

## Molluscs Associated with a Long-Line West Coast Oyster Farm by Bill Merilees

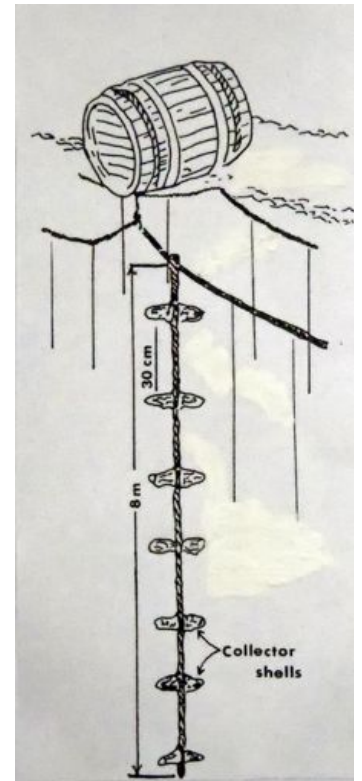
On May 15<sup>th</sup> 2014 the author had the opportunity to accompany Jack Grieg of Tofino to observe the commercial harvesting of Pacific Oysters (*Crassostrea gigas*) from his lease in Lemmens Inlet 7 km NE of Tofino. Here the long-line method of oyster culture is practiced. Oyster spat that have settled on dead oyster shells are attached to lines suspended from surface floats (see illustration and photo). This method allows the oysters to hang below the surface to about 8 metres, but not touch the bottom. Here they remain in suspension for three years, when they are large enough for harvest.

The long line culture method, in addition to producing oysters, has also become a habitat for all manner of other marine organisms. Everything imaginable, from algae to tunicates can find a niche here. As a 'student' of marine molluscs my interest was primarily to see what clams, snails and chitons were taking advantage of this man-made environment.

As Jack and I cruised up Lemmens Inlet the water was flat calm and very clear. The reflections along the shoreline were spectacular! As we progressed, all manner of expectations buzzed through my mind on what molluscs might be found. In reality, I really did not have a 'clue'!

The cultivation of Pacific Oysters began in British Columbia about 1913 with the importation of 'seed' from Japan (Quayle & Smith, 1976). As natural reproduction took place, seed importation was discontinued in 1961. Since this time the oyster farming industry in British Columbia has been self sustaining. In 2013 the annual market value was about \$12,400,000.

Oyster farms which use long line method aquaculture create an artificial habitat that is unique. Suspended below the surface, but above the bottom, and located in sheltered waters where water quality is good, they provide an attractive living space. This farming technique excludes most of the oyster's bottom dwelling predators such as crabs, starfish and the larger snails. There is an exception however. The early pelagic stages of many of these species' life cycles are capable of drifting or propelling themselves through the water column. This enables them to settle on the suspended oysters. The starfish *Evasterias troschelli*, in particular, can become a serious nuisance.



**Left and below** - The long lines of oysters as they are raised for harvesting, Lemmens Inlet near Tofino, B.C.  
**Right** - Diagram of the long line oyster culture method.



Today the harvest would be 30 totes (large sacs). As the strings of oysters were raised from the water the colours of the menagerie of life exposed was flamboyant (photo). Browns (kelp), yellows (sponges) and reds (tunicates) predominated. But the interesting stuff for me would not reveal itself until after the catch had been unloaded in Tofino. Dockside was where I could shovel up and sift through the grunge that had fallen or broken off the oysters during harvesting. This material littered the working deck or settled in the scuppers. This is where the majority of the molluscs would be found.

Once the product was loaded onto a refrigerator truck and on its way to Nanaimo for processing, it then became my 'task' to clean off the deck and scuppers and make everything ship shape for the next harvest. From this material I set aside a 5 gallon bucket of the finer material for examination. This is what emerged from this sample.

**Bivalves:**

<i>Kellia suborbicularis</i>	446
<i>Hiatella arctica</i>	277
<i>Rochefortia tumida</i>	172
<i>Mytilus sp.</i>	60
<i>Leukoma staminea</i>	5
<i>Macoma sp. inquinata ?</i>	3
<i>Pododesmus macroschisma</i>	2
<i>Crassadoma gigantea</i>	2
<i>Clinocardium sp. (tiny)</i>	1
<i>Saxidomus gigantea</i>	1

**Gastropods:**

<i>Alvania compacta</i>	76
<i>Margarites pupillus</i>	41
<i>Odostomia sp.</i>	4
<i>Crepidatella lingulata</i>	3
<i>Lirabuccinum dirum</i>	1

**Chitons:**

<i>Mopalia kennerleyi</i>	55
<i>Mopalia lignosa</i>	1
<b>Total: Specimens</b>	<b>1,158</b>



*Kellia suborbicularis* – Three age classes from the Lemmens Inlet oyster farm along with a mature adult from Quatsino Sound, B.C.

The lack of diversity in these results, only 17 species, came as a bit of a surprise! Particularly so, since Vancouver Island's west coast mollusc fauna is well known for its considerable biodiversity. (Merilees, 2015)

One must conclude from these results (only 7 species with double digit numbers) that this newly created, man-made, habitat is a favourable niche to only a very small number of species. If there was a 'surprise', it was the high number of *Kellia* encountered. As would be expected, it appeared that three age classes were present, the largest being about 1 cm in length. This species prefers to nestle in crannies and crevices (including discarded narrow necked glass bottles!), where it can grow to be 3.5 cm. (Photo ) The large numbers found with the oysters attests to its nestling preference.

Though my expectations of great mollusc diversity from this field trip fell short, the experience was both instructive and enjoyable. It was a pleasure to accompany Jack Greig on this trip and to see first-hand a working oyster farm on Vancouver Island's West Coast.

**Bibliography:**

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Quayle, D.B. & D. W. Smith. (1976). *A Guide to Oyster Farming*. Marine Resources Branch, Department of Recreation and Travel Industry, Province of B.C.