

# OREGON'S OYSTER RESOURCES, INDUSTRY AND MANAGEMENT

## Introduction

Oregon's oyster industry is almost as old as the state. In the early 1860's, schooner loads of native oysters were taken from Yaquina Bay and transported to markets in San Francisco. Over the years, the industry and the resource have changed drastically. This report briefly reviews the status of Oregon's oyster resources and discusses some issues that the Department of Fish and Wildlife and the oyster industry need to address.

## Oregon's Major Oyster Species

The native oyster, *Ostrea lurida* was the foundation for Oregon's oyster industry. It is found from British Columbia to California. Yaquina Bay still has some native oyster beds; Netarts until very recently had native oysters and Tillamook and Coos bays historically had native oyster beds. This species has a successful set only every 5-7 years. This coupled with a changing environment and early over-harvesting has reduced the native oyster to near commercial depletion.

The Pacific or Japanese oyster, *Crassostrea gigas* has become the major oyster species on the west coast. This oyster from the far east is imported as "seed" (small oysters) and forms the basis for the oyster industry in Tillamook, Yaquina and Coos bays. It can grow and survive in other estuaries in Oregon, at least part of the time. The primary shortcoming of the Pacific oyster is that it does not spawn in our cold waters and the industry is dependent on "seed" from out of state.

The east coast oyster, *Crassostrea virginica* and the European oyster, *Ostrea edulis* have also been grown in the state but they are not a proven, commercial species here.

## Oyster Farming in Oregon

A comprehensive discussion of this subject is available in Oregon State University's Marine Science Education Publication SG Number 13 "Oyster Farming"

by Wilbur P. Breese and William Q. Wick. Most of Oregon's Pacific oyster seed is imported from Japan via Washington State. Smaller amounts are sometimes available from those areas of Washington and British Columbia where a natural set may occur. Oyster hatcheries in California and the Northwest may become an increasingly important source in the future.

The Pacific oysters were traditionally raised by spreading them on the tide-flat (ground culture) and this is still the most popular method in Tillamook and Coos bays. Newer culture methods involve growing oysters in trays suspended in the water column, on racks or on sticks placed in the mud.

The Pacific oyster reaches market size (4-6 inches in shell length) in about 30-48 months. The Kumamoto variety of the Pacific oyster reaches market size (1½-2 inches in shell length) in 18-24 months. Mechanical harvesting such as dredging has largely replaced hand harvesting but the industry is still quite labor-intensive. Most of Oregon's oysters go to market as fresh shucked oysters.

The native oyster is not a significant contributor to Oregon's oyster landings anymore. In the few areas of Puget Sound where the native oyster (Olympia oyster) is farmed commercially, cultch (clean oyster shell) is suspended in the water column to catch the natural set. This species reaches market size (1½-2 inches) in 36-60 months.

The east coast oysters and the European oysters are not in common use in Oregon but seed is available from California hatcheries.

#### Oyster Production Data

Prior to 1965, oyster growers were not required to report their production. The 1965 Legislature made an annual report a requirement and the 1969 Legislature instituted a quarterly report requirement. Annual landings peaked in 1968 at 71,500 gallons (Table 1, Figure 1). The wholesale value in Table 1 is based on dollar values from the "Shellfish Market Review and Outlook", published by the National Marine Fisheries Service. The peak value year was 1974 when a large

Table 1. Oregon Oyster Landings, in Gallons, and Wholesale Value, 1966-1977

Bay	1966		1967		1968		1969		1970		1971	
	Meats	Value	Meats	Value	Meats	Value	Meats	Value	Meats	Value	Meats	Value
Tillamook	29,335	\$227,727	46,451	\$333,452	68,304	\$475,981	55,215	\$393,781	27,649	\$209,358	29,892	\$241,608
Yaquina	77	2,695	1,265	34,499	1,881	37,620	3,992	51,255	5,432	51,382	4,945	77,144
Coos Bay	-	-	-	-	1,440	9,360	939	6,103	1,969	12,798	26	169
Netarts	-	-	-	-	-	-	-	-	14	91	-	-
Totals												
Meats	29,412		47,716		71,625		60,146		35,064		34,863	
Value		\$230,422		\$367,951		\$522,961		\$451,139		\$273,629		\$318,921

Bay	1972		1973		1974		1975		1976		1977	
	Meats	Value	Meats	Value	Meats	Value	Meats	Value	Meats	Value	Meats	Value
Tillamook	16,528	\$118,340	15,799	\$219,349	20,496	\$367,207	17,768	\$250,085	14,771	\$250,255	21,337	\$296,868
Yaquina	4,571	80,335	7,347	145,047	6,893	141,043	7,289	120,270	4,927	93,240	6,735	113,250
Coos Bay	866	6,200	1,613	15,049	1,741	17,270	1,576	17,178	1,068	11,876	1,384	17,646
Netarts	-	-	-	-	61	605	9	98	-	-	20	255
Totals												
Meats	21,965		24,759		29,191		26,642		20,766		29,476	
Value		\$204,875		\$379,445		\$526,125		\$387,631		\$355,371		\$420,019

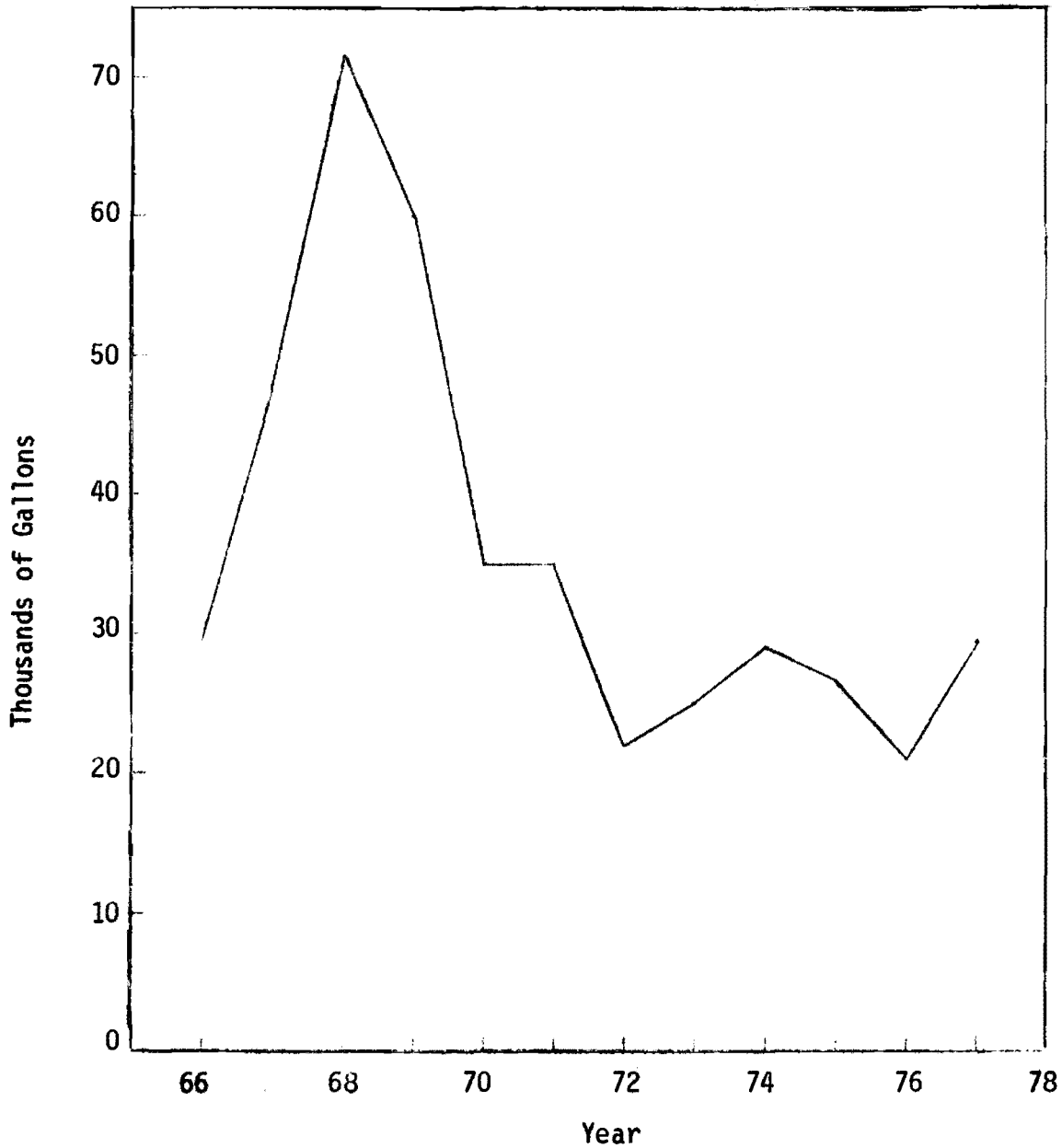


Figure 1. Oregon Oyster Landings, in Thousands of Gallons, 1966-1977.

percentage of the higher valued Kumamoto oysters raised product worth to \$526,000 at the first wholesale level.

#### Socio-Economic Considerations

Oregon does not have many suitable oyster culture areas. Most of the established oyster grounds are already under lease. Other estuarine users such

as boaters and clambers further restrict the areas left for oystering since the statutes give priority to such recreational activities. Finally, pollution introduced health hazards also limits available oyster farming areas. An obvious strategy to negate the above problems is to utilize the existing oyster grounds as efficiently as possible, to eliminate known pollution sources near oyster grounds and to use new growing methods where traditional methods are unsuitable.

Oyster seed from Japan is becoming scarce and expensive. The Oregon Dept. of Fish and Wildlife does not have a direct involvement in this issue but should (and does) cooperate in evaluating new seed sources. Private oyster hatcheries in the United States may provide additional seed. One such hatchery is being built on Metarts Bay in Oregon.

Oregon's Revised Statutes as they relate to oysters were last changed in 1969. A major problem with these statutes and the administrative rules is that they do not define production. People can hold an oyster plat by reporting annual production of a few gallons of oyster meats. An additional problem is that a plat applicant does not have to demonstrate any capability to farm the size plat applied for.

These shortcomings could be overcome by either the Legislature enacting new statutes or the Department adopting administrative rules which spell out in detail what the existing O.R.S.'s mean. To ensure that such administrative rules conform with the existing statutes, an opinion from the Attorney General's office may be necessary. The following five provisions might result in better utilization of the oyster plats and are an example of possible administrative rules. They are offered for discussion only since they have not been reviewed beyond the region staff: (1) require any new oyster plat applicant to obtain a performance bond and explain in his application the type of operation and cultural practices to be employed; (2) enforce OAR 635-36-175 which requires a permit to import oysters into Oregon for the purpose of planting. This would document how much

seed a plat holder buys in any one year in addition to protecting against introduction of oyster pests; (3) require an annual affidavit from each plat holder that lists the number of acres seeded in that year. This affidavit should include a map of the oyster plat showing acres, amounts and dates when oysters were planted. This affidavit would be due Jan. 15 each year for the previous year; (4) require a minimum annual harvest of 500 gallons of shucked oysters 3 years after issuance of the plat and every year thereafter; (5) acreages that are not utilized as specified in provisions (1), (3) and (4) within three years after a plat is issued would be declared as not used or held for oyster production and would be withdrawn from the oyster plat, provided the the unproductivity was not due to the lack of seed, a disease problem, sanitary regulations or natural disasters. Such problems must be documented in writing to the Department. Field inspections by ODFW would be necessary to evaluate some of the problem areas.

Provisions (1), (3), (4) and (5) would require new OAR's.

The present land reclaiming procedure is unclear and should also be spelled out in a new OAR.

An alternative to this Agency taking further action to insure optimum use of state oyster lands is to turn the leasing and taxation aspects of the oyster industry over to the Division of State Lands. That agency already manages all other state land and water way leases and agreements. The Department of Fish and Wildlife would still provide biological support, inspect oyster seed, etc. Such an arrangement exists in Washington and California. This proposal would require an act by the Legislature.

#### Miscellaneous Issues

##### Recreational Oystering

Both British Columbia and Washington State have a recreational oyster fishery. The Washington effort is concentrated in Hoods Canal since spawning and successful

set of Pacific oysters sometimes occur in these waters. The Washington Department of Natural Resources has experimented with moving strings of set from Dabob Bay (Hoods Canal) to other, more accessible public areas. The success has been mixed.

Oregon does not have any natural set of the Pacific oyster. Hence, a recreational fishery would be either a "put and take" or a seed planting situation. Market sized Pacific oysters in the shell cost about \$1.50/dozen. Assuming that Oregon had 100,000 user trips in a year and each person harvested 10 oysters, the cost for the oysters alone would be \$125,000. Instead of buying harvest-sized oysters, the state could buy seed-oysters and place them in suitable growing areas. To produce the 1 million adult oysters discussed in the hypothetical example above (100,000 user trips, 10 oysters/trip) would take about 1,000 cases of seed (assuming marginal ground) at a cost of \$30-\$40/case.

If a put and take fishery is initiated, the oysters could be placed on existing, down-bay clam flats. These areas are generally not optimal growing areas for oysters but presumably the oysters would be harvested during the spring and summer season. Pacific oysters often are not in top quality condition during the summer season. If seed oysters were purchased, they would have to be planted where oysters are now being grown to produce reasonable growth and survival. In some bays, there would be a conflict between oyster farms and a recreational fishery if the respective areas are not clearly delineated.

Using the native oyster for the recreational fishery does not seem to be the answer. The native oyster does spawn in Oregon although a successful set apparently occurs only every 5-7 years. A recreational fishery on this species would be confined to a small area of Yaquina Bay and it would be a subtidal fishery, requiring hand-tonging. The oyster's small size is an additional drawback since it takes about 1,000 native oysters to make up one gallon of shucked meats.

#### Native Oyster Status

The 1941 report "Native Oyster Investigations of Yaquina Bay, Oregon" by

R. E. Dimick, George Eglund, and J.B. Long is the last major Oregon study about this species. The exact status of the Yaquina Bay stocks is unclear but these oysters are still present in the bay. The Netarts Bay native oyster stock may have disappeared in 1973-74. Dr. James Lannan, Oregon State University has noted a decline of these oysters and believes that the diversion of Henderson Creek from Netarts Bay to the open ocean beach is a factor. This species probably deserves more attention than it now receives in that it could be near threatened species status in Oregon.

Certification of the Pesticide Sevin for Ghost Shrimp Control in Oregon

Ghost and mud shrimp through their burrowing action make a mudflat very soft and silty. Oysters placed on a shrimp bed tend to get smothered. EPA has been asked, by the industry, to certify the use of Sevin, to control ghost shrimp on oyster grounds. Sevin, a carbamate, kills crustaceans such as shrimp and is certified for use in Washington State under controlled conditions. The Department will be asked to comment on this certification proposal during EPA's review procedure.

Oyster Plat Fees

In evaluating oyster plat fees paid by the industry, it is useful to examine the fee schedules in Washington and California since the Oregon industry competes with these states.

	<u>California</u>	<u>Oregon</u>	<u>Washington</u>
Cultivator's License:	\$25/year	--	\$15/year
One-time Filing Fee:	\$50	\$25	--
Land Use Fee:	\$1/acre	\$2/acre	\$10-\$50/acre
Shucked Meat Tax:	2 cents/gal.	5 cents/gal.	1 cent/gal.

The California land use fee of \$1/acre is administered on the following schedule: for the first year, 10% of the annual rental; for the second year 20% of said rental; for the third year, 30% of said rental; and for each year there-



after, 100% of said rental.

The Washington land use fee varies with the quality of the oyster land. Leases in deep water areas may vary from \$10-\$15/acre while intertidal leases may range from \$25-\$30/acre. Oystermen can lease spat collecting areas in Dabob Bay for \$30-\$50/acre. The majority of oyster lands in Washington are privately owned and are not affected by these charges.

The general quality and quantity of oyster land in Oregon is identified in a Department report issued in 1976 entitled "Classification and Utilization of Oregon Lands in Oregon". The conditions described therein would be a factor in reviewing existing fees or in setting new ones. In addition, the cost to the state to manage the resource and the degree of profitability of the industry should be considered. This requires an economic analysis beyond the scope of this report.

Oregon Dept. of Fish & Wildlife  
Marine Region  
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