

Aquaculture in Oregon: an Overview



Introduction

Historically, aquaculture has had an interesting but uneven and minor impact as an Oregon agriculture industry. The inset box from an Oregon Department of Agriculture 2015 report, summarizes the existing status and relatively low level of investment. This “benign neglect” notwithstanding, aquaculture is globally recognized as an important food-producing sector of the world’s economy.

Historical Perspective

Frequently incorporated as part of the wider “fisheries” program, Oregon’s aquaculture industry has been linked to the state’s natural resource endowments. Traditionally, investments were selected that could be married with the natural resources of a specific site and then prioritized based on local socio-cultural preferences. These were likely the drivers that targeted oyster farms and salmonid hatcheries as principal aquaculture preferences—the former building on centuries of traditional farming by indigenous peoples, and the latter to replace the loss of traditional salmon populations.

Over the past five decades there have been a variety of attempts at aqua farming beyond the traditional focus on oysters and salmonids. However, most of these have been unsuccessful—largely due to inexperience and lack of profitability, and at times exacerbated by a complex permitting system and lack of “social license”. As a result, aquaculture has remained largely in the shadows of Oregon’s better known agriculture industries.

The twenty-first century aquaculture environment has significantly changed. New, more highly controlled production technologies using tanks, ponds, cages, barns, and greenhouses allow aqua farms to operate successfully, irrespective of the local climate and with less reliance on the natural resource base. Concurrently, the market for farmed seafood has become much larger and more diverse, favoring domestic production to offset extensive imports. There is now a long menu of potential aquaculture products and production technologies—many suitable to Oregon’s biophysical and market settings.

Terminology

As with numerous activities, it is important to have a common understanding of the words frequently used to describe this activity. The following definitions have been adopted:

- **aquaculture** (aqua farming)—husbandry (intentional raising and cultivation of any life stage) of all species of aquatic plants and animals including all aquatic environments.
- **fin fish**—organisms from any of the following taxonomic groups; *Agnatha* (jawless fishes), *Chondrichthyes* (cartilaginous fishes), or *Osteichthyes* (bony fishes).

“There is little investment in aqua farming in Oregon. Although aquaculture is predicted to be the supplier of two-thirds of the aquatic food products consumed worldwide by 2030, this subset of food producing activities is not presently an important industry in the State. With the exception of oyster farming, which has been practiced for generations in the State’s estuaries, the husbandry of aquatic organisms has been spotty and basically insignificant.

It is difficult to justify this benign neglect in any precise terms as, in most instances, it seems as though the aqua farming sub-sector was simply ignored in spite of regional, national and global trends. This may, in part, be due to the traditional abundance of aquatic foods available to the fisher and gatherer; to this day Oregon’s coast offering a cornucopia of foods to the exploring consumer.

However, aqua farming as an industry is more than a way to put food on the family’s plate. The industry creates jobs, makes productive use of un- and under-used resources, generates high-value export crops while operating at high levels of biological and energy efficiency.

As with other forms of agricultural production, there has been abuse and even best practices are challenged by rapidly changing technologies and norms. Nevertheless, in spite of noteworthy growing pains in the 1980s and 90s [demonstrating the newness of this industry], there has been considerable global effort invested in defining methodologies for responsible and sustainable water farming to the extent that today the negative footprint left by the industry is shrinking while the production of healthy and environmentally friendly aquatic foodstuffs is expanding around the world.”

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- **shellfish**—organisms belonging to the following phyla; *Porifera* (sponges), *Cnidaria* (jellyfish, corals, anemones), *Mollusca* (bivalves, gastropods, squid), *Arthropoda* (crustaceans), *Echinodermata* (starfish, urchins).

Unique to Oregon

Oregon’s uniqueness embraces as much its culture as its climate and ecology. The state’s landscape covers the spectrum from cool and dry high desert to temperate and humid major lowland river valleys. High importance is attached to environmentally, socially, and economically sound activities as well as to the production of high-quality foods.

Seasonal temperatures vary considerably across the different regions of the state. Colder areas may be unsuitable to the outdoor culture of typical warm-water organisms while more temperate lower-elevations areas may reach summer temperatures that are too hot for typical cold-water organisms.

Land use approval for aquaculture in Oregon is on a **conditional use** basis. It is necessary to check with local and state authorities ([link](#)). Similar homework is necessary regarding **water use**. The interface for land and water is the **watershed**; both at the local and **basin levels**.

Water, specifically reliable access to good quality water, is a growing concern. While eastern parts of the state have always been arid to semi-arid, much of the western portion is experiencing seasonal water shortages. It can be difficult to obtain water rights while effluent control is an important consideration.

Many *aquaculture systems* can have **high energy requirements** needed for temperature control and water management. Oregon has relatively reasonably priced energy while access to alternative energy sources and **geothermal energy** are unique options meriting serious consideration.

There are numerous **shuttered industrial sites in Oregon including former paper mills that provide land, water, and effluent management assets** that could be retooled for aqua farming. There is also a network of **seafood processing facilities** that could process farmed products. Oregon is also known for its “foodie” culture that places high value on fresh, home-grown, divergent seafood products. This can translate into excellent **market opportunities** for several potential aquaculture products. A focus on markets is closely tied to a “**MARKET FIRST**” approach which emphasizes comprehensive market analysis and development as a critical component in aquaculture business planning.

In short, while some years ago Oregon would have been considered a state with marginal aquaculture potential, today the growth horizon has considerably expanded. Nevertheless, there are noteworthy challenges to anyone wishing to initiate or expand aqua farming. It is incumbent on these individuals to do their homework and develop a solid business plan before making major financial commitments.

Selected references

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