

Oregon Port Districts - An Economic Profile

by

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Internship Report

Submitted to

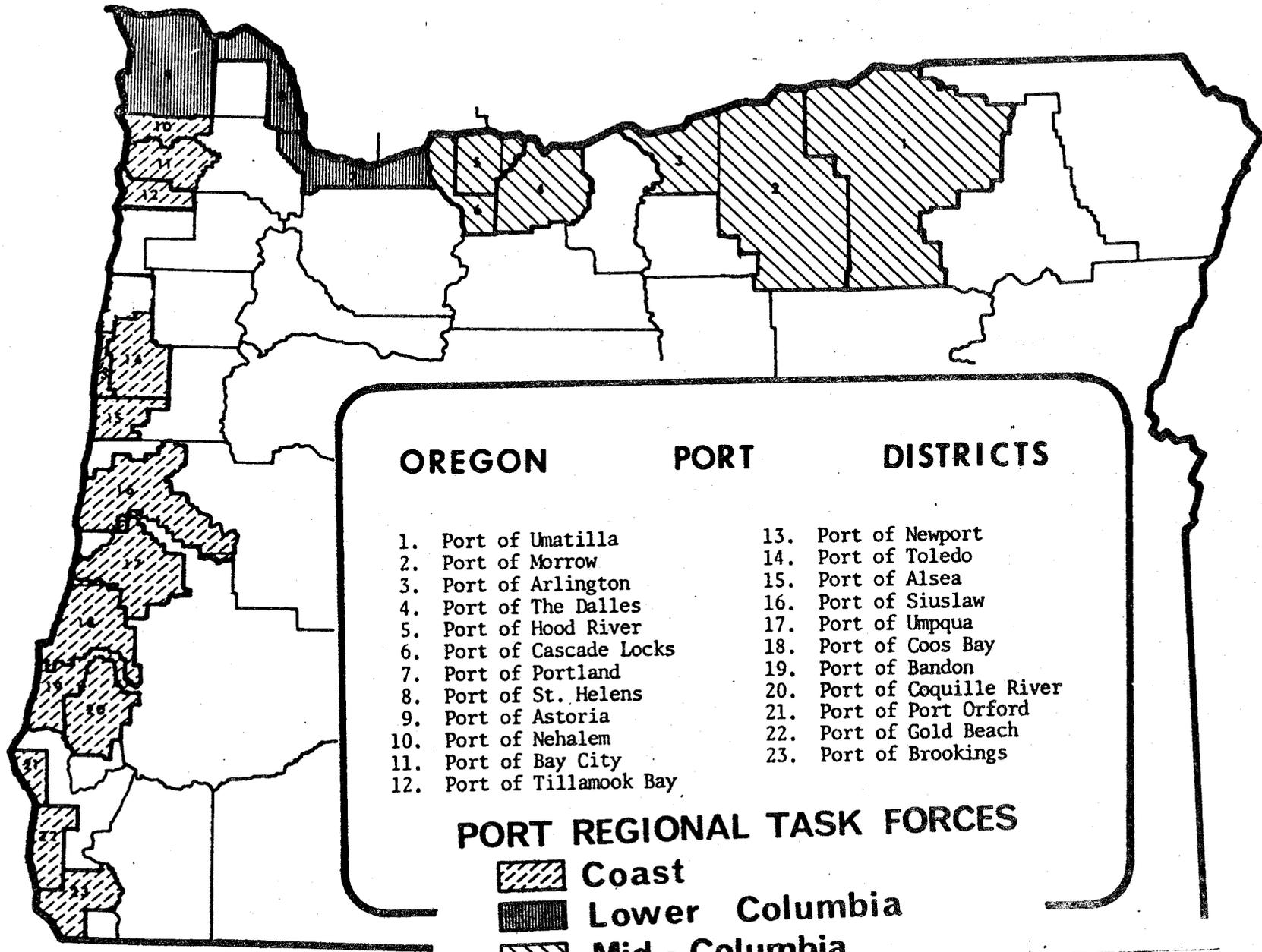
Marine Resource Management Program
School of Oceanography
Oregon State University

1976

in partial fulfillment of
the requirements for the
degree of

Master of Science

Internship: State of Oregon
Dept. Economic Development
Portland, Oregon



T A B L E O F C O N T E N T S

INTRODUCTION	1
PART I - Terms and Study Qualifications	4
Direct Jobs Class Breakdowns	7
PART II - Port District Regions and System Impact	9
PART III - Shipping Activity	14
PART IV - Oregon Port Districts in the Role of Economic Developers	29
PART V - Activities of the Individual Port Districts	34
PART VI - Future Directions	43
PART VII - Data Background	46
Employment and Payroll Data	46
Payroll Multipliers	47
BIBLIOGRAPHY	49

L I S T O F T A B L E S

TABLE 1	- Columbia River Tonnages Above Portland	10
TABLE 2	- Oregon Port District Region Impacts	11
TABLE 3	- Origins and Destinations of Major Coos Bay Handled Cargo	17
TABLE 4	- Oregon Port District Commercial Food Fish Landings 1973 and 1974	19
TABLE 5	- Estimated Dollar Value of Oregon Port District Commercial Food Fish Landings 1973 and 1974	19
TABLE 6	- Oceangoing Grain Movements: Most Active Puget Sound Ports vs. Oregon and Washington Columbia River Ports	20
TABLE 7	- Wood Products Tonnages 1970 and 1975: West Coast Ports Active in Wood Products Shipping	24
TABLE 8	- Total Coastwise and Foreign Import/Export Tonnages for Most Active West Coast Ports 1970 and 1975	26
TABLE 9	- Port Industrial Park Direct Payroll	33
TABLE 10	- Ranking of Oregon Port Districts by Total Port District Payroll 1975	40
TABLE 11	- Ranking of Oregon Port Districts by Ratio of Total Port District Payroll to Port Taxes Levied 1975	41

L I S T O F F I G U R E S

FIGURE 1 - 1975 Oregon Port Districts Shipping Activity . . .	15
FIGURE 2 - Shares of Pacific Northwest Oceangoing Grain Movements 1970 and 1975	21
FIGURE 3 - Selected Pacific Northwest Oceangoing Grain Ports: Their Tonnage Fluctuations 1970, 1974 and 1975	22
FIGURE 4 - Selected West Coast Ports Active in Wood Products Shipping: Tonnage Fluctuations 1970, 1974 and 1975	25
FIGURE 5 - Selected Most Active West Coast Ports: Total Oceangoing Tonnage Fluctuations 1970, 1974 and 1975	27
FIGURE 6 - Comparative Shares of Oregon Port District System Total Payrolls 1975	42

L I S T O F M A P S

MAP 1 - Oregon Port District's Geographic Locations . . .	i
MAP 2 - Counties of Origin for Wood Product Exports Out of Coos Bay	18

INTRODUCTION

The intent of Oregon Port Districts: An Economic Profile is to present a profile of the activities of the Oregon Port Districts and to evaluate some of the economic contributions that port district operations made in 1975. The study reflects the present role of the port districts within their community and the state, and reveals trends which suggest possible future impacts.

The study is organized into seven parts:

- Part I - Definition of terms and study qualifications
- Part II - Single-year impacts and growth trends
- Part III - Shipping activity comparisons
- Part IV - Port district industrial park development
- Part V - Port district economic contributions, activities, and services
- Part VI - Future directions
- Part VII - Background on data collection methodology

Throughout the study, an important distinction is made between the Port District as the legally authorized municipal body, and the Port District, the jurisdictional area. Within the enabling legislation ORS 777, the Oregon Legislature empowers the incorporation of port districts with various functions and covering specific jurisdictional areas. In assessing the community and statewide economic contribution made by each port district, it was decided to include both evaluation of those activities directly operated/managed by the port district as the legal body, and all traditional seaport-related activities within the port district jurisdictional area.

Shipping facilities ownership and operation provides a good example of the necessary distinction. In general, it is only at Astoria and Portland that the officials and staff of the legal port district body provide for the operation and improvement of the major shipping facilities in the port district. Within the other Oregon port districts, almost all of the shipping activity goes through facilities privately operated and/or owned, many times by the shippers themselves. This relationship is exemplified at the Port District of Coos Bay, where the wood and petroleum products industries own and operate the docks and terminals and provide for the cargo handling. So, to completely evaluate port district economic contributions from shipping activity, it was important to include all waterborne shipping activity occurring within the confines of the port district and not just the shipping occurring at the facilities owned/operated by the legal port district body.

Similar reasoning lies behind the inclusion of the traditional seaport-related activities (hereafter referred to as associated industries) within port district economic contribution. Associated industries such as fish handling, resident fulltime commercial fishing, though not owned, operated or salaried by the legal port district body, were determined to be "port dependent" enough (as well as possessing their traditional seaport relationship) to warrant inclusion in the evaluation of port district economic contribution.

In an attempt to keep clear this distinction throughout the study, the term "port" (or more specifically, the Port of Coos Bay, the Port of Portland) is used when referring to jobs and/or payrolls generated by an activity owned and/or operated by the legal port district body. The term "port district" (or more specifically, the Port District of Coos

Bay, the Portland port district) is used when referring to jobs and/or payrolls generated by all traditional seaport-related activities occurring within the port district jurisdictional area, though they are not all necessarily owned or operated by the legal port district body.

As indicated above, "the intent of Oregon Port Districts: An Economic Profile is to present a profile of the activities of the Oregon Port Districts and to evaluate some of the economic contributions that port district operations made in 1975".

Part I

TERMS AND STUDY QUALIFICATIONS

Definition of Terms

Mid-Columbia Ports Region - Includes the Port Districts of Cascade Locks, Hood River, The Dalles, Arlington, Morrow County, and Umatilla. They all lie on the Columbia River.

Lower Columbia Ports Region - Includes the Port Districts of Portland, St. Helens, and Astoria, all providing deep draft access on the lower reaches of the Columbia River.

Coastal Ports Region - Includes the Port Districts of Nehalem, Bay City, Tillamook Bay, Newport, Toledo, Alsea, Siuslaw, Umpqua, Coos Bay, Bandon, Coquille River, Port Orford, Gold Beach, and Brookings. All provide some degree of access to the Pacific Ocean.

Interior Ports Region - No port districts presently; the region includes all counties not within the three regions above.

Cargo Handling Payroll - The payroll within the port district for waterborne cargo loading and unloading, barging services, freight forwarding, cargo inspection, etc.

Associated Industries Payroll - The payroll within the port district for resident fulltime commercial fishing, fish processing, marinas, charter boats, ship repair, etc.

Industrial Park Payroll - That payroll attributable to tenants located in port industrial parks. The terms industrial development, economic development, and industrial park development are used interchangeably throughout, referring to the same general activity.

Direct Port District Payroll - Payroll for cargo handling, plus payroll for associated industries, plus payroll for industrial park development, plus port staff payroll.

Total Port District Payroll - The direct port district payroll times the individual port district multiplier.

Multiplier - A factor which accounts generally for the indirect and induced payroll impacts generated by port district activities.

Total Port District System Payroll - The mathematical sum of the 23 individual total port district payrolls.

Total Statewide Port District Generated Payrolls - The mathematical sum of the 23 individual direct port district payrolls times the over-all state multiplier to account for all payrolls generated within the state as a result of port district-related activity.

Ratio of Total Port District Payroll to Port Taxes Levied - A rough "benefit" to "cost" ratio from the public's viewpoint, giving an indication of port district cost effectiveness.

General Cargo - Cargo such as machinery, electrical goods, various agricultural products, motor vehicles, lumber, steel products, and other manufactures.

Total Cargo Tonnage Handled - For the Coastal and Lower Columbia River Port Districts; this tonnage includes the sum of foreign imports and exports and coastwise receipts and shipments in the port district. For the Mid-Columbia River Port Districts, this includes all river cargo received and shipped in the port district. Figures for the Coastal and Lower Columbia River Port Districts are subject to U.S. Army Corps of Engineers' definition and compilation and do not include any cargo movements through or within a port district. Mid-Columbia figures were derived from the shippers themselves.

Total Direct Port District Jobs - Jobs generated within each port district in cargo handling activities, associated industries, port industrial parks, and port staff. These might also be referred to as "port-related" jobs (see note on following page).

Study Qualifications

- 1) Due to the inability to allocate exactly all cargo handling payroll to every port district in question, some cargo handling payroll actually accruing at the smaller port districts may be attributed to the more active cargo shipping port districts.
- 2) Costs such as environmental damage or lost opportunities are neither evaluated nor mentioned. Conversely, environmental constraints may be limiting factors for the ports with regard to development activity.
- 3) Community expenditure benefits due to recreational activity, ship outfitting, etc., are picked up in terms of indirect and

induced payroll effects through the application of a multiplier. Moreover, though incompletely evaluated herein, intangibles such as port-provided services (channel maintenance, moorage facilities) should be kept in mind when assessing a port district's contribution to the community.

- 4) Fishing payrolls evaluated are only those accruing to "resident-of-the-port district, fulltime" commercial fishermen. It should be remembered that resident, parttime commercial fishermen generate payrolls for their port district as well.
- 5) As opposed to the Economic Impact Section of the 1972 Survey of Oregon Ports, additional activities such as inland transport (truck, rail) of waterborne cargo have been included in the present study, reflecting their direct port association and/or waterborne cargo handling role. This results in two different compilations of port district-related activities within the two studies whose comparison cannot be made.

NOTE: Direct Jobs Class Breakdown

The following listing is to provide a clear definition of the types of jobs included within each category. Once again, the focus is on the Port District as a geographical jurisdiction as opposed to the Port District as the legally authorized municipal body. Thus, every reasonable attempt was made to include all jobs which were the direct outcome of the operations of the port district body. This includes port staff, tenants of port industrial parks, employees at the port-operated airports, and lessees of port-owned facilities. In addition, activities involved in the movement of waterborne cargo over port-owned and privately-owned

facilities within the port district (jurisdictional area) were included. Finally, those marine activities within the port district which were judged to be "port-associated" were also included within the heading of direct jobs.

Port Staff

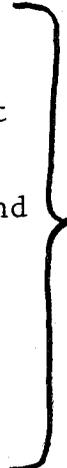
Employees of the legally authorized body, the "Port".

Tenants of Port Industrial Parks

Employees at Port-Operated Airports

Cargo Handling

- Longshoring
- Non-Longshore Dock Labor
- Stevedoring
- River and Bar Pilots
- Ship Chandlery
- Marine Surveyors
- Auto Handling and Servicing
- Federal Inspectors
- Steamship Lines and Agents
- Custom House Brokers and Freight Forwarders
- Packing, Crating, Warehousing and Container Stuffing
- Inland Rail Transport
- Inland Truck Transport
- Inland Barge Transport



Lessees of Port-Owned Facilities

Would fit under cargo handling or associated industries, depending upon the activity involved as well as degree of "port dependence" involved.

Associated Industries

- Charter Boat Operations
 - Vessel Repair
 - Resident Fulltime Commercial Fishermen
 - Seafood Handling and Processing
 - Marinas
- Only that portion of their business dealing with the waterborne cargo through all the shipping facilities within the port districts.

Part II

PORT DISTRICT REGIONS AND SYSTEM IMPACT

Table 2 reports data that reflects the regional port district economic relationships of 1975. Largely as a result of their economic development programs, the Mid-Columbia Port Districts have matured into a strong complement to the Lower Columbia and Coastal Port Districts. In 1975, the Mid-Columbia region accounted for 6.5 percent of the total port system payroll and if the Port District of Portland is excluded, Mid-Columbia Port Districts generate 24.9 percent. Total tonnages handled were a small percentage (3.6 percent) of the state total considered; however, continued recent area growth in agriculture and industry may result in increased Mid-Columbia shipping in the future. The potential for that increase is suggested by the comparisons in Table 1. The cargo tonnages going upriver from the Portland area increased substantially over the period 1970-1975 as did the tonnages ^(reserved for) (dropped off) to the Mid-Columbia port districts along the way. The same trends were true for cargo coming downstream. With the increased payrolls that have been generated through industrial park and promotional programs, the Mid-Columbia Port Districts achieved ~~in~~ 1975 a cost effectiveness ratio of \$138.29 ^{of} payrolls generated for every \$1.00 of port taxes levied. In a comparison of respective ratios, the Mid-Columbia Region ^{more than holds its own} ~~stands out well~~ with the Coastal and Lower Columbia Regions.

When focusing on Lower Columbia Ports' impacts, it is clear that the Port of Portland is a strong influence among the state's port districts. The Lower Columbia Ports generated 79.5 percent of total port system payrolls in 1975; excluding the Port of Portland, they account

Table 1

COLUMBIA RIVER TONNAGES ABOVE PORTLAND

<u>1970</u>	<u>Upbound</u>	<u>Downbound</u>
Through Bonneville Dam	578,800 (46,800 net dropped off)	2,541,500 (785,500 net picked up)
Through The Dalles Dam	532,000 (21,600 net picked up)	1,756,000 (24,000 net picked up)
Through John Day Dam	553,600	1,732,000
<u>1975</u>	<u>Upbound</u>	<u>Downbound</u>
Through Bonneville Dam	1,389,400 (351,900 net dropped off)	3,562,500 (833,700 net picked up)
Through The Dalles Dam	1,037,500 (3,300 net picked up)	2,728,800 (172,000 net picked up)
Through John Day Dam	1,040,800 (6,400 net dropped off)	2,656,800 (183,700 net picked up)
Through McNary Dam	1,034,400 (1,002,600 net dropped off)	2,473,100 (1,237,800 net picked up)
Through Ice Harbor Dam Snake River (10mi.)	31,800	1,235,300

SOURCE: Portland District, U.S. Army Corps of Engineers

Table 2

OREGON PORT DISTRICT REGION IMPACTS

MID-COLUMBIA REGION

Tonnages thru Oregon Port Districts on the Mid-Columbia River	Total Direct Jobs	Total Payroll	Port Taxes Levied FY 75-76	<u>Total Payroll Taxes Levied</u> (Ratio)
792,400	2,705	\$33,340,800	\$241,000	138.29

LOWER COLUMBIA REGION

Oceangoing Tonnages Only (Foreign Imports/Exports Domestic Coastwise Receipts/Shipments)	Total Direct Jobs	Total Payroll	Port Taxes Levied FY 75-76	<u>Total Payroll Taxes Levied</u> (Ratio)
15,303,800	16,180	\$405,217,200	\$6,817,200	59.44

COASTAL REGION

Oceangoing Tonnages (Foreign Imports/Exports Domestic Coastwise Receipts/Shipments)	Total Direct Jobs	Total Payroll	Port Taxes Levied FY 75-76	<u>Total Payroll Taxes Levied</u> (Ratio)
5,712,200	4,285	\$71,143,400	\$459,900	154.69

STATEWIDE¹

Total Tonnages (Sum of the Three Above)	Total Direct Jobs	Total Payroll	Port Taxes Levied FY 75-76	<u>Total Payroll Taxes Levied</u> (Ratio)
21,808,400	23,170	\$974,214,700	\$7,518,000	129.58

¹Total statewide payrolls generated by the port district system, and thus payroll to taxes ratio for the state, are greater than the simple sum or average of port district region values due to the application of an over-all state multiplier of 4.01 (as developed in An Economic Analysis of Resource Allocation in the Oregon State Highway Division, Final Report, Oregon State University Department of Economics, 1972, p. II-9a) to pick up all indirect and induced payroll effects within the whole state.

for 22.1 percent. As can be derived from Table 1, over 70 percent of the oceangoing cargo tonnage for the state in 1975 went through the Lower Columbia Ports Region and, consequently, as a region, it generated a substantial amount of the total port district system cargo handling payrolls. Additionally, the Lower Columbia Ports handle approximately 90 percent of the general cargo that travels over Oregon port district docks. Because general cargo requires more handling time than bulk cargo, this also implies greater cargo handling payrolls for the Lower Columbia Ports. Nonetheless, industrial development opportunities have not been overlooked by any of these ports, as reflected by private activity at the St. Helens Port Westward facilities, the Port of Portland's two industrial parks, and current negotiations and proposals at Astoria and St. Helens.

On the strength of fulltime resident commercial fishing and related fish processing activity within the individual port districts, the Coastal Ports Region established the highest payrolls to taxes ratio of the three regions in 1975. While the region accounted for 14 percent of the total port system payrolls generated, if the effects of the Portland port district are suppressed, the Coastal Ports contribute 53 percent. Current industrial park successes at Umpqua and Tillamook Bay, as well as developments being considered elsewhere on the coast, indicate additional economic contributions by the Coastal Ports in the future.

Oregon port districts appeared to "hold their own" tonnagewise in 1975. Despite general economic recession, 1975 Oregon oceangoing tonnages decreased only 1.1 percent from the 1974 record level and were 32.1 percent over the same tonnages of 1970 (total tonnage comparisons

tonnages, with Umatilla showing significant activity at 13 percent of state's Columbia River total. This pattern was also present the year before.

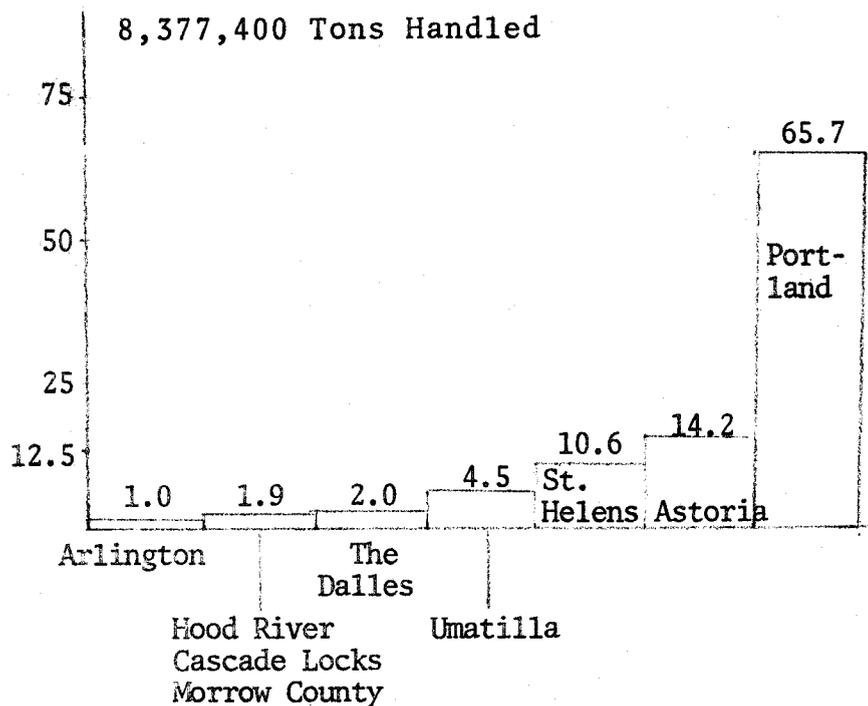
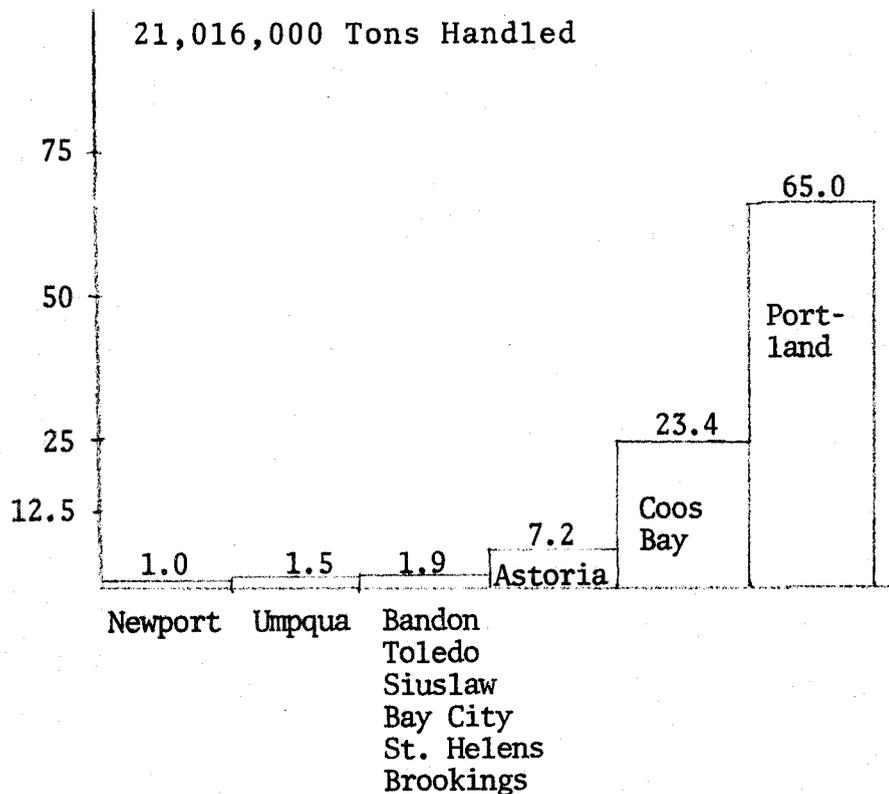
The Portland port district handles cargo destined for worldwide markets. Southern California and Hawaii are the most important markets for most of the coastal port districts. Astoria, Newport, and Coos Bay also export to Japan, to the Pacific Islands, and the U.S. East Coast. Europe is served by Coos Bay as well. As the port of export for wood products from all over Oregon (see Table 3), the Coos Bay port district serves to indirectly employ great numbers of Oregonians in the mills and yards producing the wood products. It is estimated that almost 600 fulltime equivalent trucking jobs alone were involved in the transport of import/export cargo to and from Coos Bay in 1975.

Though they are not included in total tonnages handled at each port district, commercial fish landings are sizeable as indicated by Table 3. They are the source of livelihood to the fishermen who catch the fish and to those who handle the fish on their way to the consumer's table. For coastal port districts, commercial fishing provides a complement to the export of wood products. Landings are concentrated in three port districts--Astoria, Newport, and Coos Bay--with Astoria comprising half of the coastal ports' total. Moreover, the rise in 1974 total landings over 1973 can be almost wholly attributed to the large increase of tuna landings at Astoria.

Figures 2-5 and Tables 6-8 report data which compare Portland, Astoria, and Coos Bay with the most active Puget Sound, West Coast, and Washington Columbia River ports. It should be kept in mind that 1974

Figure 1

1975 OREGON PORT DISTRICTS SHIPPING ACTIVITY



Part III
SHIPPING ACTIVITY

Waterborne shipping in Oregon falls into two geographical sectors: the river traffic along the Columbia River and the import/export flows out of the Coastal and Lower Columbia River port districts. Traffic for the Oregon Mid-Columbia port districts has been predominantly petroleum products received from the Portland area and grain going downriver to the Portland area. Generally, the coastal port districts specialize in wood product exports.

While waterborne shipping occurs in most of the port districts, in terms of tonnages handled, it is concentrated in two areas--the Lower Columbia and Coos Bay. Figure 1 graphically illustrates the contrast. In fact, when focusing only on oceangoing tonnages, the Port District of Portland accounted for almost two-thirds of the 1975 Oregon total. Eliminating the Portland port district tonnages, Coos Bay and Astoria account for 87.5 percent of the 1975 oceangoing tonnages, while no one of the other port districts contributes more than 4.5 percent of that "Portland excluded" state total. This prevalence of the Lower Columbia Region and Coos Bay in Oregon port district oceangoing tonnages handled, held true for the previous year and 1970 as well.

On the entire Columbia River, the Portland port district was again the focus for Oregon, with two-thirds of the state river traffic total; Astoria and St. Helens made smaller contributions. When Portland is eliminated from the 1975 Oregon port district river traffic, Astoria and St. Helens contribute 41 and 31 percent respectively of these river

with other West Coast ports are indicated in the part following). Oregon port district river traffic for 1975 was nearly equal to the 1974 level as well.

As a rough indication of port district cost effectiveness, the ratios of total port district payroll to port taxes levied in Table 1 show that within all port regions and for the state as a whole, the port districts are generating benefits (payroll) far in excess of costs (taxes) to the public (disregarding other benefits and costs such as port services and environmental damage). Comparison reveals that fiscal year 1975-76 port taxes levied by the Oregon port districts were just 0.97 percent of the state total property taxes FY 75-76². Yet, 1975 total state port district-generated payrolls (direct port district payrolls times the over-all state multiplier of 4.01) constituted 10.2 percent of state total wage and salary disbursements³.

Clearly, the Oregon port districts are showing economic contributions far greater than their cost of operation to taxpayers.

²Oregon Department of Revenue, Research and Special Services Division, Oregon Property Tax Statistics, Salem, Oregon, August 1976.

³U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, August 1976.

Table 3

ORIGINS AND DESTINATIONS
OF MAJOR COOS BAY-HANDLED CARGO

Wood Chips - Origins

Coos County
Bandon
Coquille
Myrtle Point
Norway

Curry County
Brookings
Gold Beach
Port Orford

Douglas County
Dillard
Dixonville
Drain
Glide
Riddle
Roseburg
Sutherlin
Winston

Jackson County
Medford
Rogue River
White City

Josephine County
Grants Pass

Lane County
Cottage Grove
Creswell
Cushman
Culp Creek
Eugene
Florence
Goshen
Mapleton
Springfield
Swiss Home

Logs - Origins

Coos County
Curry County
Douglas County
Jackson County
Jefferson County
Josephine County
Klamath County
Lane County
Linn County
Marion County

N. Cal. Counties
Del Norte
Humboldt
Shasta
Siskiyou
Tehema

Lumber - Origins

Clackamas County
Coos County
Curry County
Douglas County
Jackson County
Josephine County
Lane County
Linn County
Multnomah County
Tillamook County

N. Cal. Counties
Del Norte
Humboldt

Linerboard - Origins

Coos County
Douglas County
Lane County

Petroleum - Dest.

Coos County
Curry County
Douglas County
Jackson County
Josephine County
Klamath County
Lane County
Lincoln County

Plywood - Origins

Coos County
Curry County
Douglas County
Jackson County
Josephine County
Lane County
Lincoln County
Linn County
Multnomah County
Tillamook County

N. Cal. Counties
Del Norte
Humboldt

Source: Port of Coos Bay

Counties of Origin for Wood Product Exports Out of Coos Bay

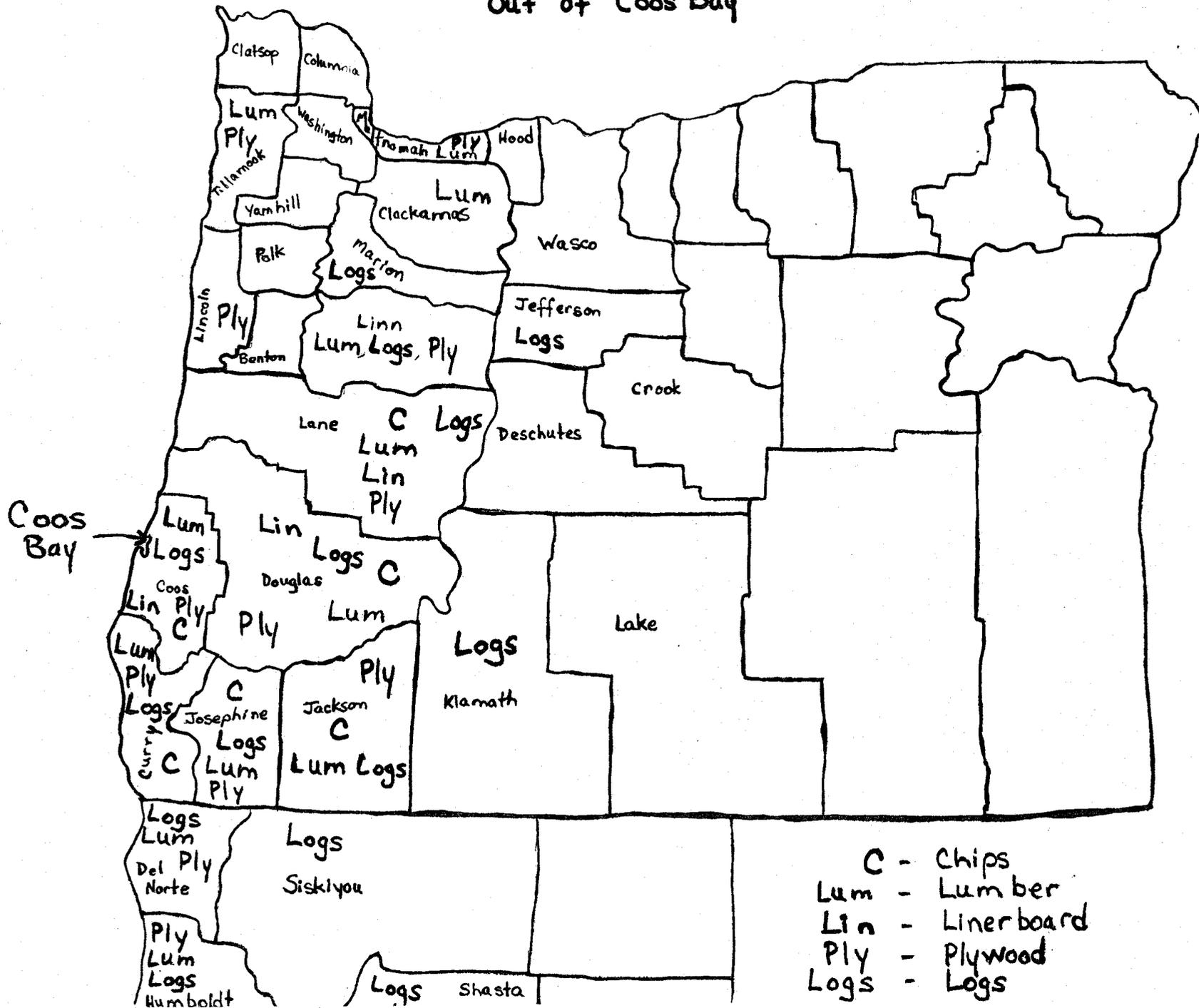


Table 4

COMMERCIAL FOOD FISH LANDINGS IN POUNDS ROUND WEIGHT
BY STATE OF OREGON DEPARTMENT OF FISH AND WILDLIFE
FOR CALENDAR YEARS 1973 AND 1974

<u>Port District</u>	<u>1973</u>	<u>1974</u>	<u>Percent Change</u>
Astoria	32,650,400	45,230,600	+38.5
Bay City	3,148,900	3,455,400	+ 9.7
Newport	15,757,000	13,038,500	-17.3
Siuslaw	290,200	261,000	+10.1
Umpqua	5,054,600	5,756,900	+13.9
Coos Bay	18,303,400	15,720,200	-14.1
Bandon	517,700	668,100	+29.1
Port Orford	2,780,800	1,324,900	-52.4
Gold Beach	216,100	223,800	+ 3.6
Brookings	3,753,600	3,372,500	-10.2
Port System Total	82,472,700	89,051,900	+ 8.0
Columbia River and Other Coastal Sites	9,263,800	6,786,400	-26.7
State	91,736,500	95,838,300	+ 4.5

Table 5

ESTIMATED DOLLAR VALUE AT FISHERMEN'S LEVEL
OF COMMERCIAL FOOD FISH LANDINGS
BY STATE OF OREGON DEPARTMENT OF FISH AND WILDLIFE
FOR CALENDAR YEARS 1973 AND 1974

<u>Port District</u>	<u>1973</u>	<u>1974</u>	<u>Percent Change</u>
Astoria	9,019,000	14,004,000	+55.3
Bay City	1,145,000	1,418,000	+23.8
Newport	5,402,000	4,996,000	- 7.5
Siuslaw	178,000	142,000	-20.2
Umpqua	1,326,000	1,591,000	+20.0
Coos Bay	5,801,000	6,130,000	+ 5.7
Bandon	360,000	458,000	+ 2.7
Port Orford	843,000	639,000	-24.2
Gold Beach	148,000	134,000	- 9.5
Brookings	1,095,000	1,031,000	- 5.8
Port System Total	25,317,000	30,543,000	+20.6
Columbia River and Other Coastal Sites	7,532,000	3,753,000	-50.2
State	32,849,000	34,296,000	+ 4.4

Source: Oregon Fish Commission; Oregon Department of Fish & Wildlife

Table 6

OCEANGOING GRAIN MOVEMENTS (Foreign Imports/Exports Coastwise Receipts/Shipments) - MOST ACTIVE PUGET SOUND PORTS VS. OREGON & WASHINGTON COLUMBIA RIVER PORTS

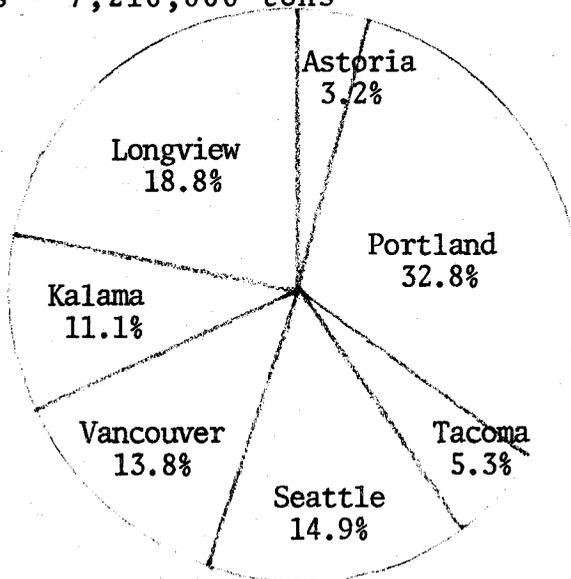
<u>Port</u>	<u>1970 Tons</u>	<u>1975 Tons</u>	<u>% Change</u>
Astoria	234,300	201,000	- 14.2
Portland	2,365,900	4,097,300	+ 73.2
Longview	1,355,700	1,190,200	- 12.2
Kalama	803,700	810,900	+ .9
Vancouver	994,700	728,500	- 26.8
Total Oregon Columbia River	2,600,200	4,204,700	+ 61.7
Total Washington Columbia River	3,154,100	2,729,600	- 13.5
Total Columbia River	5,754,300	6,934,300	+ 20.5
<u>Oregon Tonnages</u> <u>Washington Tonnages</u> (Ratio)	.82	1.54	
Oregon's % Share of Columbia River Oceangoing Grain Movements	45%	61%	
Tacoma	381,600	780,900	+104.6
Seattle	1,074,100	1,013,000	- 5.7
Total Puget	1,455,700	1,793,900	+ 23.2
<u>Colum. R. Tonnages</u> <u>Puget Tonnages</u> (Ratio)	3.95	3.87	
<u>Ore. Colum. R. Tonnages</u> <u>Puget Tonnages</u> (Ratio)	1.79	2.34	
<u>Wash. Colum. R. Tonnages</u> <u>Puget Tonnages</u> (Ratio)	2.17	1.52	

Figure 2

SHARES OF PACIFIC NORTHWEST OCEANGOING GRAIN MOVEMENTS

1970

Total oceangoing grain tonnages through most active Puget Sound and Columbia River ports - 7,210,000 tons



1975

Total oceangoing grain tonnages through most active Puget Sound and Columbia River ports - 8,728,200 tons

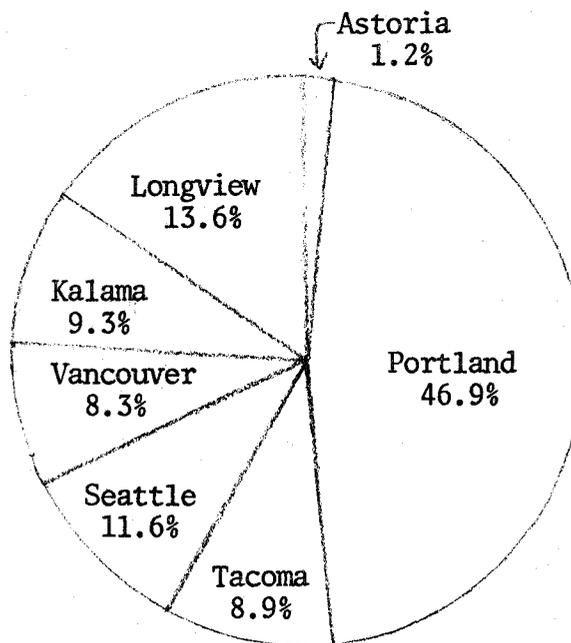
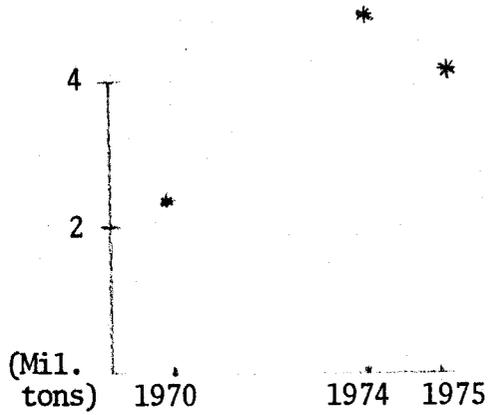
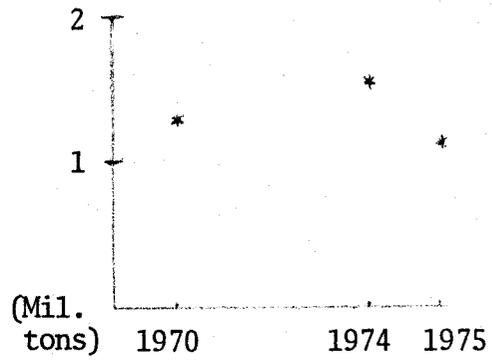


Figure 3

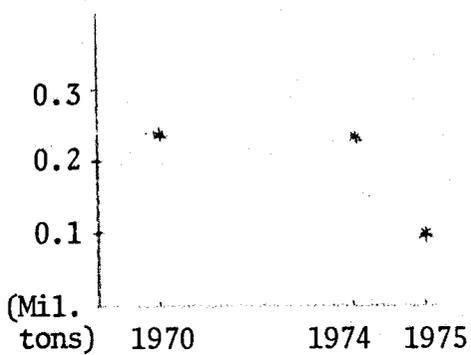
SELECTED PACIFIC NORTHWEST OCEANGOING GRAIN PORTS
AND THEIR TONNAGE FLUCTUATIONS
1970, 1974 and 1975



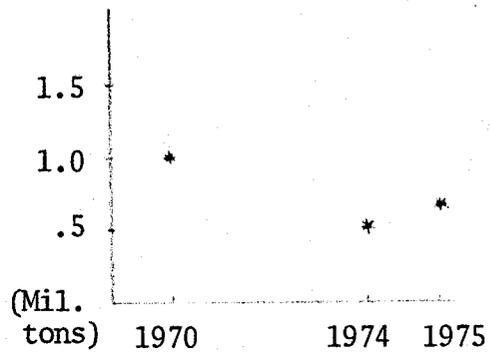
PORTLAND



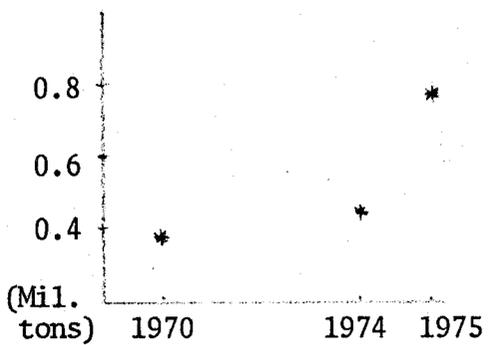
LONGVIEW



ASTORIA



VANCOUVER



TACOMA

was a boom year for shipping, whereas 1975 was marked by worldwide economic recession, depressed markets, and decreased shipping. Three-quarter year figures for 1976 indicate a marked recovery approaching the 1974 levels.

In 1970, Portland and Astoria handled less than 50 percent of the oceangoing grain through the Columbia River ports (Portland, Astoria, Longview, Kalama, and Vancouver). As noted in Table 6, by 1975, as a result of a near doubling of grain tonnage through the Portland port district, the situation was reversed so that the two Oregon port districts handled well over 50 percent of the grain through Columbia River ports. Portland has continued to increase its share of the Columbia River oceangoing grain tonnage from 41.1 percent in 1970 to 59.1 percent in 1975, and the two Oregon port districts increased their combined 1975 oceangoing grain tonnages shipped by 61.7 percent over their 1970 tonnages.

The Columbia River ports compare favorably to the most active Puget Sound grain ports (Tacoma, Seattle) in oceangoing grain tonnages. During the period 1970-75, Columbia River ports handled between four and five times as much oceangoing grain as the Puget Sound ports. Portland and Astoria by themselves in 1975 handled two and a half times the Puget Sound oceangoing grain. It is important to note, however (Figure 3), that during 1974-75, Tacoma and Seattle both increased their grain tonnages. On the other hand, four of the five Columbia River grain ports experienced a decrease in their oceangoing grain tonnages for a marked decrease in oceangoing grain tonnages handled by the Columbia River grain ports as a whole.

Oregon's three most active wood products shipping port districts all exhibited significant increases in wood products handled between

Table 7

WOOD PRODUCTS TONNAGES 1970 AND 1975:
WEST COAST PORTS ACTIVE IN WOOD PRODUCTS SHIPPING

<u>Port</u>	<u>1970 Tons</u>	<u>1975 Tons</u>	<u>Percent Change</u>
Coos Bay	3,631,200	4,380,300	+ 20.6
Portland	807,800	1,921,600	+137.9
Astoria	1,146,200	1,334,000	+ 16.4
Longview	2,646,300	2,227,800	- 15.8
Grays Harbor	2,207,900	1,997,900	- 9.5
Port Angeles	1,275,900	1,582,300	+ 24.0
Tacoma	2,121,400	2,604,000	+ 22.7
Seattle	779,500	1,510,600	+ 93.8
Everett Harbor	1,715,700	1,484,000	- 13.5
Sacramento	536,100	467,500	- 12.8

Figure 4

SELECTED WEST COAST PORTS ACTIVE IN WOOD PRODUCTS SHIPPING
WOOD PRODUCTS TONNAGE FLUCTUATIONS
1970, 1974 and 1975

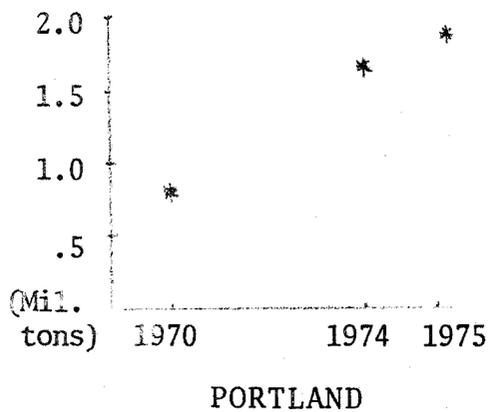
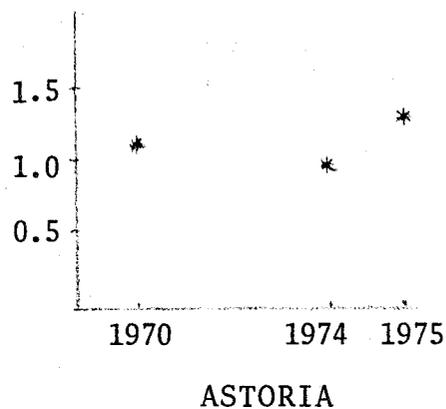
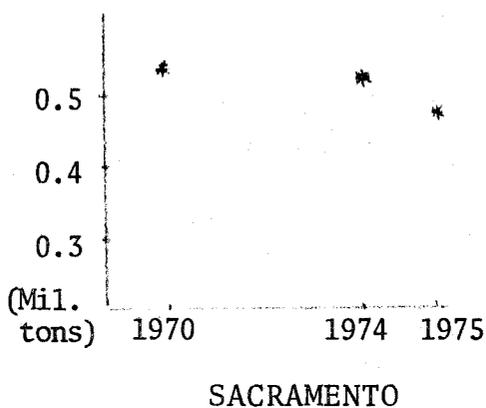
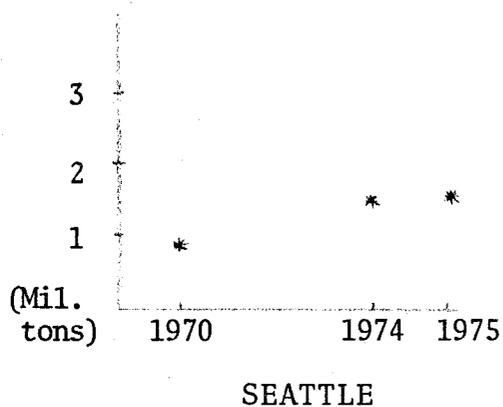
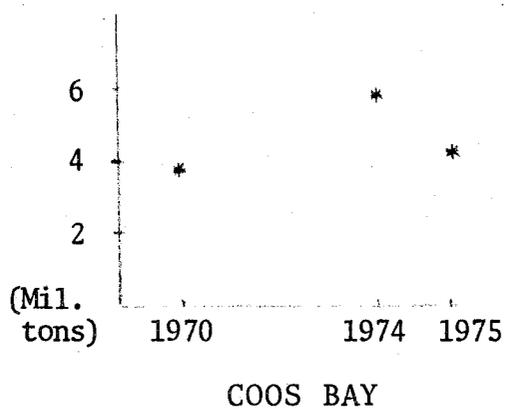


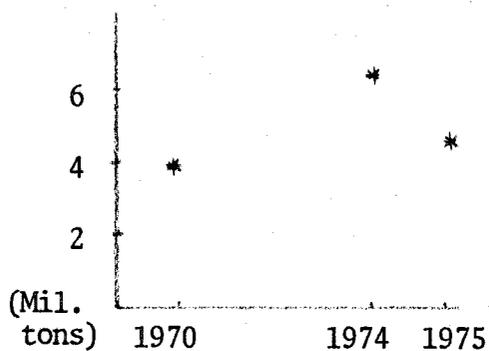
Table 8

TOTAL COASTWISE AND FOREIGN IMPORTS/EXPORTS
FOR MOST ACTIVE WEST COAST PORTS, 1970 AND 1975

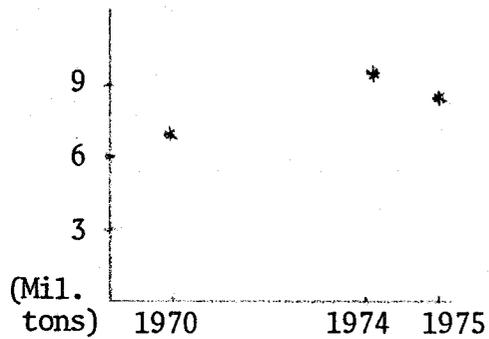
<u>Port</u>	<u>1970 Tons</u>	<u>1975 Tons</u>	<u>Percent Change</u>
Portland	9,937,700	12,156,600	+22.3
Astoria	1,459,700	1,483,300	+ 1.6
Coos Bay	3,964,500	4,909,200	+23.8
Seattle	7,388,800	8,836,600	+19.6
Tacoma	5,656,900	6,052,200	+ 7.0
Anacortes	2,723,300	3,598,200	+32.1
Longview	4,441,000	4,325,600	- 2.6
Vancouver	1,945,200	1,862,500	- 4.3
San Francisco	1,915,600	1,794,600	- 6.3
Oakland	4,026,700	4,996,700	+24.1
Richmond	11,098,200	11,772,500	+ 6.1
Carquinez Strait	11,706,200	10,387,400	-11.3
Los Angeles	21,651,500	28,347,700	+30.9
Long Beach	21,035,400	25,052,900	+19.1
San Diego	1,736,000	2,143,300	+23.5

Figure 5

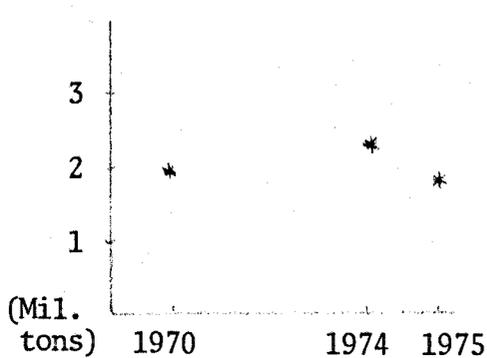
SELECTED MOST ACTIVE WEST COAST PORTS
AND THEIR TOTAL OCEANGOING TONNAGES
1970, 1974, 1975
REFLECTING GENERAL ECONOMIC TRENDS



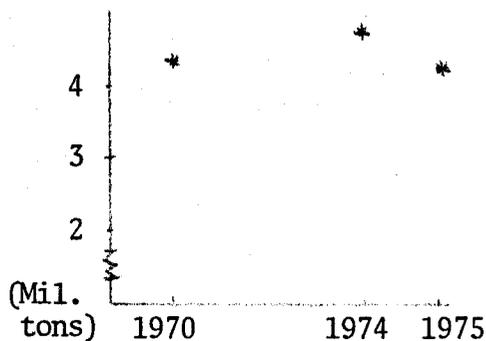
COOS BAY



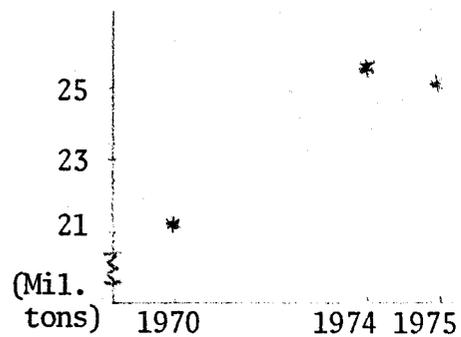
SEATTLE



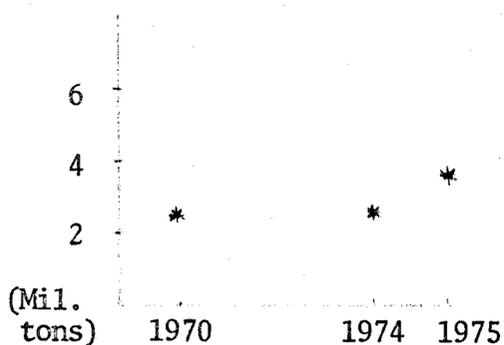
SAN FRANCISCO



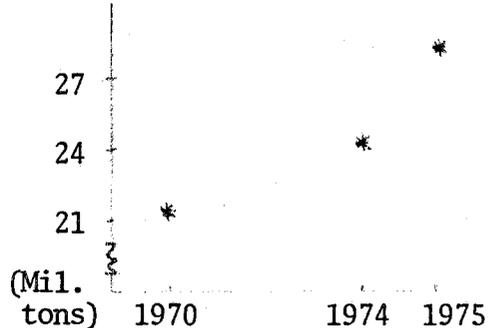
LONGVIEW



LONG BEACH



ANACORTES



LOS ANGELES

1970 and 1975 (Table 7). There are, however, notable fluctuations within that trend which parallel the general economic and construction market fluctuations over that period (Figure 4). Between 1970 and the record shipping year of 1974, Coos Bay, Portland, and Seattle all showed healthy increases while that trend was sharply moderated for those ports in 1975. Despite a 15 percent drop in wood product exports during 1970-1974 for Astoria, the 1974 Astoria wood product exports were actually a moderate increase over a very low 1973. Astoria showed a continued increase in log exports in 1975 despite the recession economy. Generally, 1975 West Coast wood product tonnages remained at 1974 levels or declined.

Over-all, total tonnages in and out of West Coast ports showed significant increases from 1970 to 1975 (Table 8). Portland and Coos Bay compared favorably over that period with the other most active West Coast ports. The West Coast tonnages in 1975, however, reflected the general worldwide economic downturn of that year (Figure 5). Decreased total tonnages (as compared to 1974) predominated with isolated notable increases at Los Angeles and Anacortes, as well as Astoria and San Diego. It was the Southern California ports which, on the whole, performed the best despite the depressed economy. The San Francisco Bay Area ports experienced the poorest performance, while the Oregon and Washington ports' successes fell somewhere between.

Part IV

PORT DISTRICTS IN THE ROLE OF ECONOMIC DEVELOPERS

The Oregon Legislature recognizes and encourages a wide range of port responsibilities in addition to their customary roles in cargo shipping, commercial fishing and other water-related activities. For instance, in providing for the formation and function of Oregon port districts in ORS 777.005 through ORS 777.725, the Legislature specifically empowered the ports to develop and operate industrial parks (ORS 777.250). The importance the Legislature attached to this power may be indicated by the inclusion within the statute of a step-by-step "guide" to the industrial site development process. The steps include acquisition of land, provision of utilities, buildings and machinery, and lease of the land charging fees for those services provided. In carrying out this function, a port district can play the part of a local improvement corporation, attracting industries and commerce, and thus jobs to the area.

Several of Oregon's port districts have become involved, to varying degrees, in industrial park development. The Mid-Columbia Ports Region has been especially active. Finding current levels of shipping or boating activity to be moderate on the Columbia River's middle reaches, these ports have turned to economic development as an alternate pursuit.

As compared to a state aggregate payroll (total wage and salary disbursements in the state) increase of 48.7 percent over the period

1971-75⁴, all port industrial parks experienced equal or much larger growth (see Table 9). The Port of Hood River industrial development payroll, in fact, showed an almost ten-fold increase over that period. The Port of Morrow County food-processing park represented nearly \$5,000,000 in direct payrolls in 1975. This level was achieved in less than four years, since the park's first tenant located in 1972. To illustrate the regional impact that the economic development activities can have, a payroll multiplier applied to the Port of Umatilla's economic development payroll reveals a total payroll of \$17,174,300 generated by that activity in 1975. In addition, still other projects are under construction at the Umatilla industrial sites.

On the coast, the Port of Tillamook Bay has successfully developed an industrial park which it took over from the county nine years ago. There are about a dozen tenants in the park, ranging from a school for boys to a large lumber producer.

An example of the industrial park development process is illustrated by the Port of Morrow County experience. The port laid the foundation for its park development process by acquiring 4,000 acres of land along the Columbia River during the period 1961-65. The start of the port's recruitment program was in 1968 when 3,000 brochures were distributed detailing development potentials, site descriptions, utilities available, and services to be provided. The port located its first tenant within its 350-acre food-processing park in 1972. There are 20 million dollars worth of facilities in the park today as a result of the port's economic

⁴U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, August 1976.

development efforts. The port also projects three or four more processors in its park in the next five to ten years.

Generally, the Mid-Columbia ports have experienced a lag of three to six years from the time of initial land acquisition and/or start of recruitment program to the siting of their initial tenant, although on the coast, the Port of Umpqua met with first success just six months after the beginning of its recruitment program.

In addition to those industrial parks already established, studies and/or negotiations relating to industrial park development are taking place at the ports of St. Helens, Arlington, The Dalles, Umpqua, and Coquille River.

The power to tax (ORS 777.430) and issue bonds (ORS 777.410) was granted to port districts by the State Legislature to assist in their developmental efforts. Land acquisition and facilities development have previously been financed through loans, grants, and both revenue and general obligation bonds. However, the port districts have been successful in minimizing port tax levies because tenant fees and revenues have been sufficient to meet the principal and interest payments on loans and bonded indebtedness. This ability to provide area jobs at "low taxpayer cost" is reflected in the ratios of total port district payrolls generated to port taxes levied of Table 11.

Significantly, all the Coastal and Mid-Columbia ports operating industrial parks achieved ratios of payrolls to taxes in excess of the port district system average ratio. As most port industrial parks were just getting started in 1970, this is an indication of the success that port economic development programs have experienced during the period of 1970-75.

One other picture of the economic contribution that the port industrial park programs are making is revealed by Tables 10 and 11. Whether ranking the port districts by total payrolls generated or by the ratio of the total port district payrolls generated to port taxes levied, four of the eight highest ranking port districts are those ports involved in industrial park development. This again shows the ports' ability to generate area jobs through their programs of economic development while keeping low the burden on the taxpayer.

Table 9

PORT INDUSTRIAL PARK DIRECT PAYROLL

	<u>1971</u>	<u>1975</u>	<u>% Increase</u>
State Aggregate Payroll	\$5.5 billion	\$8.18 billion	48.7
Hood River	\$ 407,000	\$ 4,856,700	1095.0
Umatilla	\$4,052,000	\$11,373,700	180.0
Tillamook Bay	\$3,666,500	\$ 5,365,600	46.3
Morrow County	(Confidential)	\$ 4,944,500	N/A
Cascade Locks	(Confidential)	(Confidential)	200.0
Portland	N/A	\$69,685,700	N/A
Umpqua	(Confidential)	(Confidential)	N/A (5 tenants presently)

NOTES: While Morrow County did not locate its first tenant until 1972, use of 1972 figures would violate firm identity confidentiality.

Firm identity confidentiality prevents disclosure of payroll figures for both Cascade Locks and Umpqua.

Figures for the Port of Portland are incomplete for 1971, so an accurate payroll increase from 1971 cannot be calculated.

Part V

ACTIVITIES OF THE INDIVIDUAL PORT DISTRICTS

As is reflected in the previous sections, Oregon's port districts generate employment in a variety of ways. However, the ports also play an important role within the community via the many public services they provide and other activities that they attract to the area. It is appropriate then in this section to present a profile of both the employment-generating activities as well as the major services and influences of each port district.

The Portland port district handles the largest cargo tonnage, while generating the greatest employment and payroll in the port district system. The large payroll derives from two main sources: The various facilities maintained and operated by the port such as the airports, the two industrial parks and Swan Island Ship Repair Yard, and secondarily the cargo-handling payrolls such as longshoring, inland transportation, and barging and towing. Because of the sheer size of operation and the large payroll multiplier effect of the Portland/Vancouver metropolitan area, the Portland port district accounts for 73.7 percent of the port district system's total payroll.

Excluding the Port of Portland, the Port District of Coos Bay represents 29.4 percent of all other port districts' total payroll. Handling the state's second largest tonnage, the Coos Bay port district derives about half of its direct payroll from cargo-handling services. The large tonnage handled at Coos Bay substantiates the important transport service that the port provides to its hinterland. Additionally, over

\$7,000,000 in direct payrolls can be attributed to the resident, full-time commercial fishermen of the Coos Bay port district.

Fish processing remains the largest single component (49.1 percent) of the Astoria port district's direct payroll. Rail service brings wheat directly into the port from Montana for export, and log exports which have doubled since 1973 have improved Astoria's shipping position. As the logs are predominantly from Clatsop County, their export has meant area jobs.

Reflecting the success of its industrial development program, the Port District of Umatilla generates the fourth largest payrolls in the port district system. Additional payroll can be attributed to grain and petroleum shipments over private facilities in the port's McNary Industrial Park. The port operates an 80-berth marina as well.

The Newport port district ranks fifth in total payroll with its resident, fulltime commercial fishermen and related fish-processing industry, providing over 80 percent of the port district direct payroll. Newport's major cargo is logs which are exported to Japan; but, the port district is a myriad of facilities and services too. Up to 1,200 permanent and transient commercial fishing vessels currently use the port's moorage facilities during the fishing year, and an additional 500-700 recreational spaces are planned for the two phases of the South Beach Moorage project. This project includes plans for public boat ramps, picnic areas, and a hotel/convention center.

Industrial park development continues to be the Port District of Tillamook Bay's primary community role. The port provides to tenants

of the park a short line rail service between the park and the town of Tillamook. Shallow bay conditions in the vicinity of Tillamook restrict cargo-handling activities.

Also heavily involved in industrial park development are the Port Districts of Hood River and Morrow County, ranking seventh and eighth in total payrolls generated. The Port of Hood River industrial park has shown the greatest percentage growth since 1971 of all Oregon port industrial parks. Also, important to note is the port district's very high ratio (third highest for the port districts) of total payrolls generated to port taxes levied, a very good "benefit" to "cost" comparison. The low taxes can be attributed to the port-operated toll bridge across the Columbia River, whose revenues cover almost all the port's budget requirements. The Port of Morrow County has been very successful with its food-processing park, taking advantage of the pivot circle irrigation which has brought to the county an agricultural boom, heavily concentrated in potatoes. As is true for the Port of Tillamook Bay, yearly returns from the park tenants pay off the Port of Morrow County's land acquisition and development loans; thus, there is little burden on the taxpayers. A very limited amount of shipping occurs out of both the Hood River and Morrow County port districts.

The Port District of Brookings, much like Newport, derives about 80 percent of its payroll from its resident, fulltime commercial fishermen and related fish-processing industry. In response to the ever-increasing coastal boating demand, Brookings recently utilized an Economic Development Administration grant to add 175 commercial berths to the existing 125, and to add 250 recreational berths to the present

330. Further, the port is considering an additional recreational berth expansion as well as adding a dry storage unit for the boaters.

The Port District of Umpqua stands tenth in total payroll, followed closely by the Port District of St. Helens. Again, a large portion (46.6 percent) of the Umpqua port district payroll stems from the resident, fulltime commercial fishermen and related fish-processing industry. The port's recent and very successful industrial park development is making an increasing contribution to total port district payroll, and the port is looking to develop a second industrial park as a result. A 300,000 ton per year aggregate operation out of the Umpqua port district supplies that coastal area with high quality sand and gravel, and the moorage basin at Salmon Harbor presently provides berths for 950 boats.

Very likely due to the recent depressed economic conditions, there has been little cargo-handling activity in the last two years over the Port of St. Helens' Port Westward facilities. Consequently, the largest components of St. Helens payroll derive from river shipping and construction of the PGE generating facility at Port Westward. A 650,000-ton aggregate operation made up most of the port district shipping activity in 1975. Continuing efforts by St. Helens in industrial development may diversify the port district's impact in the future.

The Port District of Bay City relies heavily (83.0 percent) on the payrolls of its resident, fulltime commercial fishermen and accompanying fish-processing industry. Lumber shipping over Bay City's public dock began in the spring of 1976, and due to the attraction of Alaska as the market, lumber export may play a more important role in the port's future.

Previous experience has shown that the high prevailing wage rate in the Cascade Locks area has restricted the Port of Cascade Locks' ability to expand its industrial park. However, the port's district payrolls remain largely derived out of industrial development, and the port is continuing its program. Significantly, the port district's total payrolls generated to port taxes levied ratio is second highest for all of Oregon's port districts. The Port of Cascade Locks also operates a very popular tour boat on the Columbia River, the Bridge of the Gods tollbridge, and is in the planning stages for a sightseeing tramway above the Columbia Gorge.

Resident, fulltime commercial fishermen account for much of the payroll for the port districts of Siuslaw (73 percent) and Gold Beach (76.5 percent) as well. Gold Beach is the home of a very popular charter fishing and river tour boat business. Autos, boats and trailers, and fabricated steel are specially top-loaded on barges at Siuslaw and shipped out, apparently due to convenient schedules and favorable rates. Siuslaw also has a new boat basin planned with 70 commercial berths and 250 recreational berths, with other related service facilities.

The Port District of Port Orford ranks seventeenth in payrolls, which are due wholly to its fishing and fish-processing activities.

The Port Districts of Bandon and Toledo are much alike in the transport service they provide to nearby or on-site lumber producers. Shipping in and out of Toledo is limited by shallow channel depths. Frequently, rough bar conditions at Bandon discourage expansion of shipping activity there. Bandon recently completed a 65-berth expansion of its commercial boat basin to complement its resident commercial fleet and fish-processing industry.

The Dalles and Arlington are primarily grain shipping port districts. Both ports lease grain elevators on their waterfronts.

Recreational services such as channel clearing, marinas, and boat landings are provided at the Alsea, Nehalem, and Coquille River port districts. Though these services do not translate into a particularly large payroll impact, boaters at the private marinas in the areas benefit from port channel maintenance activity. Coquille River is additionally involved in community development projects and currently has a study underway focusing on potential industrial park development.

Several of the ports including Tillamook Bay, Astoria, St. Helens, Hood River, and the Port of Portland maintain and operate airports. Along with services and facilities which the ports provide, there are numerous associated activities which are attracted by these facilities and have a community impact of their own. The many boaters utilizing port-provided moorage facilities have an expenditure impact in their respective port districts. Similarly, the ships sailing in and out of the ports carry crews who require food, clothing, entertainment, etc. while in port. It is estimated at Coos Bay that the 400 ships calling annually result in \$400,000 in crew expenditures alone⁵. Port area tourist expenditures also carry community economic impact as well. However difficult to quantify, these expenditure impacts must be kept in mind when assessing a port district's total contributions.

⁵The Coos Bay World, September 18, 1976, p. 3.

Table 10

OREGON PORT DISTRICTS
RANKING BY TOTAL PORT DISTRICT PAYROLL 1975

<u>Name of Port District</u>	<u>Port District Direct Jobs Generated 1975</u>	<u>Total Port District Payroll Generated 1975</u>
Port District of Portland	14,390	\$375,622,700
Port District of Coos Bay	2,005	39,458,800
Port District of Astoria	1,660	26,360,600
Port District of Umatilla	1,365	17,433,000
Port District of Newport	550	7,949,600
Port District of Tillamook Bay	520	7,560,800
Port District of Hood River	590	6,916,900
Port District of Morrow County	575	6,468,900
Port District of Brookings	375	5,136,200
Port District of Umpqua	275	3,270,400
Port District of St. Helens	130	3,233,900
Port District of Bay City	205	1,994,900
Port District of Cascade Locks	120	1,755,200
Port District of Siuslaw	95	1,618,000
Port District of Gold Beach	110	1,332,100
Port District of Bandon	65	1,065,000
Port District of Port Orford	90	1,049,000
Port District of Toledo	40	656,600
Port District of The Dalles	35	520,500
Port District of Arlington	20	246,300
Port District of Alsea	10	45,800
Port District of Nehalem	5	3,900
Port District of Coquille River	1	2,000
Ore. Port District System Totals	23,170	\$509,701,400
Payroll Multiplier Effects Between Port Districts and Outside the Port Districts But Within the State	-----	\$464,513,300
Oregon Port District System Statewide Contributions Totals	23,170	\$974,214,700

Table 11

OREGON PORT DISTRICTS
RANKING BY RATIO OF TOTAL PORT DISTRICT
PAYROLL TO PORT TAXES LEVIED 1975

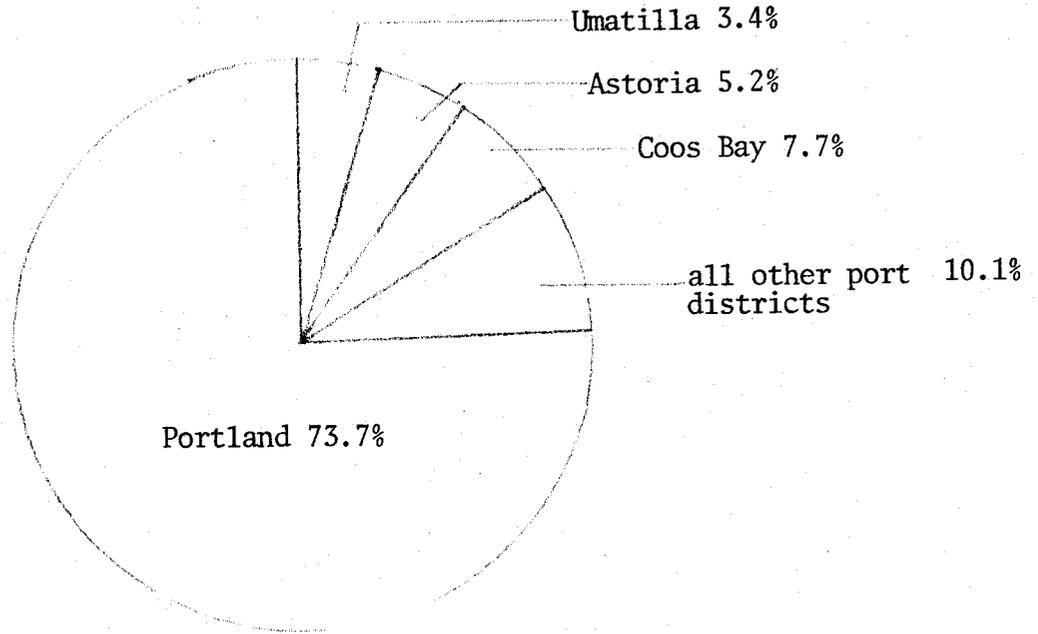
<u>Name of Port District</u>	<u>Port Taxes Levied 1975-76</u>	<u>Ratio Total Port District Payroll Port Taxes Levied</u>
Port District of St. Helens	\$0	*
Port District of Cascade Locks	\$1,400	1253.71
Port District of Hood River	10,700	646.44
Port District of Tillamook Bay	14,300	528.73
Port District of Newport	16,100	493.76
Port District of Coos Bay	140,800	280.25
Port District of Morrow County	31,900	202.79
Port District of Port Orford	7,100	147.75
Port District of Umatilla	140,300	124.26
Port District of Astoria	256,500	102.77
Port District of Brookings	51,200	100.32
Port District of Umpqua	44,800	73.00
Port District of Bay City	33,700	59.20
Port District of Toledo	11,400	57.60
Port District of Portland	6,560,700	57.25
Port District of Arlington	5,000	49.26
Port District of Bandon	22,300	47.77
Port District of Siuslaw	44,700	36.20
Port District of Gold Beach	54,900	24.26
Port District of The Dalles	51,800	10.05
Port District of Alsea	7,300	6.27
Port District of Nehalem	3,400	1.14
Port District of Coquille River	7,900	0.25
Ore. Port District System Total -	\$7,518,000	Average - 67.80

* Because the Port of St. Helens levied no port taxes in F.Y. 75-76 (this is also true for F.Y. 76-77), the port district residents bore no port tax burden while benefitting from payrolls generated by the port district-related activities. Although there is no mathematical expression for the relation of St. Helens' total port district payroll to \$0 of port taxes levied (an infinite ratio), the port district over that period did in effect generate the most dollars of payroll per dollar of port taxes levied.

Figure 6

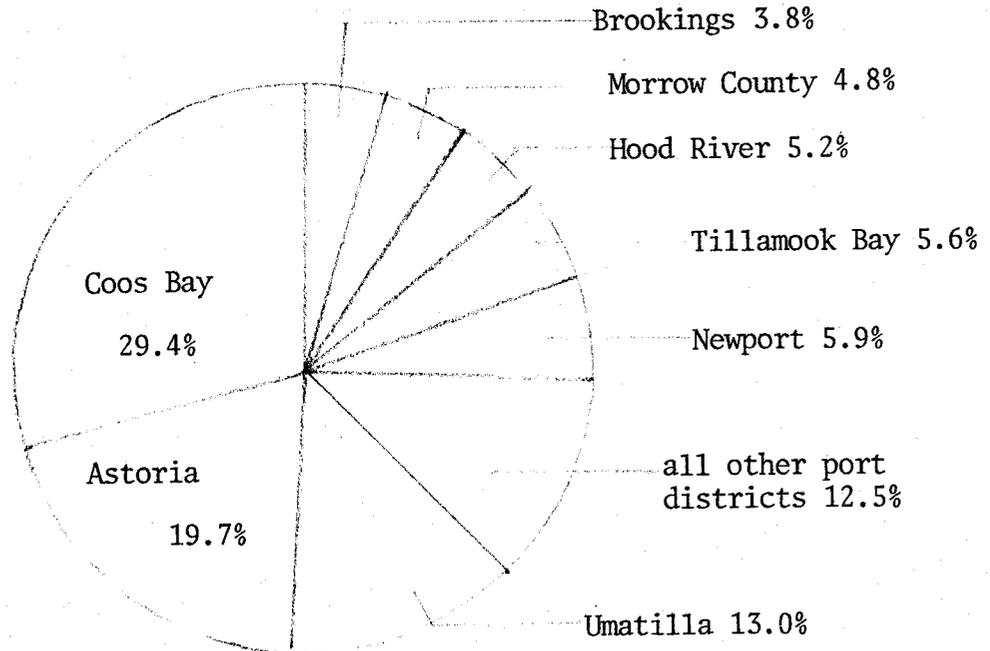
COMPARATIVE SHARES OF
OREGON PORT DISTRICT SYSTEM TOTAL PAYROLLS 1975

(port districts are grouped together for purposes of illustration only; all others each individually generate less than 3.4% of the Oregon Port District System total)



Percent of Total Port District System Payrolls 1975

(port districts are grouped together for purposes of illustration only; all others each individually generate less than 3.8% of the Oregon Port District System total with Portland excluded)



Percent of Total Port District System Payrolls 1975
(Excluding Portland)

Part VI
FUTURE DIRECTIONS

As was presented in Part III, Oregon oceangoing shipping continues to focus at Portland, Coos Bay, and Astoria, with some activity at Newport as well. Barge export of wood products is distributed among several of the coastal port districts. Analysis of marine technology indicates that Oregon shipping activity may continue to gravitate to Coos Bay and the Lower Columbia as:

- 1) With continued improvements relative to water-borne transport in inland transport facilities and rates, competition for cargo export will become more difficult for the smaller port districts.
- 2) Reductions in the allowable timber cut threaten a major cargo out of all the port districts. It is probable that this will affect smaller port districts to a greater extent than the larger port districts.
- 3) High ship operating expenses encourage fewer port calls and minimization of loading and unloading time. Delays due to bar conditions will reduce the number of port calls as well. These factors will put increased pressure on the smaller port districts to compete for their share of cargo.

Relative to other west coast ports, the Oregon port districts of Astoria, Portland, and Coos Bay compare favorably over the 1970-75 period in terms of tonnages handled. The Portland port district has handled increasing shares of Pacific Northwest oceangoing grain

tonnages (46.9% in 1975) reflecting the success of past efforts to promote this activity. As well as representing a promising potential for agriculture along the Mid-Columbia, these figures form a basis for continuation of similar efforts.

Fluctuation in past log export activity and the implications of reduced allowable timber cuts suggest that the Port of Astoria may continue its present efforts to widen the scope of its shipping activities. Continuation of port efforts to diversify the area economic base also appears probable in light of the uncertain outlook for wood product exports out of Astoria.

In spite of a decrease in its wood products and total tonnages handled in 1975, three-quarter year figures already show the Port District of Coos Bay handling tonnages in 1976 up to or in excess of the record levels attained in 1974. Port officials have been effective in the past in coordinating the shippers' need for channel improvements in accordance with the federal agencies. Possibly, this indicates that the port's greatest chance for success would lie in continuation of channel improvement coordination along with current planning and provision of sites for expansion by shippers and for industrial development.

The Legislature has given to the port districts powers and sources of funding which enable the ports to work with and attract private industry. Consequently, most all of the Oregon ports have to varying degrees expressed a cognizance of the partnership they can form with private industry to fully develop port district economic activity. Port industrial parks illustrate the success

these partnerships can enjoy.

Because of changing technologies and economic conditions, the future importance of all the Oregon port districts cannot be exactly predicted. It seems however, that activity diversification through the full utilization of port district capabilities will allow the port districts to make their greatest contributions within their communities and the state as a whole.

Part VII
DATA BACKGROUND

Data collection for the study included personal interviews at all 23 port districts in addition to extensive consultation with private industry, local, state, and federal agencies, and use of published data.

Employment and Payroll Data - Categories of port district-related employment were specified by referring to the Four Digit Standard Industrial Classification Code. Cargo handling activities, associated industries, and industrial park tenants were identified for each port district, and payroll and employment data for each activity were provided by the Oregon Employment Division. Additionally for the Portland port district, a May 1975 publication, The Community Economic Impact of the Marine Terminals of the Port of Portland, was used in conjunction with personal correspondence to complete the Portland port district employment and payroll. To avoid disclosure of individual firm employment and payroll, these figures were then aggregated for each port district.

Data for activities not available in the Employment Division statistics were developed through personal interviews as well as survey of representative firms. This is the case for the transport of wareborne cargo in or out of ports by truck or rail. Other activities such as wholesale and retail trade, other port users, and government services are considered indirect impacts and are thus covered by the payroll multipliers.

Payroll Multipliers - To account for the indirect and induced payroll impacts of the direct port district activity, individual port district payroll multipliers are applied to the direct port district payrolls. The multipliers developed in the Economic Impact Section of the 1972 Survey of Oregon Ports were deemed appropriate for this study:

<u>Port District</u>	<u>Multiplier</u>	<u>Port District</u>	<u>Multiplier</u>
Portland	2.21	Brookings	1.35
Coos Bay	1.57	Coquille River	1.35
Umatilla	1.51	Siuslaw	1.34
Astoria	1.49	Gold Beach	1.31
The Dalles	1.48	Morrow County	1.30
St. Helens	1.43	Bay City	1.29
Newport	1.42	Port Orford	1.28
Bandon	1.40	Arlington	1.25
Umpqua	1.40	Alsea	1.25
Hood River	1.39	Cascade Locks	1.23
Tillamook Bay	1.39	Nehalem	1.17
Toledo	1.36		

These multipliers were based on the population of the largest city in the port district. The legally defined city was the area considered for all except Portland where a metropolitan area was utilized. This may overstate slightly the Portland port district multiplier relative to the multipliers for the other port districts. Weighting by size of economic impact to allow for the dominance of the Portland port district within the Oregon Port District System, the average port district multiplier was 2.098.

The port district multipliers only account for the indirect and induced payroll effects generated within each specific port district by port district-related activities. In order to determine the indirect and induced payroll effects generated outside the port districts but

within Oregon, another multiplier for the remainder must be developed. As in the Economic Impact Section of the 1972 Survey of Oregon Ports, this was done by utilizing an overall state multiplier of 4.01 (indicating how many times a dollar's worth of income is spent before it leaves the state) and subtracting from it the weighted port district average multiplier of 2.098, giving a "state remainder" multiplier of 1.912. It should be noted however, that the overall state multiplier of 4.01 may be too high as a result of an inability in the source study⁶ to identify all export (basic) jobs including those associated with metropolitan functions which serve areas in adjacent states. If another state multiplier based on more recent and complete empirical evidence is developed, that multiplier may be utilized if desired.

So, in Table 10, the port district system total payroll includes the indirect and induced payroll effects within port districts. The "state remainder" multiplier effects are then added to the port district system total payrolls to arrive at the total state port district generated payrolls. This is portrayed algebraically below:

Direct port district system payroll	=	\$242,946,300	
Weighted port district multiplier		2.098	
"State remainder" multiplier		1.912	
$(\$242,946,300)(2.098) + (\$242,946,300)(1.912) =$		total state port district system generated payrolls	

⁶An Economic Analysis of Resource Allocation in the Oregon State Highway Division, Final Report to the Highway Division, Oregon State University Department of Economics, 1972.

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