



New Zealand Mudsnaill Surveys at National Fish Hatcheries within the Lower Columbia River Basin



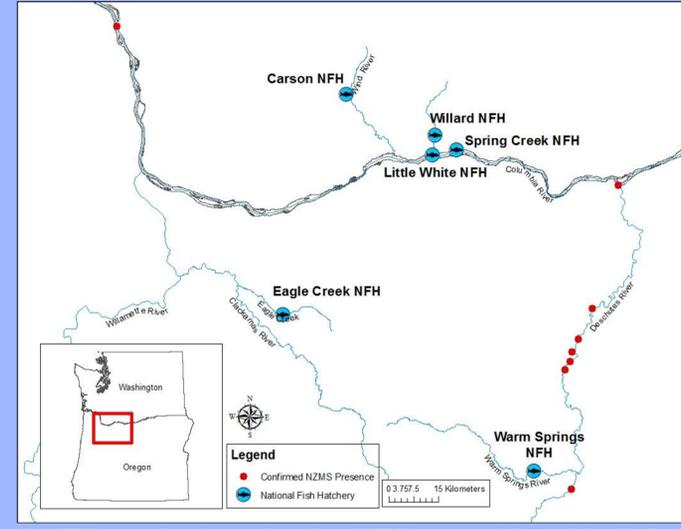
Jennifer Poirier

United States Fish and Wildlife Service, Columbia River Fisheries Program Office, 1211 SE Cardinal Court, Vancouver, Washington 98683, USA, (360) 604-2500

Background

New Zealand mudsnail (NZMS), *potamopyrgus antipodarum*, have been detected at a number of private, state and federal fish hatcheries within the Western United States. New Zealand mudsnail are an issue of concern for federal fisheries managers because hatcheries can be a major vector of spread.

Columbia River Fisheries Program Office has monitored for NZMS at six lower Columbia River Basin National Fish Hatcheries since 2006.



2011 NZMS survey locations and confirmed NZMS presence in lower Columbia Basin

Study Objectives

- Establish routine NZMS sample sites .
- Determine visually identifiable NZMS presence at sample sites.

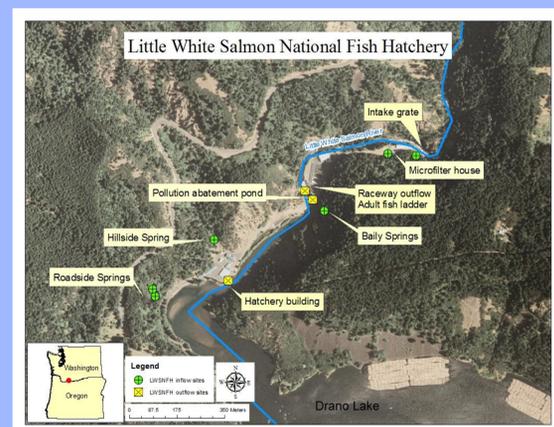
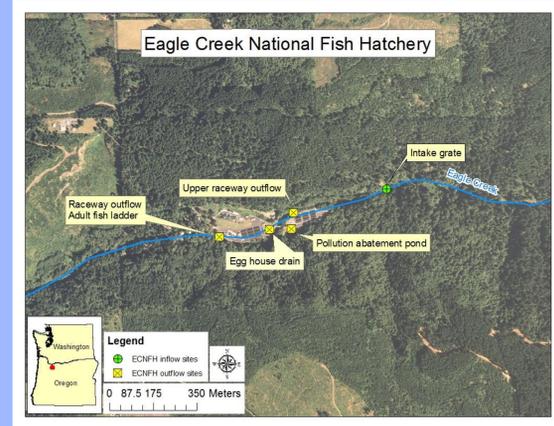
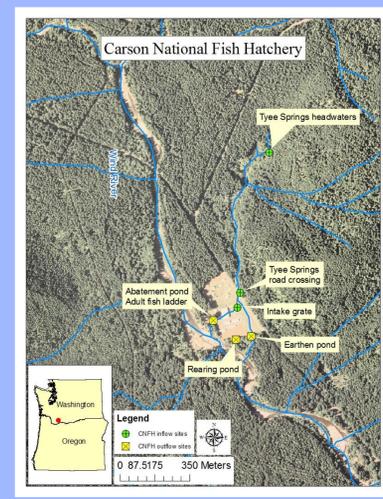


New Zealand mudsnail



Survey Methods

- Develop list of potential survey sites.
- Photograph and GPS sample sites.
- Two field personnel visually inspect area approximately 15 minutes.
- Substrate, aquatic vegetation and surfaces of hatchery structures (i.e., pipes, intake/outflow grates, concrete walls, dam boards and log booms) closely examined visually and by hand for presence of NZMS.
- Aquatic snail closely resembling NZMS collected and preserved for closer examination.



New Zealand Mudsnaill

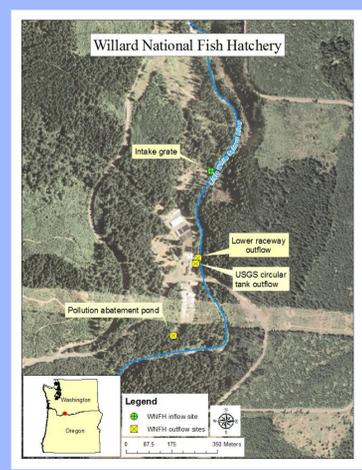
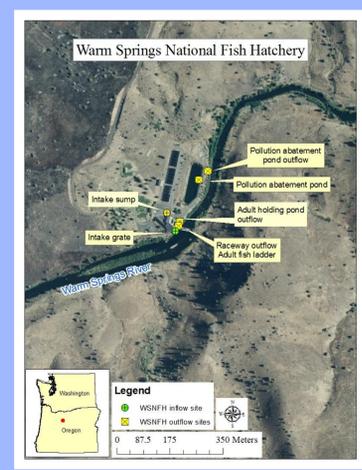
- 3-6 mm total length
- Conical shell with right-hand coil and 5-7 deeply grooved whorls
- Shell dark grey/brown to light brown
- Rigid operculum covers the opening of shell
- Self-cloning, Parthenogenetic reproduction
- Broad environmental tolerances
- Resistant to desiccation and digestion

Survey Results

- 35 total sites surveyed for NZMS
- 13 snail specimens collected for further examination
- No NZMS were observed during field surveys or examination of collected snail specimen.

Conclusions

- New Zealand mudsnail are present in Columbia River Estuary and lower Deschutes River.
- Close proximity of Warm Springs NFH to Deschutes River is cause for concern.
- Fish hatcheries may be vulnerable to infestation due to stable aquatic conditions and close proximity to popular sport fisheries and recreational areas.
- Hatchery operations such as fish stocking and transfers can be a major vector of spread.
- Performing annual NZMS surveys at National Fish Hatcheries is important because early detection is critical to the prevention, control and management of the species and may significantly reduce the risk of spreading the snail to new areas.



Acknowledgements

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