

Economic Impact of West Coast Shellfish Aquaculture

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National Working Waterfronts & Waterways Symposium
March 27, 2013



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Working waterfronts look like...



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But nostalgia cannot

- Keep working waterfronts viable
- Build policy for marine-dependent uses



Next 12 Minutes...

Partnership to gather economic impact data:

- Research objectives & rationale
- Shellfish aquaculture in WA, OR & CA
- Pacific Shellfish Institute
 - Who we are & unique position
- Survey development & distribution
- Findings
 - Value, Jobs, Shellfish production



Research Objectives

- Quantify the economic impact of commercial shellfish production
- Estimate a production function and build an Input-Output (I/O) model for shellfish aquaculture
- Support sustainable shellfish growing communities



Rationale

- Lack of accurate economic & production data for West Coast shellfish aquaculture
- Data need among:
 - State & federal regulators
 - Local planning councils
 - Trade associations
 - Research organizations
 - NGOs



Shellfish Aquaculture

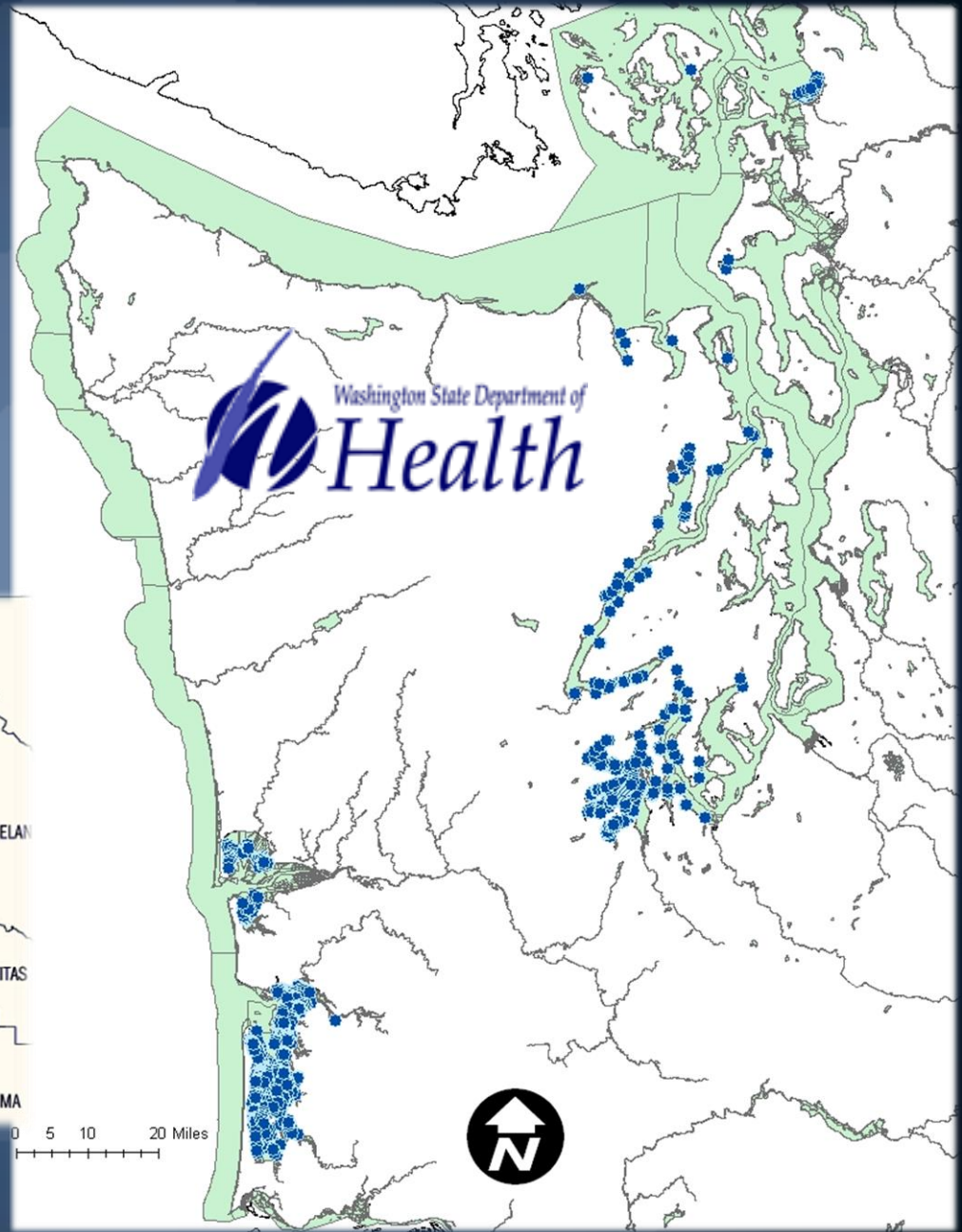


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WA Shellfish Farms

Harvesters (90)
Shellfish Processors (23)
Shellstock Shippers (239)

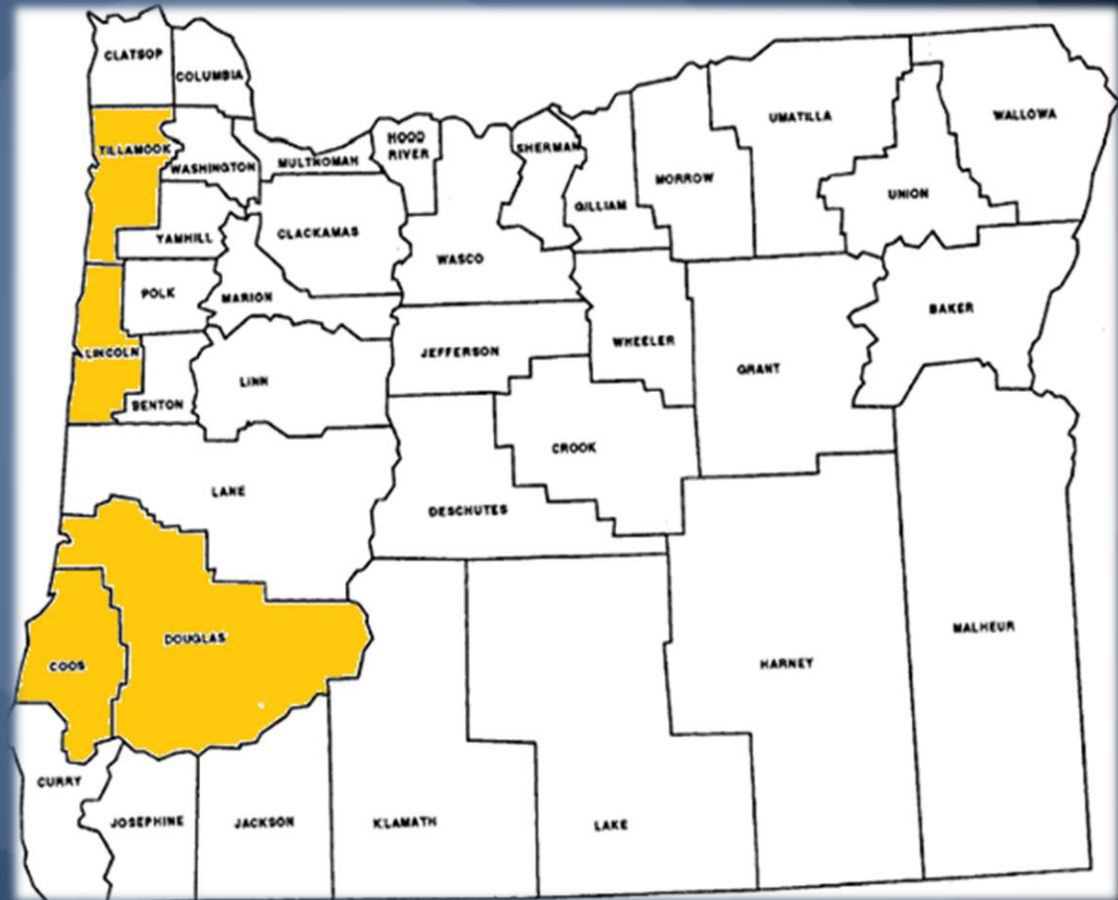
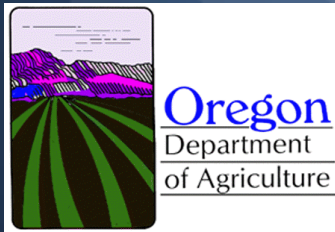


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OR Shellfish Aquaculture

Growers (23)
Shellfish Processors (8)
Shellstock Shippers (37)



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CA Shellfish Aquaculture

30 Marine Aquaculturists
16 active bivalve producers



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Research Approach

Task 1:

- Survey WA, OR, and CA shellfish growers on revenue & expenditures



Task 2:

- Build an Input-Output model for bivalve shellfish production



Pacific Shellfish Institute - PSI

- Olympia based 501c(3)
- Established in 1995 as a private non-profit corporation with strong linkages to PCSGA
- In 2004, PCSGA voted to change PSI Bylaws to provide a clearer separation from PCSGA

Research
organization



Trade
association



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Key Respondent Significance

- ID expense categories for general survey
- ID where expenses occur
 - IMPLAN sector (similar to NAICS code)
 - County-level spending patterns

<u>Vendor</u>	<u>Description</u>	<u>IMPLAN Code</u>	<u>IMPLAN Description</u>	<u>Zip Code</u>
Commencement Bay Corrugated	Cardboard boxes for shipping	107	Paperboard container manufacturing	98360



General Survey



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US FIRST-CLASS THEME

Please complete by

Shellfish Aquaculture Expenses Survey

Dear Shellfish Aquaculture Company Manager,

In the interest of your industry, I urge you to complete and return the survey. This survey is to quantify the economic impacts of commercial shellfish aquaculture. Quantifying economic impacts is a critical step to *demonstrate the positive influence of shellfish aquaculture on our local communities and regional economies*. Many aquaculture organizations and federal regulators, have struggled to obtain economic and production data on shellfish for decades- and it's finally within our grasp.

Why Should I Complete the Survey?

This research cannot be completed without individual business's expertise. Completing this survey takes time, but I hope the resulting benefit-metrics that demonstrate the *positive* economic contribution of shellfish aquaculture will make it worth it. For example, the outcome of this survey will yield multipliers, a critical metric. Multipliers help demonstrate how investment in aquaculture affects the region, which in-turn effects the region.

Multipliers generated from this research will specifically represent shellfish aquaculture. Other "industry multipliers" sometimes quoted in the media and by other organizations underestimate both employment and revenue because they do not include shellfish aquaculture, fisheries, agricultural crops or animal production, rather than the unique contribution of shellfish aquaculture.

Responses are strictly confidential, and under no circumstances will information be shared or reported in any way. The results of this survey are aggregated to protect the privacy of all respondents. The individual responses will not be revealed. This includes the details of any operation will not be revealed. This includes some circumstances; individual companies could be identified based on the survey. Bobbi Hudson, research biologist; and Kristin Rasmussen, Executive Director, are in compiling and summarizing survey responses.

Tidelands permitted for aquaculture and under your control (owned, leased, etc.)

Location (County)					
Size (Acres)					
Species cultured					
Of the total tidelands listed above, how many acres were <u>not</u> under cultivation in <u>2010</u> ?					acres
In a typical year, what percentage of your tidelands are <u>not</u> under cultivation?					%

Expenses for the 2010 Calendar Year

Total Expenses \$ Likely more than the sum of categories listed below

Labor Expenses

Total Payroll (wages) \$ Owners and employees

Total Non-Wage Benefits \$ Include medical, bonuses, etc.

Payments to Government

Federal \$ Include payroll taxes, income taxes, etc.

State & Local \$ Include permit and license fees, property taxes, etc.

Other Expense Categories

Tideland Leases \$ Lease payments for tidelands, but not permit fees

Capital Expenditures \$ Include vessels, buildings & heavy machinery > \$10K

Seed & Shellfish \$ Payments for seed or shellfish for grow-out or resale

Insurance Carriers \$ Total payments to insurance companies

Freight \$ Expenses paid to freight companies (ground & air)

Gas/Fuel \$ Expenses paid to fueling stations or fuel deliveries



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WA + OR + CA: Harvested & Sold

Product	Reported 2010 Harvest
Oysters	4M dozen 1M gallons
Mussels	3.3M pounds
Geoduck	1.3M pounds
Manila clams	6.7M pounds
Total	79.1M pounds



WA Production Comparison

			
Oysters	8.7*	61.0	8.8* (53.9)
Mussels	2.9	2.8	2.9
Geoduck	1.3	1.7	1.3
Manila clams	6.1	9.5	6.6
Total	21.5	74.9	64.7

Million pounds harvested in 2010 according to:

- WDFW aquaculture production reports
- PCSGA industry estimate
- PSI survey responses

* *meat only weight*



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Summary by State

	WA	OR	CA
Total State Acres	29,403	5,011	6,201
Acres reported	22,502	3,043	6,201
Actively farmed acres	62%	32%	12%
Employment	1,266	108	204
Revenue	\$90.3M	\$9.3M	\$25.8M
Spending	\$69.8M	\$0.38M	\$11.9M
Spending/farmed acre	\$4,988	-	\$16,017
# Farms	32	4	16

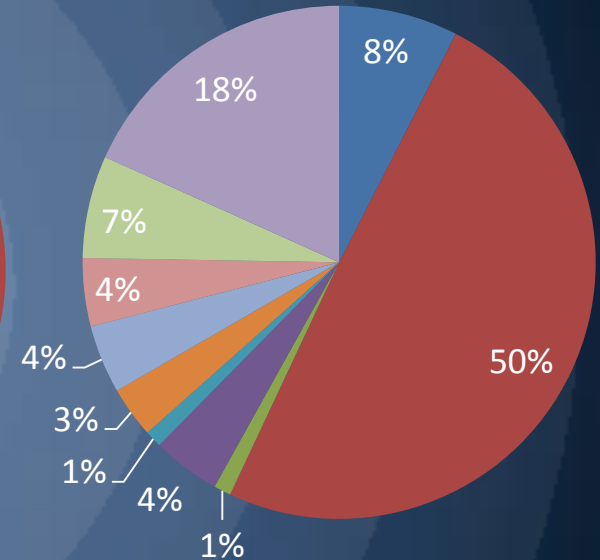
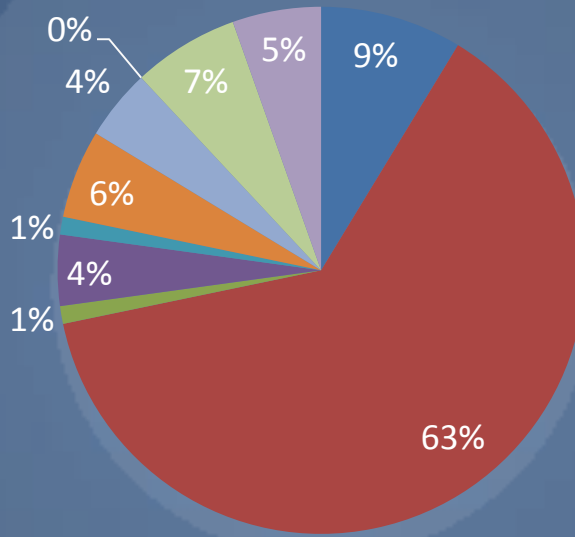
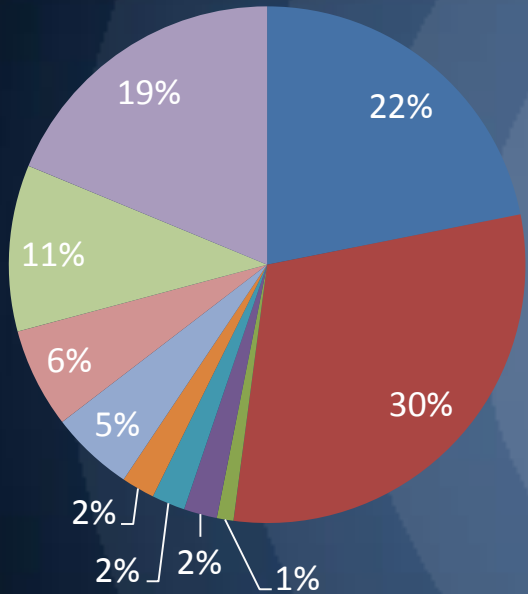


Expense Summary by State

WA - \$69.8M (32 farms)

OR - \$0.38M (4 farms)

CA - \$11.9M (16 farms)



- Other Spending
- Payroll
- State & Local Tax
- Insurance
- Leases
- Gas/Fuel
- Benefits
- Freight
- Capital Expenses



WA Shellfish Aquaculture in 2010

- Farms spent \$101.4M
 - generated \$184M or 1.8 times the activity
- 1,900 direct jobs
 - +810 jobs (indirect & induced)
 - 2,710 total jobs
- Paid \$37.3M in wages
 - generated additional labor income of \$39.9M
 - \$77.M total wages

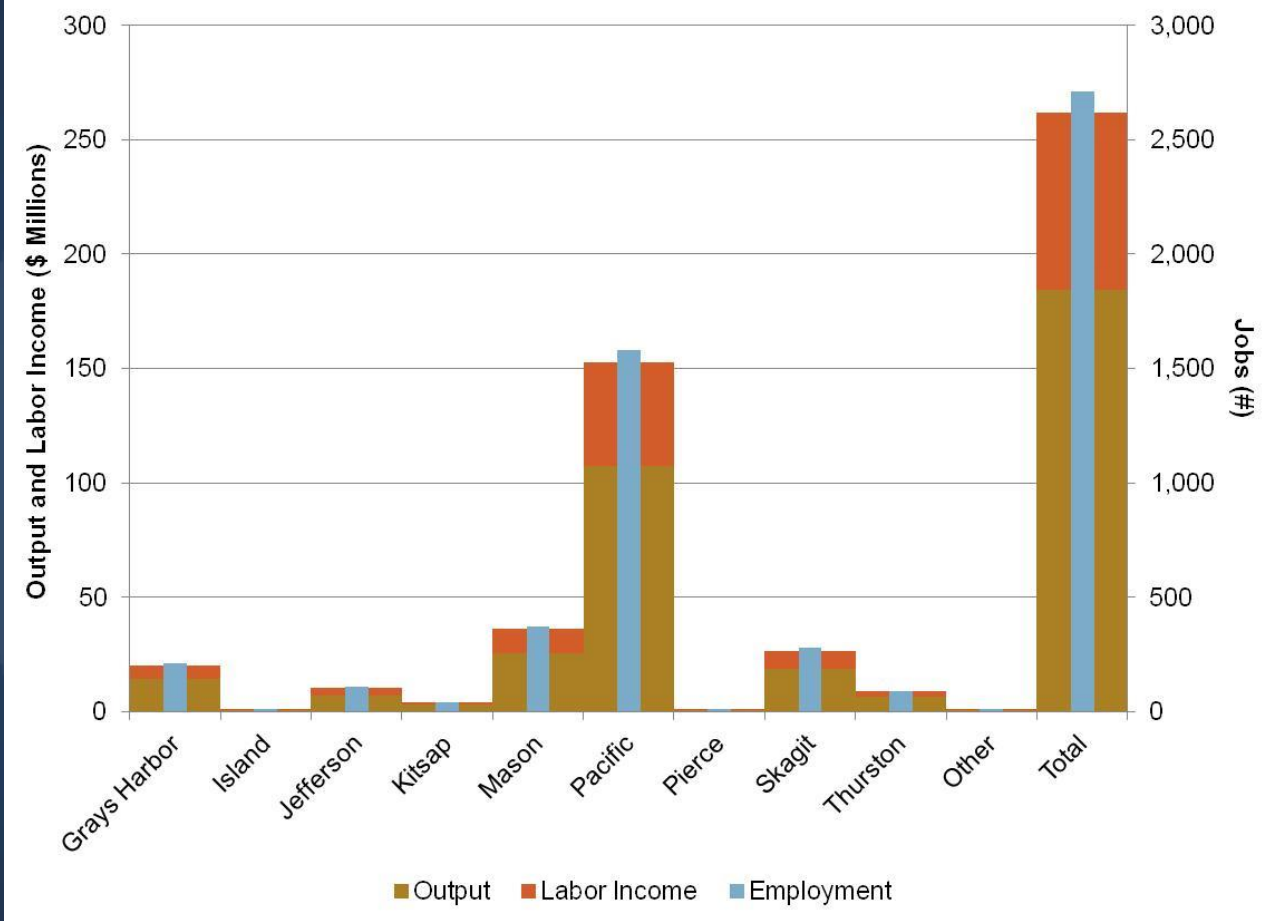


CA Shellfish Aquaculture in 2010

- Farms spent \$11.9M
 - generated \$23.3M or 1.9 times the activity
- 200 direct jobs
 - +80 jobs (indirect and induced)
 - 280 total jobs
- Paid \$5.4M in wages
 - generated additional labor income of \$4.6M
 - \$10M total wages



Economic Impact by County (WA)



WA Economic Impact

Multipliers per \$	Output	Employment	Labor Income (LI)
Direct	\$101,418,100	1,900	\$37,290,600
Indirect	\$38,319,900	390	\$21,281,600
Induced	\$44,802,000	420	\$18,664,700
Total	\$184,540,000	2,710	\$77,236,900

	<i>Output (per \$)</i>	<i>Employment (per \$M)</i>	<i>LI (per \$)</i>
Multiplier	1.82	26.72	0.76



Additional Areas of Interest

- Sales trends and demand factors
- Economic impact of shellfish consumption
 - Retail markets
 - Restaurants
 - Festivals & fundraisers
 - Culinary tourism



NOAA Funding



NOAA Sea Grant Aquaculture Research Program
NA10OAR4170057

Research partners (economic tasks only):



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Ted Kuiper



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Thank you!



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