

# GENERAL 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 dark green colouring 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, 2009). 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:

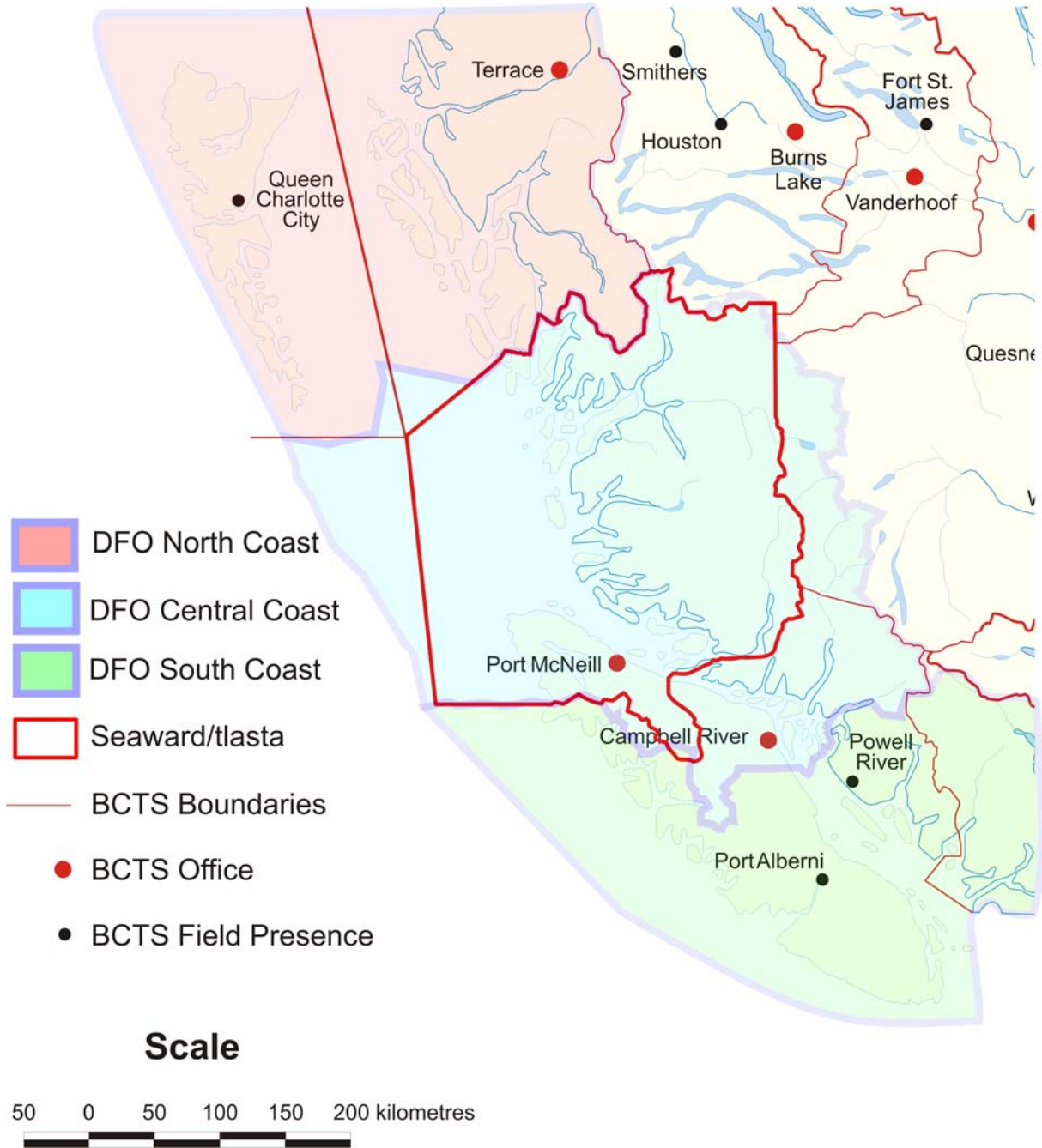
[http://www.pac.dfo-mpo.gc.ca/sci/herring/herspawn/pages/default0\\_e.htm](http://www.pac.dfo-mpo.gc.ca/sci/herring/herspawn/pages/default0_e.htm)

The BCTS Seaward/Alastair Timber Sales area is located in the Central Coast Area (Table 1, Figure 1)

**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	All	January 1	March 1
Queen Charlotte Islands		July 1	July 31
All other areas	All	November 30	February 15

## Seaward/tlasta Timber Sales Area



Note : This is not an official DFO map so if your area of work is near the borders separating districts than your local DFO branch should be contacted to confirm the timing window that applies to you. In addition DFO has indicated that it will be changing timing windows and district boundaries in March or April of 2010 so the following link should be checked prior to commencing work ([http://www-heb.pac.dfo-mpo.gc.ca/decisionsupport/os/timing\\_marine\\_e.htm](http://www-heb.pac.dfo-mpo.gc.ca/decisionsupport/os/timing_marine_e.htm))

**Figure 1:** Overview of the BC coast highlighting the separation between the north coast, central coast, south coast and the BCTS Seaward/tlasta operating area.

## **Monitoring Program**

### *Schedule:*

Monitoring should begin at the start of the expected spawn timing window and continue for the duration of the window. During the spawning season observations of the approach areas should be conducted for 2-hour scans weekly. Observations will include:

- Investigating and recording signs of herring schools,
- Surveys of historical spawning locations,
- Shoreline observations,
- Soundings to search for schooling herring,
- Verify or investigate third party reports of spawning/schooling herring.

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 shorelines and inlets.

### *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:*

**If either schools of herring or evidence of recent spawns are observed BCTS should be immediately notified.** A monitoring log (Appendix 1) must be filled out for each observation day. Carefully note location and fish behaviour – example: “Active spawning with fish traveling in northern direction along shoreline”; or “Large ball of fish holding at mouth of inlet.”

Once observed in the area, daily monitoring will take place on-site by a trained herring monitor, as directed by a Qualified Registered Professional (QRP).

## **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.

