high-pressure, hot-water. For most recreational boats, the decontamination will be conducted by our staff for a fee of \$25. The decontamination will involve the boat and its systems being flushed using 140 degree water to destroy any possible remaining invasive species that might pose a risk to Whatcom County waters. Decontaminations using the AIS Program's high-pressure, hot-water mobile unit will take about 30 minutes.

Owners of more complex boats with internal ballast tanks or bladders (such as wakeboard boats) with signs of invasive species will be encouraged to take their vessels to a marina for a more thorough decontamination at the owner's expense.

Once the watercraft has been decontaminated, an inspector will re-inspect the watercraft to determine if all aquatic invasive species have been removed. If the watercraft passes re-inspection, it will be allowed to launch.



Penalties

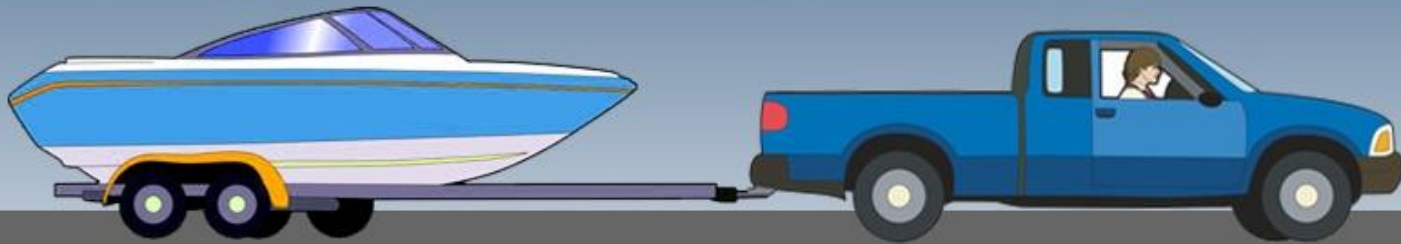
Failure to comply with these requirements can result in penalties of up to \$1,000.

Whatcom County Code Chapter 2.27A
Bellingham Municipal Code Chapter 12.12.280
RCW 77.15.290

Because of the potential serious impacts from the introduction of aquatic invasive species into Whatcom County waterbodies, failure to comply with these requirements can result in penalties of up to \$1,000.



Know before you go...



Know what steps to take to prevent the transport of AIS

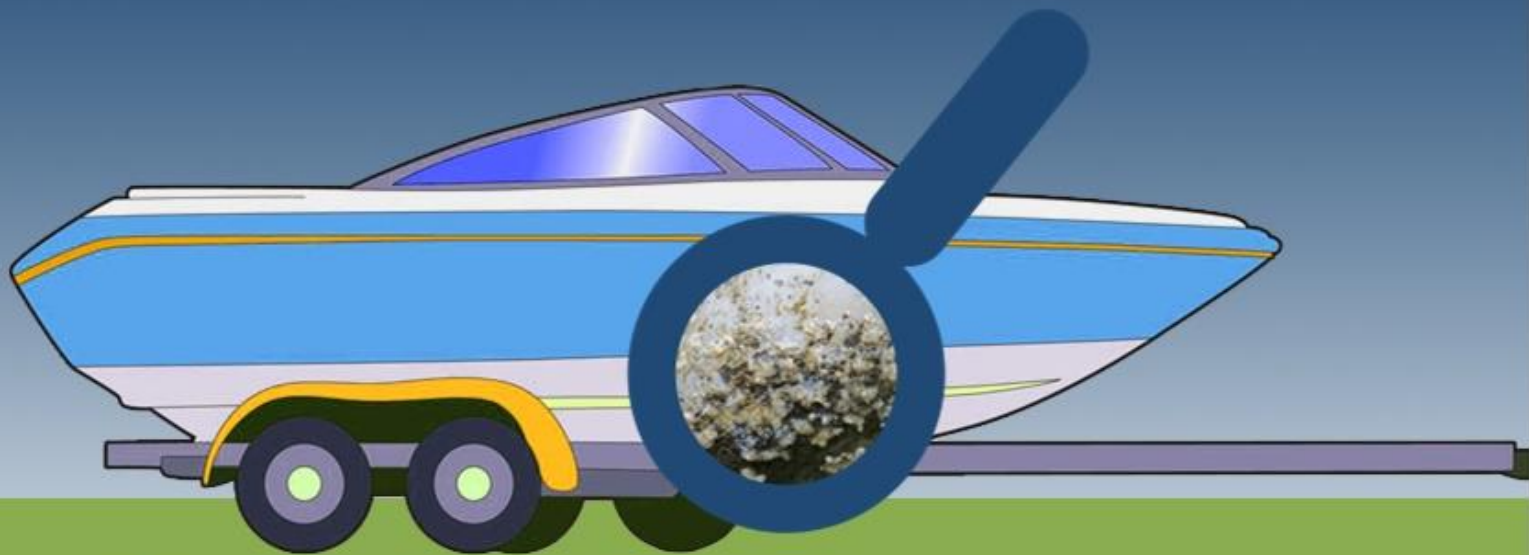
Know before you go - When going out for a day of fishing or boating, it's important that you know ahead of time whether you will be at risk for transporting aquatic invasive species. Whenever possible, avoid taking your watercraft to waterbodies infested with aquatic invasive species or consider renting a watercraft when you get there. The best way to avoid spreading aquatic invasive species is to only use one lake. If you have to take your watercraft to a waterbody that is infested with aquatic invasive species, make sure you know what steps to take to prevent the transport of those species to uninfested waters.

Note: would like to add some graphics to this (ex: a drawing of brain for this slide)

Note from Whatcom: I think drawings would be great here. If that doesn't work, we have some images that could go here too (i.e. someone looking up info on a computer, inspecting their boat, and the new clean, drain, dry image with the blue background).



Inspect **EVERYTHING!**



**Drain any standing water and
then use a towel to dry the area**

Before launching and before leaving, inspect everything - Do your own inspection by checking the exterior and interior of your watercraft for any aquatic hitchhikers! Remember to look and feel for AIS as they can be hard to see. If you find something, remove it and dispose of it in the trash or in an area away from the water. If you find standing water, drain it as best you can and then use a towel or fan to dry out the area.



Clean, Drain, and Dry **EVERYTIME!**



1. CLEAN



2. DRAIN



3. DRY

Remember: Clean, Drain, and Dry - To avoid spreading aquatic invasive species, you should always follow these three steps before launching in a new waterbody:

- **CLEAN** - Remove all aquatic plants, animals, and mud then thoroughly wash everything, especially in crevices and hidden areas.
- **DRAIN** - Drain water from your boat, trailer, tackle and gear, including wells, bilge, and engine cooling water before leaving the area.
- **DRY** - Allow sufficient time for your boat and equipment to completely dry before entering other waters.



Certification

It's now time to take the final exam. Once you have answered all of the questions correctly, you will be asked to enter some information on the screen (Name, Email, Address). You will then be able to download a copy of your Certificate of Completion to your computer. A copy of your Certificate will also be emailed to you for future use. You will need to print out your Certificate and bring it with you to your inspection to receive your discount(s).

START FINAL EXAM