



Fisheries and Oceans  
Canada

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## Integrated Fisheries Management Plan Summary

### Pacific Oyster (*Crassostrea gigas*)

#### Pacific Region

2016/17

The purpose of this Integrated Fisheries Management Plan (IFMP) summary is to provide a brief overview of the information found in the full IFMP. This document also serves to communicate the basic information on the fishery and its management to DFO staff, legislated co-management boards and other stakeholders. This IFMP provides a common understanding of the basic “rules” for the sustainable management of the fisheries resource. The full IFMP is available on request.

This IFMP summary is not a legally binding instrument which can form the basis of a legal challenge. The IFMP can be modified at any time and does not fetter the Minister's discretionary powers set out in the *Fisheries Act*. The Minister can, for reasons of conservation or for any other valid reasons, modify any provision of the IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

Where DFO is responsible for implementing obligations under land claims agreements, the IFMP will be implemented in a manner consistent with these obligations. In the event that an IFMP is inconsistent with obligations under land claims agreements, the provisions of the land claims agreements will prevail to the extent of the inconsistency.

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*R. Reid, Regional Director General*

## **General Overview/Introduction, including map**

The Pacific oyster is a non-indigenous species purposely introduced into British Columbia starting around 1912 for aquaculture production on licenced tenured aquaculture sites. Introductions continued over the decades, and successful reproduction events onto untenured wild foreshore beaches were reported beginning in the early and mid 1900s. Prior to 2012 commercial harvest opportunities for Pacific oysters on untenured foreshore has been managed by the Province of British Columbia Ministry of Agriculture (“the Province”) through a Memorandum of Understanding. This was due to the direct connection to aquaculture activities. As a result of the recent *Morton* (February, 2009) court decision, both governments agreed that it would be prudent for Fisheries and Oceans Canada to assume responsibility beginning in 2012.

Past commercial harvest opportunities under Provincial management have averaged 40-60 participants annually over the last ten years with a total allowable catch in 2011 of 417 tonnes. During the 2012 and 2013 season DFO continued the Provincial management model while the transition was underway and the Department consulted and decided upon the future management and assessment frameworks for the fishery. A precautionary total allowable harvest of 155 tonnes (in 2012), and 200 tonnes (in 2013) was provided. In October 2013 the Department announced future licence eligibility limitation for the commercial Pacific oyster fishery. Past commercial licence holders having held a licence in at least one year during the period of 2009-2013 were able to apply for a one-time opportunity to establish eligibility. As part of this process the Department also created 20 new communal commercial licences for First Nations. A total of 56 ZWO licences, along with FZWO licence eligibilities have been established. Along with licence limitation, the Department announced new assessment and monitoring requirements for the fishery.

The current commercial fishery occurs within the south coast of British Columbia mainly along the mid portions of the east and west sides of Vancouver Island. Commercial harvest sites are divided into two licence areas.

The commercial licence year will run from March 1, 2016 to February 28, 2017. The actual commercial fishery opening time is scheduled to run from March 1, 2016 to May 31, 2016; and also from October 1, 2016 to November 30, 2016; but may vary during that timeframe based on sanitary and biotoxin contamination conditions and quota harvest completion. Official opening and closing dates are announced by fishery notice and are available through the DFO website.

The fishery operates under a Total Allowable Catch (TAC) and individual licence quotas.

## **Stock Assessment, Science & Traditional Knowledge**

The Pacific oyster, *Crassostrea gigas* (Thunberg 1793) is a non-indigenous species introduced to BC for aquaculture (Quayle 1964, 1969, 1988; Gillespie *et al.* 2012). Its native range is from Sakhalin Island and coastal Russia through Japan to Kyushu, China, Korea, Southeast Asia and Pakistan (Coan *et al.* 2000). They have been introduced and have established populations in many countries worldwide (Ruesink *et al.* 2005, Gillespie *et al.* 2012).

The Pacific oyster was introduced extensively on the west coast of North America in the early 1900s, and was first brought into BC in 1912 or 1913 (Bourne 1979, Gillespie *et al.* 2012). Small scale introductions continued and large scale importation of seed oysters began in 1925. Successful reproduction was reported in Ladysmith Harbour in 1925, 1926 and 1932, followed by successful dispersal beyond the harbour in 1936 (Elsey 1932, 1934; Elsey and Quayle 1939; Quayle 1964, 1969, 1988; Bourne 1979). Widespread reproductive success was reported in 1942, 1958 and 1961 resulting in the establishment of Pacific oysters throughout the Strait of Georgia. They were transplanted to the west coast of Vancouver Island (Esperanza Inlet; Barkley, Clayoquot and Kyuquot Sounds) in 1937; they are now established in suitable habitats on the west coast of Vancouver Island south of Brooks Peninsula (Gillespie 2007; Gillespie *et al.* 2012). There is also confirmed reproductive success of Pacific oysters in Skidegate Inlet, Haida Gwaii (Sloan *et al.* 2001; Gillespie *et al.* 2012) and reported occurrence of natural-set Pacific Oysters from Tasu Sound on the west coast of Haida Gwaii (Gillespie, unpublished data).

Pacific oysters are protandric hermaphrodites, initially spawning as males and then may become females during the winter season (Gillespie *et al.* 2012). They are broadcast spawners with a pelagic larval period of 3-4 weeks depending on temperature (Gillespie *et al.* 2012). Their natural distribution in BC is limited to locations with warmer water temperatures that are required to stimulate gonadal development, spawning and the metamorphosis of larvae. Although spawning can occur at temperatures between 16-34 C and salinities ranging from 10-42 ppt; temperatures of 20-25 C and salinities of 35 ppt are considered optimal (Gillespie *et al.* 2012). However, the range of Pacific Oysters can be expanded by manual introduction to microhabitats. Adults are sessile and the only exchange between sites is through larval transport or human intervention. Adults grow relatively quickly in the first few years after settlement and growth slows with maturity and senescence.

Longevity and age structure of populations are not documented due to difficulties in establishing aging methods and criteria. New methods for aging Pacific oysters have been tested on Pacific oysters in China (Harding and Mann 2006), but these methods still need to be tested for the Pacific oysters in BC. Both the literature and local knowledge suggest that Pacific oysters can live for decades (Quayle 1988, Pauley *et al.* 1988).

Pacific oyster populations in BC generally occur in mid to high intertidal zones on hard substrates (Bourne 1979, Ruesink *et al.* 2005) but can vary depending on the environmental conditions of the site. Fishermen have noted that Pacific oysters are lower in the intertidal zone on the west coast of Vancouver Island. A preferred settlement substrate is oyster shell and large aggregations form if populations are not disturbed; under appropriate conditions they can form reefs on gravel banks at the tidal mouth of small streams (Gillespie *et al.* 2012). Harvestable populations of Pacific oysters may be present on bedrock walls and outcrops where successful larval recruitment occurs on a regular basis.

In all but a few locations in BC, successful recruitment on a large scale is sporadic. Pacific oyster populations can exhibit local recruitment events that will sustain populations for a number of years. However, populations can become ephemeral if larval recruitment is irregular.

Research studies were conducted in 2012 to determine the best survey methods for Pacific oysters. The results from this work were presented and accepted by CSAS in December to 2012 (Norgard *et al.* 2014). This report was developed to assist potential harvesters in conducting surveys and data collection of wild Pacific oysters on beaches in which discrete beds of oysters are found. Discrete beds are those where well defined beds of oysters can be visually determined on beaches. In general, Pacific oyster populations may be found in discrete beds of single or clustered oysters loose on the surface of the beach or individual oysters cemented to hard substrate (large rocks or bedrock), at times including vertical surfaces. This protocol provided key guidance on sampling and data collection methodology, optimal quadrat size and sampling intensity for discrete oyster beds.

### **Economic, Social, Cultural Importance**

A socio-economic analysis for this fishery has not been completed to date.

### **Shared Stewardship Arrangements**

Commercial licences are responsible for arranging assessment and in-season fishery monitoring services. Licence holders fund a hail program to collect information on fishing activity, and to track area and licence quotas. In addition, licence holders will be making arrangements to begin industry funded stock assessment surveys of commercially open beaches.

### **Fisheries and Oceans Canada**

Several Stock Assessment and Fisheries Management personnel are directly involved in this fishery for some part of their activities. Contributions to the IFMP are provided by Fisheries Management in the areas and at regional headquarters, the Science Branch, C&P, the Pacific Fishery Licence Unit, the Treaty and

Aboriginal Policy Directorate, and numerous administrative personnel. Generally, all personnel are multi-tasked.

### **Governance Process**

The Minister of Fisheries and Oceans has ultimate and final responsibility for the management of fisheries in Canadian waters, and for the conduct of Canadian vessels operating in international waters. The Pacific oyster fishery is governed by the *Fisheries Act* and regulations made thereunder and other applicable federal legislation.

### **Access and Allocations**

The Minister can, for reasons of conservation or for any other any other valid reasons, modify access, allocations and sharing arrangements outlined in this IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

#### First Nations

Subject to CSSP restrictions, to date, no limits have been placed on Aboriginal harvest for food, social and ceremonial purposes.

In addition to fishing opportunities for FSC purposes (or domestic purposes for treaty First Nations), DFO acknowledges that in *Ahousaht et al. v. Canada and British Columbia*, the courts have found that five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht - (the T'aaq-wiihak Nations), have "aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck". The Department is working with the T'aaq-wiihak Nations pursuant to the direction from the courts, to find "the manner in which the plaintiffs' rights can be accommodated and exercised without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery."

The Department is currently considering fishing opportunities for the Nations for the 2016-2017 season within the T'aaq-wiihak First Nations' Fishing Territories as described by the courts (found on the West Coast of Vancouver Island, within Areas 24/124, 25/125, and portions of 26/126). It is anticipated that discussions will be ongoing. Where the Department and the T'aaq-wiihak Nations reach agreement on fisheries for 2016-2017 the Department will amend this IFMP, if necessary, such that the IFMP is consistent with the agreed-to approach for the T'aaq-wiihak fishery.

#### Recreational

Subject to CSSP restrictions, the daily limit for Pacific oysters in PFMA's 12 to 29 is 15 in the shell (or 0.5 L shucked) per day; the possession limit is twice the daily limit. The daily limit in PFMA's 1 to 11 is zero.

#### Commercial

The coast-wide commercial total allowable catch (TAC) for 2016/17 is 859,700 lb.

#### Aquaculture

The first priority in managing fish stocks is conservation, followed by First Nations obligations. Beyond that, the needs of aquaculturalists will be given equitable consideration to those of other users in the commercial and recreational sectors.

## Management of the Fishery

#	Management Issue	Objectives	Management Measure
1	Assessment programs for this fishery are still in development. Quotas for the commercial fishery in 2016/17 are still relying partially upon previous assessment data conducted by the Province of B.C. This data is becoming dated and new stock assessment surveys will need to be conducted over the coming seasons.	Manage harvest sites based on biomass estimates.	Establish a five year rotation survey schedule for beached fish in the commercial fishery
2	The Pacific oyster fishery is a selective fishery and there are few concerns for potential impacts on depleted species, including those which have been listed under <i>the Species at Risk Act (SARA)</i> . However, high population levels of Pacific oysters have been identified by COSEWIC as a potential risk to the native Olympia oyster.	Provide long-term stable access to Pacific oysters for all harvest sectors, while minimizing negative impacts to native species.	The Pacific oyster is a non-indigenous species introduced to British Columbia by humans for the purposes of aquaculture production. Under COSEWIC definition Pacific oyster is considered an “Alien” species within Canada, and would not normally be considered for COSEWIC or SARA listing or protections regardless of stock status. The Department does aim to manage the Pacific oyster resources for sustainability on a regional basis and to meet allocation objectives for harvest sectors.
3	Coastal First Nations are showing an increased interest in economic opportunities, and interest in oyster commercial licences.	Provide economic opportunities to First Nations.	Commercial access to many of the wild fisheries in BC is currently being addressed by two programs; the Allocation Transfer Program (ATP) and the Pacific Integrated Commercial Fishery Initiative (PICFI). The Allocation Transfer Program retires existing commercial licence eligibilities from fish harvesters on a voluntary basis and re-issues these to eligible First Nation organizations as communal commercial licences. For the 2016/17 season FZWO communal commercial licences have been designated to several First Nations on the coast.

**Compliance Plan**

Conservation and Protection (C&P) staff will pursue opportunities to monitor and enforce this fishery, in conjunction with the monitoring and enforcement priorities directed by senior management in the Pacific Region.

**Performance Review**

Performance indicators are reported in a Post-Season Review that considers long-term stability, Social, Cultural and Economic objectives, Compliance and Ecosystem objectives of the Pacific oyster management plan.

Stock assessment and research activities are outlined. The post season review may include outcomes from meetings with First Nations and other sectors regarding Pacific oysters. The delivery of the commercial fishery will be assessed by performance measures such as the amount of harvest and the value of the fishery.

**Fisheries and Oceans Canada Contact**

For additional information on this IFMP Summary or to request an electronic version of the full IFMP, please contact Guy Parker at 250-756-7163 or [guy.parker@dfo-mpo.gc.ca](mailto:guy.parker@dfo-mpo.gc.ca)