

# Support for Shellfish and Marine Plant Culture in the ACRD

## Executive Summary

The West Coast of Vancouver Island still holds considerable promise as a growing area for shellfish and edible marine plants, although challenges do exist. The relative isolation and low population density in the region provides large areas of pollution free waters and relatively limited land use conflicts, compared with the east coast of the Island, with other users. These advantages also contribute to the challenges as these are mainly ones of distance to farm sites and services from road heads and the distance to processing and markets. Travel distance can add considerably to operating costs, particularly as work crews get larger, and the wear on boat motors.

The product with the most potential continues to be the Pacific oyster, although some of the reserves and traditional territories of First Nations in the area would be very good sites for clam culture. The future of scallops and mussels as candidates for culture are rather uncertain at present, mostly related to the supply of seed.

There are other uncertainties over the shellfish industry. These are mostly related to changes in the oceanographic conditions in the NorthEast Pacific and to what maybe increasing incidents of disease, perhaps caused by these changes. The main change that could be adding stress to shellfish is the increasing level of lead in the ocean, which is resulting in higher rates of acidification. This makes it difficult for shellfish to extract sufficient calcium to make shell. It may also be adding stress to these animals that in turn makes them more susceptible to diseases. There have certainly been reports of outbreaks in Tofino and some of the BC shellfish hatcheries have experienced difficulties rearing some species during their early stages.

What can the Regional District do to encourage and support the shellfish and marine plant industry?

### 1. New Applicants

The permission system to acquire marine tenures is still controlled by the province. The ACRD can assist this process by being very clear with new entrants as to where acceptable farm sites are, or perhaps more easily where they are not, due to other users, First Nation interests and other conflicts.

### 2. Existing Industry

At this time there does not appear to be very much the ACRD can do to directly assist the relatively few oyster operators still in business in Barkley and Clayoquot Sounds. The following items could be considered:

- Make available to marine farmers information on any programs that might be available to them, this is particularly important as a number of the farms are not members of the BC Shellfish Growers Association.

- Due to the importance of reliable seed production, the on-going efforts to establish a small shellfish hatchery in Bamfield should be supported in any way possible.
- It appears that the small volumes of oysters being produced for the half shell market in Clayoquot Sound are able to be processed in Tofino, and that the growers of oysters for the shuck market are content to ship their production in the shell to processing plants on the east coast of the Island. Should this situation change there may be a role for the ACRD in assisting any future efforts by growers to establish or expand processing capacity either in Port Alberni or on the coast.
- Continue to support the participation of the industry in any shows, events and festivals that help to raise the profile of the this sector in the mind of the public.
- Continue to find ways to support the industry when resource planning and competing land use issues arise.

### **Background**

A brief overview of aquaculture in the Alberni Clayoquot Regional District, and its potential to contribute to farm markets and food security.

The use of the waters of Clayoquot and Barkley Sounds for aquaculture is dominated by salmon farming, which has developed into an important regional industry in the past 30 years. On the other hand, shellfish farming has largely failed to meet the considerable expectations held for it as a source of jobs and employment, when it began about 30 years ago.

Note there are two levels of processing plant licences in operation in BC. Plants that are content to confine sales to within the boundaries of BC are able to operate under a provincial licence. If plants wish to export a federal licence is also required. The standards for the two are more or less the same.

### **Fin Fish Farming**

The BC fin fish salmon aquaculture industry is centred from an administrative point of view in Campbell River, but the two main operational areas are the waters adjacent to Port Hardy and Tofino. The industry produces about 90,000 tonnes annually for market, from 120 sites of which about 80 are active at any one time, with 220,000 tonnes at various stages of the grow out cycle. The majority of BC production is made up of Atlantic salmon, although some Chinook and coho are grown. Production in Clayoquot is probably around 20,000 tonnes annually. Aquaculture production is more than the wild salmon harvest The Kyuquot area is important for sable fish culture.

The industry is an important source of jobs in Clayoquot Sound, with agreements between the companies and the two First Nations ensuring that employment is

provided and that production has a social licence.

The BC salmon farming industry is dominated by a very large vertically integrated Norwegian multinational company, which leaves little room for small quantities to be sold locally. , although small volumes may be available from Lions Gate Fisheries Ltd who process for Creative Salmon Co Ltd.

Opportunities for local sales of farmed salmon have not been considered further.

### **Shellfish Farming**

Shellfish farming in the RD has failed to live up to the promise it seemed to have in the 1990's when it was being heavily promoted as a way of providing rural farm and processing jobs. While the same comment applies to other areas of the southern BC coast, local production has in fact fallen from its high point in about 2004, while farmed shellfish production in other areas has either held or grown slowly.

The reasons for the local failure of the shellfish industry to really take off seem to be a combination of local factors as well as the BC wide challenges and constraints faced by the sector:

- Insufficient profitability due to high costs and low prices – especially for oysters;
- Distance between farm sites and wharves with road access – adds to operating costs;
- Lack of suitable habitat for culture, e.g. clams
- Regulatory hurdles have increased – adding to start up costs and destroying species culture potential – e.g. Abalone;
- Environmental issues on WCVI, especially in summer with toxic blooms of various algae, can limit marketing seasons, which in turn compromises plant profitability;
- Lack of local processing, e.g, for shuck oysters (due to costs and low volume);
- Increased requirements for ice during transport of unprocessed shellfish may inhibit the expansion of growing areas too far from road end and ice plants; and,
- Issues with seed supply/proprietary processes, e.g. Japanese scallop, blue mussels

### **Shellfish History**

Oysters have been farmed in the region since the 1970's at various levels of intensity and enthusiasm, mostly by small family operations. A well capitalized effort was also made by the Nuu-Chah-Nulth Tribal Council to establish farms, especially in Clayoquot Sound; none of these farms are operational at this time. Local production appears to have peaked at around 60,000 gallons of shucked meat in the early 2000's. Price drops and lack of profits forced growers out, to the extent that some crops were not harvested. Today there are four or five active growers in Clayoquot Sound and 1 or 2 in Barkley Sound. Although the numbers of small farms, used often as a justification for holding water lot leases add considerably to this estimate, but not to total production. Lease maps also appear to include many sites that are not presently active.

Other shellfish species that have been cultured on a quasi experimental basis in the region are: blue mussels, clams, scallops and abalone. For various reasons these have not proven good candidates for culture. These reasons are often related to suitable seed supply or growing areas, and in the case of abalone, federal regulations.

### **Potential for Local Farm Market Sales of Cultured Shellfish**

Shellfish can be sold either in the shell (fresh or frozen) or shucked, that is opened with the meats transferred to a container. The sale of unshucked product direct from the farmer without passing through a plant, while it does occur, should not be encouraged without cooling and inspection. The presence of marine toxins in bivalve shellfish (Paralytic Shellfish Poisoning, Amnesic Shellfish Poisoning and Diarrhetic Shellfish Poisoning) can be high during summer and early fall. So much so that Barkley Sound growers appear to have instituted a voluntary summer closure until the falls rains have flushed the area to avoid diarrhetic shellfish poison.

The sale of shucked product is possible, subject to the retail fish regulations detailed below, but at this time there are not licensed shellfish shucking plants on the WCVI due in large part to the scale of the industry and the difficulties of securing safe product during the summer, which is also a potentially peak market.

While summer is generally not the optimum time for the consumption of shell fish due to meat condition, oysters at least can be a popular item for the BBQ. Cold water growing of oysters on strings or trays hanging from long lines can over come the loss of meat condition, in theory making them suitable for summer sale. Mussels, with shorter shelf life, and clams which are cultured or harvested from beaches are probably subject to toxin closures are not likely to be available for sale.

In Port Alberni, the sale of in shell product is complicated in summer due to issues of transportation from farms some distance from town, and the need to keep product cold, usually on ice, or frozen if selling frozen. These issues and costs probably outweigh the possible returns to the farm of selling at a Port Alberni market. These complications are:

- The need to cool product in transport – usually on flaked ice;
- The locations of Barkley Sound farms relative to town;
- The need to either commence tray growing for this market, or extract single oysters from clumps growing on long line strings;
- The need to either return unsold stock to the farm, or freeze and keep frozen if being sold that way;
- Issues with annual closures for toxins in Barkley Sound at the height of summer; and,
- Issues with health authority and CFI sample testing given recent issues in Vancouver with unshucked product.

Growers in the Tofino area will find it easier to overcome some of these issues given that many live in town and have easy access to ice and freezer facilities. At present there seems to be very little half shell being produced by Clayoquot Sound growers.

### **Marine Plants**

Since the 1970's considerable research effort has been put into the culture and harvest of marine plants in the region. These efforts have centred on the Bamfield Marine Science Centre, with much of the work concentrated on the culture of species with high derivative value as stabilizers in food processing and so on.

The more familiar direct use of kelp in a dried sheet or powder form is possible using the cold water kelp varieties that grow on the WCVI. A pioneer in this production is Canadian Kelp Resources, located in Bamfield, (see: [www.canadiankelp.com/](http://www.canadiankelp.com/)) who operate a licenced processing plant producing a variety of products from local kelp. See also <http://www.bckelp.com/index.html> for a more complete description of the process.

While the cultivation of kelp on seeded long lines is possible, the majority of BC production appears to be from wild harvest in areas that are being managed in a sustainable way, often for many years. Presumably select fonds can be harvested and dried, from areas that have sufficient ocean and tidal movement and depth to support vigorous plant growth. The harvest work often takes place in difficult conditions and requires wet and dry suits and suitable vessels.

The BC Government makes the following points: A harvesting licence is required to commercially harvest wild aquatic plants in British Columbia. The licence specifies the species, quota, method of harvest, harvest duration and area of harvest. While most harvesting licences are for live aquatic plants, there is an experimental commercial harvest of beach-cast aquatic plants (detached seaweed that is washed up on the shore) on the east coast of Vancouver Island.' A royalty is payable on the volume harvested.

The ability of the industry to expand within the RD may also be limited to some extent by PRNP, BC Park and Tribal Park boundaries. Nor is it clear just how many licences are granted in a given area.

### **Marine fisheries in the Alberni Clayoquot Regional District**

The West Coast of Vancouver Island as far out is the international boundary and beyond contains very productive marine habitat for the full range of North Pacific ocean species. These are harvested by vessels based in the region and outside. The majority of the catch is processed outside the region, mostly in Vancouver, although Ucluelet is an important landing and processing port for hake and ground fish, as well as for salmon. Small volumes of shrimp, cod and net caught salmon are processed in Port Alberni and salmon is purchased and processed in Tofino.

These marine fisheries are regulated by a very stringent system of species specific licencing and catch monitoring. The regulations especially around by-catch have grown stronger over the last decade or so, with the result that small vessel owners are often restricted in their ability to provide small quantities of product on a regular basis. Which is not to deny that small quantities of shrimp, prawns, cod, halibut, tuna, crab and salmon, to name a few, find their way to local markets, either directly from the harvester, or via a fish plant with a retail outlet, e.g. The Cod Father in Port Alberni or Trilogy Fish Company in Tofino (see: <http://www.trilogyfish.net/site/home.html>).

Sales can be made directly from the vessel, called a Fisher's Vending Licence. "A fisher's vending licence is required by a commercial fisher that is selling their own catch to the public for their own consumption. A commercial fisher can sell their own catch from the location of their choice." The requirements that must be met depending on the location of the sale, are:

Requirements for Boats Used for Fishing or Transporting Fish for Processing

1. Boats shall have facilities for protecting fish from the sun and weather and from bilge and other contamination.
2. Fish holds, pen boards and shelf boards shall be smooth and nonporous, constructed to facilitate proper cleaning, maintained in a condition satisfactory to the minister and, if wood, coated with a material approved by the minister.
3. Where fish is stored against bulkheads separating fish holds from the engine room or other quarters, such bulkheads shall be watertight and well insulated.
4. Fish pens shall be shelved where necessary to prevent crushing of fish.
5. Gutted fish shall be washed to remove excess blood, slime and viscera prior to stowing.
6. While fish is on a boat used for fishing or for transporting fresh fish, the quality of the fish shall be preserved by the use of finely divided ice or by such other methods as the minister may approve.
7. Decks, holds, pen boards and shelf boards shall be thoroughly cleaned as soon as the fish has been discharged, and shall be disinfected when necessary.

To move product to a land based farmers market would involve the fisher in the requirement for retail fish outlets. These are as follows: Requirement for Retail Fish Outlets [en. B.C. Reg. 558/82.]

1. Newly arrived boxes of fresh fish and fish fillets shall be placed under refrigeration without undue delay and, where necessary, should be repacked with clean ice.
2. All fresh and cooked fish products shall be kept under refrigeration at all times and shall not be frozen.
3. No person shall sell, offer for sale or have in his possession for sale frozen fish or frozen fish products that have been thawed and refrozen.
  - 3.1 No person shall sell, offer for sale or have in his possession for sale previously frozen packaged fish or fish products unless the package is clearly marked with the words "previously frozen" in letters no less than 3.2 mm in height.

3.2 No person shall sell, offer for sale or have in his possession for sale previously frozen fish or fish products in a bulk non-packaged display unless the display of the fish or fish products is clearly identified with a sign stating "previously frozen" in letters not less than 6.4 mm in height.

4. Fish shall not be stacked above the load line in self service cabinets.

5. Unfrozen smoked fish and salted fish products which are not hard dried shall be kept under refrigeration, but shall not be held in direct contact with ice.

6. Marinated fish products, and all other prepared fish products that have not been frozen or heat sterilized, shall be kept under refrigeration.

7. All fish and fish products in frozen storage shall be protected from oxidation and dehydration.

8. Only clean, new and nontoxic packaging material shall be used for wrapping fish.

9. Cutting, filleting and skinning boards shall be made of planed lumber or other material that is smooth and without cracks, and shall be constructed in a manner approved by the minister.

10. Containers for the disposal of waste shall be provided and shall be watertight, have well fitted covers, and be constructed of metal or other material approved by the minister.

11. Premises where fish is offered for sale shall be maintained at all times in a clean and sanitary condition.

12. When a vehicle is used for the purpose of retailing fish and fish products it shall comply where applicable with the requirements of Schedule F.

- a. Driving and serving areas in such a vehicle must be separated to provide individual compartments.
- b. Vehicle bodies and containers must be so constructed and loaded as to prevent any of the load escaping or leaking onto the roadway.
- c. All vehicle bodies shall be insulated and constructed in such a manner as to protect the fish and fish products contained therein from sun, weather, dust and other contamination.
- d. The surface of floors in the serving area shall be constructed of concrete or such other material as the minister may approve.
- e. Inside surfaces of walls and ceilings in the serving area shall be constructed of properly sealed, smooth, waterproof, light coloured material that is acceptable to the minister and that can be thoroughly washed.
- f. Tables and equipment shall be so constructed and installed that they and the areas beneath can be readily cleaned.
- g. These requirements are probably too stringent for fishers to bother with given the quantities they generally have for sale. At some point larger quantities become easier to sell to a plant, despite the loss of the full retail price. Time taken to sell, potential for product deterioration, cost of running vessel freezers (tuna), all play a part in this decision.

## **Mollusc Shucking and Packing Establishments**

At various times the oyster growers of Tofino have discussed the possibility of operating a processing plant. At present Trilogy Fish Co appears able to process oysters, clams etc for sale in the shell, but not to shuck. The economics of shucking probably depend on having access to around 12,000 gallons per year, ideally spread even evenly throughout the year, in order to establish reliable relationships with wholesalers. At present levels of production and due to the needs of growers to remain on good terms with the shucking houses in the Fanny Bay area in order to secure seed it is unlikely that any progress will be made on this concept in the foreseeable future.

The requirements for a shucking plant are not particularly onerous – can be summed up as a concrete or block building with floor drains and coolers.

1 Employees engaged in mollusc processing operations shall wear outer garments and headgear of a type approved by the minister.

2 All shell stock, prior to processing, shall be alive and clean.

3 Shell stock in dry storage shall at all times be adequately protected from contamination.

4 Floating and wet storage shall not be used unless written approval is obtained each year from the minister.

5 Molluscs shall be shucked in such a manner that they are not subject to contamination.

6 Shells from which meats have been extracted shall be removed promptly from the shucking room.

7 (1) All shucked stock shall be thoroughly washed with cold water for a period not exceeding 3 minutes.

(2) The practice of plumping is not permitted.

8 An accurate daily record pertaining to every lot of processed molluscs shall be kept on file at the processing establishment to indicate

(a) the date, quantity and species of molluscs delivered to the establishment,

(b) the day and the area from which the molluscs were harvested,

(c) the date of processing and packaging, either coded or uncoded, and

(d) the date on which the lot is sold and the name of the dealer to whom it is sold.