

Invasive Species Introduction During Fish Screening and Passage Construction Activities



Eric Egbers

Washington Department of Fish and Wildlife

Resource agencies are involved in field construction activities that have the potential to spread invasive species from one location to another.

Field construction managers should strive to implement a *planning process* in order to prevent the unwanted spread of invasive species.

Presently that process is the **Hazard Analysis and Critical Control Points** (HACCP) plan.

Excerpt from the Western Regional Panel (WRP) of the Aquatic Nuisance Species Task Force (ANSTF) annual meeting minutes held September 12 and 13, 2007 in Honolulu, Hawaii.

It is well documented that the movement of equipment between water bodies is a significant vector for the spread of zebra mussels and other ANS. **Federal, state, and regional entities and their contract awardees frequently move equipment between waters as part of their associated activities.** Without the implementation of proper decontamination protocols prior to equipment movement, ANS can be unknowingly and illegally transferred from infested waters to uninfested areas. The Western Regional Panel recommends that the ANSTF recognize this as a significant vector for the spread of ANS and **encourage member agencies to require decontamination of all equipment prior to movement.** This can be accomplished through **HACCP planning** as well as special permit provisions for contract awardees. Often recommendations adopted at the top level of government are not disseminated at the local level. **This recommendation needs to be implemented at all levels of government to ensure a 'zero spread' of ANS via government activities.** The Western Regional Panel will draft decontamination recommendations for quick incorporation into agency contracts upon request by the ANSTF.

HACCP planning has been modified from the *food industry* for natural resource work.

The food industry uses the HACCP planning tool to *eliminate product contamination*.

In natural resource pathways, hitchhiking *invasive species are the contaminants*.

HACCP's comprehensive planning process *identifies these species* and the *risk of contamination* while documenting the *best management practices* used to prevent and remove these threats.

Five steps to HACCP planning

- Step 1 – Describe the activity and project
- Step 2 – Identify the potential hazards (species)
- Step 3 – Identify the project tasks
- Step 4 – Perform a hazard analysis
- Step 5 – Develop the HACCP plan

HACCP Step 1 – Activity Description

Activity Description	
Facility: WDFW Owned and Managed Lands	Site: Upper Columbia River Basin
Project Coordinator: WA Department of Fish and Wildlife	Activity: The Washington Department of Fish and Wildlife (WDFW) proposes to conduct watershed-based inventories of all fish passage barriers and unscreened or inadequately screened water diversions on WDFW owned and managed lands within the upper Columbia River basin.
Site Manager: WA Department of Fish and Wildlife	
Address: State of Washington Department of Fish and Wildlife 600 Capitol Way North Olympia, WA 98501	
Phone:	
Project Description	
Who, What, Where, When, How, Why	
<p>The WDFW will dispatch one two-person inventory crew to inventory all fish bearing streams on WDFW owned and managed lands in the upper Columbia River Basin. All fish bearing streams will be walked and each human-made feature (dams, fishways, and water diversions) encountered will be assessed and prioritized following the protocols outlined in the <i>Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual</i> (WDFW 2000). Habitat assessments will be conducted beginning with the first barrier encountered and continue upstream to the end of fish bearing waters. In accordance with the inventory protocol a survey is terminated at the first natural barrier defined as a waterfall greater than 3.7 meters in height or a sustained gradient that is greater than 20% for a distance greater than or equal to 160 meters in length. The data collected during this inventory will be used to prioritize those features for subsequent future correction.</p> <p>Instream surveys require the following gear and equipment that will or may come into contact with the surface water and stream bank: hip boots or waders, stadia rod, laser monopod, tile probe, surveyors tape, and mercury free thermometer.</p>	

HACCP Step 2 – Identify Potential Hazards

To be transferred to column 2 of the HACCP Step 4 Hazard Analysis Worksheet

Hazards – Species Which May Potentially Be Moved/Introduced
Vertebrates: All exotic fish species
Invertebrates: None of the listed invertebrates are known to be present in the upper Columbia River basin. New Zealand mud snail (<i>Potamopyrgus antipodarum</i>), Zebra mussel (<i>Dreissena polymorpha</i>), Quagga mussel (<i>Dreissena rostriformis bugensis</i>)
Plants: Both of the listed plants are known to be present in the upper Columbia River basin. Didymo (<i>Didymosphenia geminata</i>), Eurasian milfoil (<i>Myriophyllum spicatum</i>)
Biologics (e.g. disease, pathogen, parasite): None of the listed biologics are known to be present in the upper Columbia River basin. Chytrid fungus (<i>Batrachochytrium dendrobatidis</i>), Fish pathogens

HACCP Step 3 – Flow Diagram

To be transferred to column 1 of the HACCP Step 4 – Hazard Analysis Worksheet

Task 1	Travel in vehicle to the wildlife area to be inventoried
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Task 2	Conduct instream inventory by walking water bodies collecting physical data
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Task 3	Return and clean all wading gear and equipment
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Task 4	Travel in vehicle to the next wildlife area to be inventoried
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HACCP Step 4 - Hazard Analysis Worksheet

1 Tasks identified in HACCP Step 3.	2 Potential hazards identified in HACCP Step 2.	3 Are any potential hazards possible? (Yes/No)	4 Justify the column 3 evaluation.	5 What control measures can be applied?	6 Is this task a critical control point? (Yes/No)
Task 1 – Travel in vehicle to the wildlife area to be inventoried.	Vertebrates	No			No
	Invertebrates	No			No
	Plants	Yes	A vehicle can transfer invasive terrestrial plants and seeds from one location to another.	Visually inspect the vehicle and remove any plants, seeds, and soil. Thoroughly wash the vehicle, preferably at a commercial carwash or the use of power wash equipment, concentrating on the wheels, tires, and undercarriage, prior to entering a wildlife area for the first time.	Yes
	Pathogens	No			No
	Other: None	No			No

HACCP Step 5 – HACCP Plan Form

HACCP Plan Form

All critical control points or Yes's from column 6 of the Hazard Analysis Worksheet

Critical Control Point	Significant Hazard(s)	Hazard Control Measures and Limits	Monitoring				Evaluation & Corrective Action(s) (If needed)	Supporting Documentation (If any)
			What	How	Frequency	Who		
Task 1 – Travel in vehicle to the wildlife area to be inventoried.	Terrestrial plants and seeds	<p>Control measures Inspect the vehicle and remove any visible plants, seeds and soil. Thoroughly wash the vehicle, preferably at a commercial carwash or the use of power wash equipment, concentrating on the wheels, tires, and undercarriage, and reinspect before entering the wildlife area for the first time.</p> <p>Limits No visible plants, seeds, or soil on the vehicle.</p>	Vehicle	Secondary visual inspection after cleaning.	Once before leaving the cleaning site.	Inventory crew	Reinspect the vehicle. Rewash and reinspect until the control limit is met.	None



Reed Canary Grass



Eurasian Watermilfoil



New Zealand Mud Snails



Zebra Mussels (JT Carlton)



Zebra Mussels in Pipe



Zebra Mussels on Lock Walls



Ryegrass Seeds



Didymo (rock snot)



Chytrid Fungus Results



NEWS RELEASE

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
600 Capitol Way North, Olympia, WA 98501-1091



July 18, 2008

Contact: Sgt. Eric Anderson, (360) 902-2426

WDFW to enforce law requiring removal of aquatic plants from boats and gear

OLYMPIA – With summer in full swing, the Washington Department of Fish and Wildlife (WDFW) is reminding recreational boaters that they are **legally required to remove all aquatic plants from their boats and trailers** before driving away from the launch ramp.

Those that fail to do so could face a \$378 fine.

Washington state law makes it illegal to transport aquatic plants that may be dispersed unintentionally along roads and highways. The law, which is being enforced as of July 4 to help prevent the spread of aquatic invasive species, especially applies to recreational boaters whose vessels and gear get entangled with plants while in the water, said Bruce Bjork, chief of WDFW's enforcement program.

"If boaters don't remove all plants before they leave the ramp, they can easily spread into other bodies of water when the boat is launched again or if they're dislodged when traveling," Bjork said. "Noxious weeds such as **milfoil** are typically spread to lakes on boat trailers and fishing gear. **Controlling the extensive spread of milfoil alone has cost the state millions of dollars.**" Several other aquatic invasive plants such as **hydrilla** and **Brazilian elodea** are also showing up in Washington, which could cause further problems for native species and habitat, Bjork said.

"Enforcing the law is an important preventative measure in stopping their spread," Bjork said. To inform the boating public before the new enforcement action went into effect, WDFW officers conducted several educational patrols over the past year at boat launches throughout the state.



NEWS RELEASE

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
600 Capitol Way North, Olympia, WA 98501-1091



February 25, 2008
Contact: Allen Pleus, (360) 902-2724

WDFW works to keep invasive mussels out of state

OLYMPIA – In early February, a trailered boat covered with thousands of **quagga mussels** was decontaminated at the Washington-Oregon border. The vessel's engine and trim tabs were pressure-washed with scalding hot water at the Ridgefield Port of Entry, and the non-native mollusks were quickly destroyed.

The 24-foot pleasure boat was the 11th vessel in the past year found to be carrying **quagga or zebra mussels and cleaned at Washington's borders.** Both types of mussels – few larger than a nickel – are aquatic invasive species and are prohibited in Washington.

While the tiny mussels didn't make it into Washington, the mollusks have spread throughout a number of other states, overrunning public waterways and displacing native fish and wildlife.

"These invasive mussels have been found in several western states, and they continue to move closer to Washington every year," said Allen Pleus, aquatic nuisance species coordinator for the Washington Department of Fish and Wildlife (WDFW). "That's a big concern, because if they get into our waters, they will likely spread rapidly."

To help prevent the spread of these invasive mollusks, WDFW is working cooperatively with the Washington State Patrol to inspect commercially hauled watercraft at the state's Port of Entry weigh stations. WDFW enforcement officers also conduct vessel inspections during fishing seasons, while other department staff inspect boats at ramps and at events such as fishing tournaments.

Later this year, WDFW plans to operate several check stations for vessels and post signs with information about aquatic invasive species at boat launches and marinas throughout the state.

Excerpts from *The Oregonian* July 6, 2008

Danger: Hitchhiking Shellfish

“Zebra and quagga mussels could bring down the curtain on sport fishing in Wallowa Lake and many other waterways around Oregon”, said Steve Wells, a researcher for Portland State University's Center for Lakes and Reservoirs.

“The mussels would put irrigated agriculture in Wallowa County at serious risk”, (Mark) Porter (Wallowa Resources) said. “They can clog up a pipe up to 12 inches in diameter”, Wells said.

“If it became impossible to keep (fish) screens clear of the small organisms, agricultural operations might be shut down because threatened and endangered fish could not be kept out of irrigation canals”, Porter said.

Information Sources

- US Fish and Wildlife Service



www.haccp-nrm.org/

www.fws.gov/invasives/

- National Invasive Species Information Center

www.invasivespeciesinfo.gov/

- Idaho Invasive Species Council

www.agri.idaho.gov/Categories/Environment/InvasiveSpeciesCouncil/indexInvSpCouncil.php

- Oregon Invasive Species Council

www.oregon.gov/OISC/

- Washington Invasive Species Council

www.rco.wa.gov/invasive_species/default.htm



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Questions?



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