

**SITE SPECIFIC GUIDELINES  
FOR OPERATIONS DURING  
PACIFIC HERRING SPAWN WINDOWS**



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Prepared by:



## **Introduction**

The *Fisheries Act* prohibits activities which cause the harmful alteration, disruption or destruction of fish or fish habitat (HADD). Under Section 37(2) of the *Act*, Fisheries and Oceans Canada has the authority to modify, restrict or prohibit any work or undertaking which is likely to result in a HADD. Marine log handling operations which take place either near areas where herring historically spawn, or during times when herring are spawning, have the potential to cause disruption to herring and their eggs. Therefore, a monitoring program is required to mitigate negative effects on herring. The following document has been developed to ensure that log handling activities cause no harm or disruption to herring spawning or migration.

## **Species Biology**

Pacific Herring are a pelagic fish species found in the inshore and offshore waters of the Northeastern Pacific from California to the Beaufort Sea. They are a small (up to 46 cm in length), relatively short-lived finfish. Herring can be identified by their laterally compressed body with a dark green colour along their dorsal ridge and silvery white colour on the ventral side (Photo 1) (McConnaughey and McConnaughey, 1998).



**Photo 1:** Pacific herring sample.

Herring mature and recruit to the spawning stock predominantly between the ages of two and five (Fisheries and Oceans Canada, 2001). Spawning takes place in early spring (Feb – May) when mature adults migrate inshore, entering estuaries to breed. Herring spawn is usually restricted to sheltered inlets, sounds, bays, and estuaries (Photo 2). Most herring

spawn is deposited within 10m of the mean tide level, and >90% occurs within 150m of the inshore edge of spawning. Eggs are deposited on surfaces of vegetation in 1 – 5 layers on average, with a maximum of 20 layers found (Photo 3). Once deposited, the eggs take about 14 days to hatch in areas in the South Coast, and closer to 21 days in the north, depending on water temperatures (DFO Herring Spawn Survey Manual, 2009).



**Photo 2:** Herring spawn in shallow estuary area as shown by the milky spawn in water and eggs deposited on intertidal algae.



**Photo 3:** Close up view of herring eggs deposited on intertidal vegetation.

## Herring Spawning Windows

Operations taking place around marine and estuarine waters outside of the timing windows listed in Table 1 require a qualified environmental monitor present at the worksite. Historic timing of herring spawning events specific to different locations are available on Fisheries & Oceans Canada Pacific Herring website:

[http://www.pac.dfo-mpo.gc.ca/sci/herring/herspawn/pages/default0\\_e.htm](http://www.pac.dfo-mpo.gc.ca/sci/herring/herspawn/pages/default0_e.htm)

**Table 1:** Fisheries & Oceans Canada’s Least Risk Windows for operations around marine and estuarine waters

Location	Species	Timing Windows	
		Start date	Finish date
Lower Fraser Area	All	August 16	February 28
South Coast Area	All	June 1	February 15
Central Coast Area	All	July 1	February 28
North Coast Area Queen Charlotte Islands	All	January 1	March 1
		July 1	July 31
All other areas	All	November 30	February 15

## Monitoring Program

### *Schedule:*

During the spawning season, observations of the operating areas should be conducted daily. These observations can be made by boat from the water or by shoreline walks, and should include both the immediate area surrounding the log handling facility and nearby area.

### *Identification of Spawning:*

Herring often appear in large schools and ‘ball up’ when spawning. During large spawn events the marine water will often change to an opaque colour, with the deposition of eggs and milt (Photo 2). The appearance of large groups of marine birds and/or mammals may also occur during spawning events. Along the shoreline small white/translucent eggs

will be coated on intertidal vegetation or rocks. Herring monitors should be trained to differentiate between herring schools and pilchard schools.

*Reporting & Duties:*

One operator on-site should be designated the Herring Spawn Monitor and daily observations should be kept by this person. Refer to Appendix 1 for an example of the daily herring log. The designated Herring Monitor(s) will require training by a qualified registered professional (QRP) and will report to BCTS and the designated QRP. **Immediately contact the QRP for advice if herring have been observed in the area**, or if there is any question about the presence of herring within the vicinity of log handling operations. Site visits will be conducted by a QRP on an as-needed basis as soon as herring have been observed within the area; daily monitoring by the on-site operator should continue during this period.

Operations conducted outside of the historical spawn window should still be prepared for the possibility of a spawn occurrence, considering the poor historical record for much of the area. The following best management practices should be followed at any time of year:

- On-site operators should have a general awareness about Pacific herring and potential conflict with operations,
- During the spawning season daily observations should be conducted and recorded,
- **If spawning Pacific herring are noted within 1 km of the site, works should stop immediately**, resumption of operation may only occur upon consultation with the QRP.
- If herring should happen to enter the operational area unnoticed and spawn successfully, the spawn sites must be left undisturbed until hatching has occurred. Spawn usually occurs on marine vegetation, but log bundles, cables, dock structures, and other equipment can be affected. These items must also be left undisturbed.
- Alternatively, if schools of Pilchard are noted within the vicinity of the site special precautions should be taken to ensure that fish are not harmed – including the halting of works until the fish are out of harm's way.
- Marine mammals or birds associated with schools of fish or spawn must be protected against potential impacts.

- If schooling fish (Pilchard or Herring), marine mammals or birds could potentially be harmed, then works must stop until the animals are out of harm's way.
- If schooling fish (Herring or Pilchard) are observed in the direct vicinity of the log handling facility, suspend operations and contact the designated QRP immediately for direction – possible site visit may be required before works resume.

## **References**

- Fisheries and Oceans Canada. Pacific Herring website. Retrieved April 29, 2009 from [http://www.pac.dfo-mpo.gc.ca/sci/herring/bulletin\\_e.htm](http://www.pac.dfo-mpo.gc.ca/sci/herring/bulletin_e.htm)
- Fisheries and Oceans Canada. 2009. Herring Spawn Survey Manual. Fisheries and Oceans Canada Science Branch.
- McConnaughey, B.H. and E. McConnaughey. 1998. Pacific Coast – A Comprehensive Field Guide. Chanticleer Press Inc.

