

WHAT ARE AQUATIC NUISANCE SPECIES (ANS)?

Throughout history, man has introduced non-native plants and animals to new *marine* and *freshwater* areas. Whether intentionally or accidentally initiated, these organisms may be freed from the natural predators, parasites, pathogens and competitors that have kept them in check. Once established, these non-native species can create negative impacts such as displacing native species; dramatically increasing the operating costs of existing infrastructures; and degrading ecosystems. Due to the impacts of these organisms, they are referred to as *Aquatic Nuisance Species (ANS)*.

WHAT LINKS ANS AND WATER-BASED RECREATION?

Americans love to spend time on the water. Millions of people annually participate in boating, fishing, jet-skiing or sailing. Also, as a highly mobile society, we can travel extensively in pursuit of new recreation areas. Alone, these factors contribute positively to society, but when combined with a lack of awareness or understanding about the impacts of ANS, an expensive problem arises that could cost millions of dollars.

Research has identified water-based recreation as a potential transportation pathway for the spread of ANS.

Additional studies show that participants in these activities will take action to prevent ANS introductions if they know what to do. Conversely, without proper information, they will do nothing to prevent this problem. To promote behaviors that limit the ANS spread, the *ANS Task Force* developed these guidelines.

What Activities Are Addressed By the Voluntary Guidelines?

The Guidelines address these activities:

SCUBA DIVING	BOATING
WATERFOWL HUNTING	SEAPLANE OPERATIONS
BAIT HARVESTING	PERSONAL WATERCRAFT
ANGLING	USE

GENERIC GUIDELINES

Some guidelines are appropriate for any water-based recreational activity. The ones

listed below apply to most recreational activities occurring in marine and inland waters. States and provinces may include other specific laws and guidelines.

ALWAYS DO THE FOLLOWING:

Always Inspect Equipment - Look for visible plants and animals before traveling. Remove everything from equipment.

Always Drain Water - Eliminate water from equipment before transporting.

Always Clean Equipment/Working Dogs - When leaving infested waters, clean hunting dogs and equipment before going to other waters (see "Pathway Specific Guidelines" for more info).

Always Report Questionable Species - Contact your local resource agency for identification assistance. ANS information is available from many sources; but specimens are needed to confirm sightings. Different locations have different rules regarding possession and transport. Always consult your resource agency for instructions.

AVOID THE FOLLOWING:

Transporting Animals/Plants - Specifically, mud, aquatic plants and animals from lakes, rivers, wetlands and coastal areas.

Releasing Animals/Plants - This includes all aquarium species, bait, pets or water garden plants. Do not release these into the wild without knowing that the organism is native to the waterbody.

PATHWAY-SPECIFIC GUIDELINES

These guidelines cover activities that are potential pathways for transferring ANS. Note that states/provinces may have other laws and guidelines.

SCUBA DIVING

SCUBA divers can unintentionally transport ANS between waters. Precautions should be taken to reduce the risk of carrying ANS, especially when diving in different waters on the same or repeated days. Many divers believe zebra mussels have benefited the sport by improving water visibility. But, they soon learn the things that attracted them become encrusted, which obscures these features.

Thus, the harm caused by ANS outweighs any benefit. Divers can reduce the impacts by following a few basic steps.

GUIDELINES

- Check gear, clean organic matter/mud.
- Drain tank, regulator, buoyancy compensator (bc), boot and other equipment.
- ANS can survive for a period of time on wet scuba gear. To prevent this:
 - ❖ rinse and dry suit and equipment before diving in different waters;
 - ❖ rinse inside of bc with hot or salt water;
 - ❖ wash/rinse suit, equipment and inside of bc with hot (<40° C or 104°F) or salt (1/2 cup salt/gallon) water.



Boat motor covered with Zebra Mussels after being in waters invaded by Zebra Mussels.

WATERFOWL HUNTING

ANS can significantly damage wildlife habitat. Waterfowl hunters should be aware that it is possible to inadvertently spread ANS from a contaminated lake or

wetland via boats, motors, trailers, and decoys. Waterfowlers should also assume that all aquatic plant fragments are potentially harmful and should not be moved between aquatic areas. Zebra mussels and their larvae can attach to aquatic plants. If plant fragments are moved, they can carry larvae to other waters. Hunters can prevent ANS impacts with these steps.

GUIDELINES

BEFORE THE HUNTING SEASON —

- Switch to bulb-shaped, or strap anchors on decoys to avoid aquatic plants;
- Clean boats, if moored in waters known to contain Zebra Mussels. Use these tips to remove or kill zebra mussels and other aquatic life that adhere to boat:
 - ❖ remove visible zebra mussels;
 - ❖ wash/rinse with hot water;
 - ❖ spray with high-pressure water;
 - ❖ dry for 5 days before entering new waterbody.

AFTER THE HUNTING SEASON —

- Inspect waders/hip boots; remove plants; and rinse mud;
- Remove plants, animals and mud that are attached to lines or anchors; and
- Drain boats before going to new waters.

BETWEEN HUNTING TRIPS —

- Inspect/remove mud, aquatic plants and animals from equipment, hunting dogs.
- Follow the boater guidelines.

CONTINUED ON THE BACK SIDE.



Chinese Mitten Crabs are one of the many marine ANS that can be transported via recreational activities.



Scuba divers can transport ANS via their equipment.

BAIT HARVESTING

These guidelines apply to non-commercial bait harvesting. ANS can lodge in nets and other equipment and can be unintentionally transported into other waters. Some species can survive up to 2 weeks out of water and remain viable when dislodged into another waterbody. Non-target ANS like ruffe and round goby, and plant fragments, like hydrilla or Eurasian water milfoil, can be harvested with baitfish. If moved, they can negatively impact fish populations in other waters. Use these measures to reduce ANS impacts.

GUIDELINES

- Inspect for and remove non-target species.
- Dispose of excess live bait on land before leaving the water. Never release or transport bait, aquatic plants between waters.
- Clean boats, trailers and equipment on shore before leaving the access point.
- Hand clean and dry nets before reuse.
- Drain water from boats and equipment before leaving any waterbody access.
- Never use water known to contain ANS to transport live bait. In many states and provinces, it is illegal to harvest from these waters. Before harvesting, check with your local resource agency about any regulations.
- In areas known to harbor ANS where bait harvest is legal, do not use the same equipment in other water. Some ANS can survive out of water for two weeks. By thoroughly drying equipment, this risk can be reduced.
- Rinse and dry equipment, boats and trailers for five days. Before reuse, roll out, hand clean and dry nets for ten days.
- The following formulas can be used to clean hard-to-treat equipment. Use 100% vinegar dip for 20 minutes to kill zebra mussels and other ANS. Chemical treatment with a 1% solution of table salt for 24 hours can replace the vinegar dip. This table provides correct mixtures for the 1% salt solution in water.



Recreational fishing, due to all the potential equipment, can provide many inadvertent ways to transport ANS.

Gallons of Water	Cups of Salt
5	2/3
10	1 1/4
25	3
50	6 1/4
100	12 2/3

ANGLING

ANS can cause significant changes in aquatic ecosystems. Fish populations (prey and game fish) can be harmed by fish like sea

lampreys, Asian swamp eels, Asian carp, and zebra mussels. Some plants (eg., hydrilla and water hyacinth) may limit fishing. Prevent the ANS expansion with these steps.

GUIDELINES

- Dispose of excess live bait on land. Never release into new waters.
- Wash/dry boat and equipment to kill ANS.
- Inspect for and dispose of all non-target species.

BOATING

Recreational boaters can inadvertently transport ANS due to the high survivability of these organisms. These guidelines can help prevent this spread.

GUIDELINES

- Before leaving, inspect boat and equipment and remove all plants and animals.
- Drain water from motor, livewell, bilge, and transom wells on land.
- Wash and dry boat, trailer, downriggers, and other boating equipment to kill ANS not visible at the boat launch.
- Before traveling to other waters, do one of the following:
 - ❖ rinse boat and equipment with hot (< 40 °C or 104 °F) water;
 - ❖ spray with high-pressure water or dry for 5 days.

SEAPLANE OPERATIONS

Seaplanes can transport ANS between waterbodies on their floats. It is important to clean the aircraft and remove ANS before traveling, rather than after landing in new waters. Pilots are advised to include these steps into their flight operations. As always, safety is the first priority when using the guidelines.

GUIDELINES

BEFORE ENTERING THE AIRCRAFT —

- Inspect/remove plants from floats, wires or cables, and water rudders;
- In infested water, check transom, bottom, chine, wheel wells, and float step area.
- Pump water from floats.
- Use these methods to kill ANS:
 - ❖ wash/spray floats with hot or high-pressure water;
 - ❖ dry for 5 days.

BEFORE TAKEOFF —

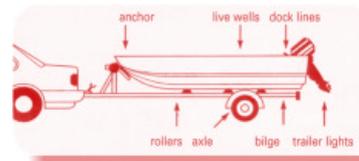
- Do not taxi through heavy aquatic plant growth prior to takeoff;
- Raise and lower water rudders to clear off plants, minimize cable stretch and improve steering effectiveness.

AFTER TAKEOFF —

- Raise/lower water rudders several times to free aquatic plant fragments while

over the waters you are leaving or land;
- If aquatic plants remain visible on the plane, return and remove them.

STORAGE OR MOORING —



This figure shows some key areas to examine when cleaning a boat to prevent the spread of ANS.

- Remove aircraft from the water and allow parts to dry. Summer temperatures will kill adult zebra mussels (longer time is required for cool, humid weather);
- Aircraft moored for

extended periods in waters may have ANS attached and should be cleaned regularly. In remote locations, zebra mussels or other ANS may be present. If no cleaning equipment is available, the best prevention option is to hand-clean the submerged floats with a scrub brush and to physically remove any ANS.

PERSONAL WATERCRAFT USE

Personal watercraft (PWC) have jet-drive systems requiring extra precautions to avoid ANS transport. A pump pulls water in an opening under the PWC, and an impeller forces water out, moving the PWC ahead. If moved to different waters, beware of ANS that have been lodged in the jet-drive. The impellers could catch a plant fragment that could result in an infestation of new waters. The jet drive holds extra water, which could harbor live zebra mussels and spread them to other waters. With these steps, you can ensure an ANS-free PWC.



Personal Watercraft can transport ANS via their internal jet drive system.

GUIDELINES

IN THE WATER —

- Do not run PWC through aquatic plants.
- After loading onto trailer, run engine to blow out excess water and vegetation.

ON THE TRAILER —

- After trailering PWC, run engine to blow out excess water and vegetation;
- After shutting down, pull plants out of the steering nozzle. Inspect trailer and other equipment for aquatic plant fragments, and remove them before leaving the access area.

AFTER TRAILERING AND BEFORE RE-USE —

- Wash and dry PWC to kill/remove ANS not visible at the boat launch.
- Disinfect before entering new waters by:
 - ❖ rinsing pwc, other equipment with hot (< 40 °C or 104°F) water;
 - ❖ spraying with high-pressure water;
 - ❖ drying for 5 days.