

## **IV. ECONOMIC SECTOR DESCRIPTIONS AND TRENDS**

### **A. Sector Summaries**

Tracing personal income sources in the coastal areas shows that natural resource based industries such as commercial fishing, agriculture, timber, and tourism continue to be important contributors to coastal communities. The contributions from these industries to each county's economy for the year 2003 is shown in Table IV.1 and Figure IV.1. Fishing (including oyster culture) makes up as much as 11 percent of the total personal income of coastal residents in such areas as Clatsop County. Agriculture makes up as much as 13 percent in Tillamook County. The timber industry contributes five to 12 percent of personal income in the five counties on the Coast. Coos County has pulp and paper mills, marine transportation sectors, and sizable ship building sectors. These identified sectors contribute up to 11 percent to these counties. Tourism also is a significant contributor to coastal areas, contributing as much as eight percent of total personal income in Clatsop and Lincoln counties. The high security California State prison in northern California is a contributor for the estimated six percent to Curry County.

Since the 1980's, personal income generated by the timber and fishing industries has declined for various reasons. Some of these reasons are decreasing availability of natural resource for harvests, new demands to use natural resources for recreation and habitat preservation, and in the case of fish products, decreasing prices. The changing demographic of coastal areas has also led to a shift in income and employment opportunities. As the population of coastal counties has continued to age in the last 20 years, income from transfer payments has risen, and the percent of total personal income that is earned in the current generation (i.e., employee compensation and proprietor income) has fallen. The relative importance of natural resource based industries as a source of income has declined as other industries have increased.

#### **1. Commercial Fishing Sector**

For fisheries, three current developments are affecting the contribution this industry can make to the coastal areas. First, increasing global supplies on all fish products have decreased the real per pound ex-vessel price for salmon, shrimp, and crab during the years 1991 through 2003.

Second is the crisis facing the salmon industry, and more recently the groundfish industry. Because of unfavorable ocean conditions, inland habitat deterioration, and multiple demands for the harvest rights of the salmon resource, the availability of salmon for commercial ocean harvesting has declined steadily along the Oregon and Washington coast. Although there has been an increase in salmon prices, the water crisis and resulting low adult salmon returns to the Klamath River system are of special concern to the Oregon salmon industry. Some stocks may be becoming more abundant, however the management restrictions to protect Klamath River stocks may not allow "access" to the more abundant species. Threatened or endangered status listing or proposals for listings for salmon stocks from the Sacramento River in California to Puget Sound in Washington have been made. Resulting regulations have reduced the Oregon ocean troll harvest to a small share of historic levels. Because of reduced salmon harvests, Oregon coastal areas have experienced an annual personal income loss from averages of about \$110 million per year (1976-1990 average) to less than \$10 million in the early 2000's. This is a

Table IV.1  
Sources of Total Personal Income for Identified Sectors in 2003

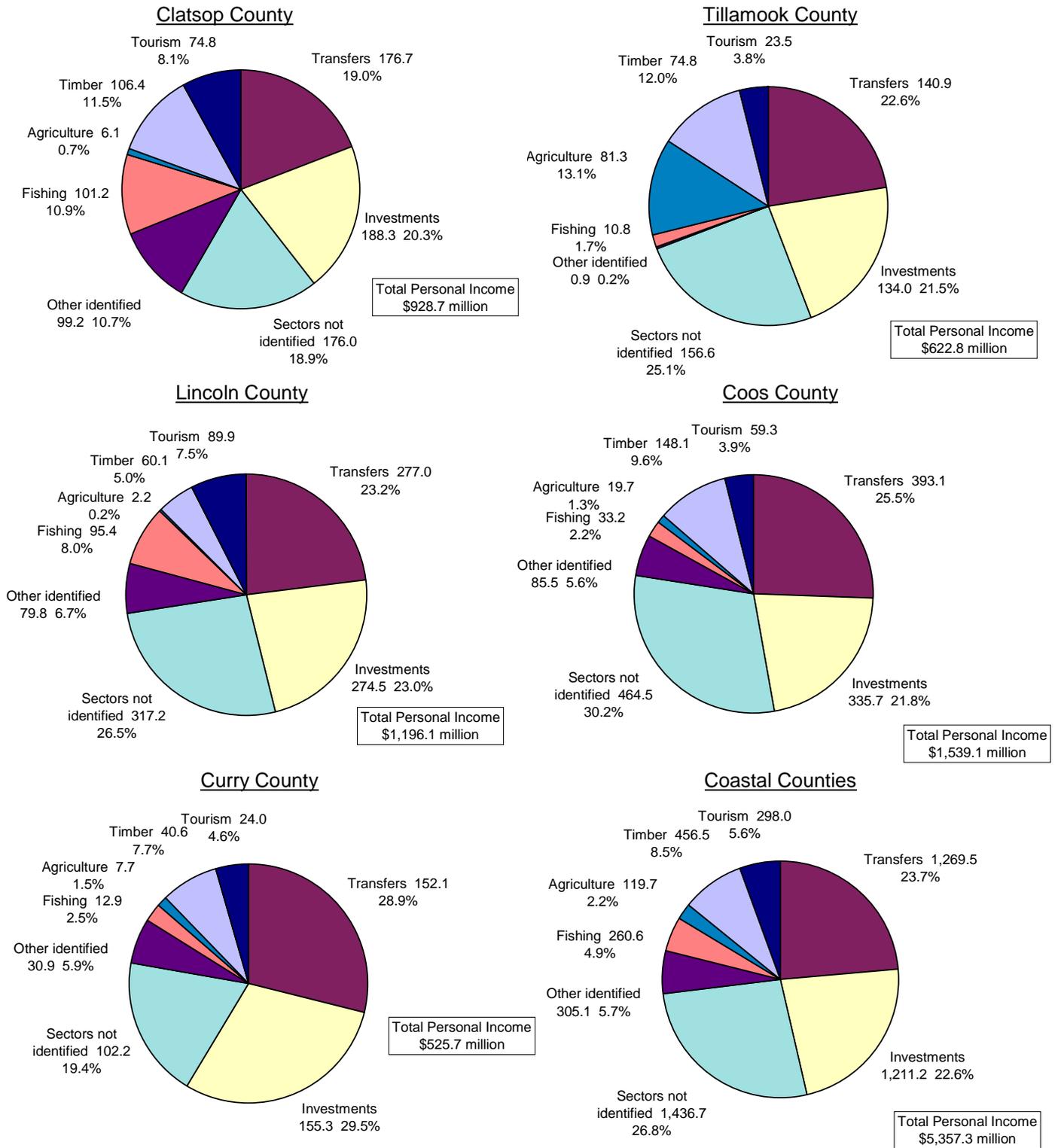
	U.S.		Oregon		Clatsop		Tillamook		Lincoln		Coastal Lane		Coastal Douglas		Coos		Curry		Coastwide	
	Income	%	Income	%	Income	%	Income	%	Income	%	Income	%	Income	%	Income	%	Income	%	Income	%
Total Personal Income	9,151,694.0	100%	102,418.8	100%	928.7	100.0%	622.8	100.0%	1,196.1	100.0%	398.5	100.0%	145.1	100.0%	1,539.1	100.0%	525.7	100.0%	5,355.9	100.0%
Net Earnings	6,340,842.0	69%	67,825.2	66%	563.6	60.7%	348.0	55.9%	644.6	53.9%	214.7	53.9%	76.4	52.6%	810.3	52.6%	218.3	41.5%	2,875.9	53.7%
Commercial fishing; also					89.2	9.6%	6.1	1.0%	54.8	4.6%	1.1	0.3%	2.5	1.7%	28.0	1.8%	12.2	2.3%	194.0	3.6%
Distant water and fish meal					12.0	1.3%	1.2	0.2%	39.7	3.3%	1.5	0.4%	1.9	1.3%	2.1	0.1%	0.7	0.1%	59.1	1.1%
Aquaculture					0.0	0.0%	3.5	0.6%	0.8	0.1%	0.0	0.0%	0.1	0.1%	3.1	0.2%	0.0	0.0%	7.6	0.1%
Agriculture					6.1	0.7%	81.3	13.1%	2.2	0.2%	1.6	0.4%	1.0	0.7%	19.7	1.3%	7.7	1.5%	119.7	2.2%
Timber					106.4	11.5%	74.8	12.0%	60.1	5.0%	13.7	3.4%	12.8	8.8%	148.1	9.6%	40.6	7.7%	456.5	8.5%
Tourism					74.8	8.1%	23.5	3.8%	89.9	7.5%	19.2	4.8%	7.2	5.0%	59.3	3.9%	24.0	4.6%	298.0	5.6%
Other identified industries																				
Paper and paperboard mills					41.3	4.4%	0.0	0.0%	60.3	5.0%	0.0	0.0%	0.0	0.0%	25.3	1.6%	0.0	0.0%	126.9	2.4%
Water transportation and marine cargo					7.4	0.8%	0.0	0.0%	0.7	0.1%	0.0	0.0%	0.0	0.0%	50.9	3.3%	0.6	0.1%	59.6	1.1%
Ship building, steel fabric., other heavy constr.					43.7	4.7%	0.0	0.0%	0.8	0.1%	0.0	0.0%	5.3	3.6%	8.0	0.5%	0.1	0.0%	57.9	1.1%
Other identifiable (govt., research, comm., special ed., military)					6.9	0.7%	0.9	0.2%	17.9	1.5%	1.2	0.3%	2.3	1.6%	1.3	0.1%	30.2	5.8%	60.7	1.1%
Subtotal identified industries					387.7	41.7%	191.4	30.7%	327.4	27.4%	38.4	9.6%	33.1	22.8%	345.8	22.5%	116.1	22.1%	1,439.9	26.9%
Other not identified					176.0	18.9%	156.6	25.1%	317.2	26.5%	176.3	44.2%	43.3	29.8%	464.5	30.2%	102.2	19.4%	1,436.0	26.8%
Investments	1,475,529.0	16%	18,634.0	18%	188.3	20.3%	134.0	21.5%	274.5	23.0%	91.5	23.0%	31.6	21.8%	335.7	21.8%	155.3	29.5%	1,210.9	22.6%
Transfers	1,335,323.0	15%	15,959.6	16%	176.7	19.0%	140.9	22.6%	277.0	23.2%	92.3	23.2%	37.1	25.5%	393.1	25.5%	152.1	28.9%	1,269.2	23.7%
Total Employment	127,795,827		1,563,725		15,396		8,038		16,589						22,299		6,461			
Unemployment Rate	6.0		8.1		7.0		6.6		8.6						8.7		7.2			
Per Capita Personal Income	31,472		28,734		25,801		25,210		26,672		25,057		23,504		24,380		24,228			
Population	290,788,976		3,564,330		35,993		24,705		44,846		15,902		6,174		63,130		21,697		212,447	

- Notes:
1. Personal income in millions of 2003 dollars.
  2. Personal income generated by identified sectors includes direct as well as indirect and induced income. The economic sectors dependent upon the identified sectors, such as retail and service businesses, are included in the identified sectors. This means the "multiplier effect" is included.
  3. Investment and transfer personal income is only direct income, although research shows that the multiplier effect is approximately one for both of these sectors.
  4. Population is from U.S. Bureau of Economic Analysis estimates.
  5. Total employment includes covered payroll.
  6. For coastal Lane and Douglas counties, the ratio of coastal county to county per capita personal income from census information in 2000 was applied to county per capita personal income from U.S. Bureau of Economic Analysis information in 2003 to determine coastal county per capita personal income in 2003. Coastal county total personal income in 2003 was based on population estimates developed using Census 2000 zip code data adjusted using the PSU rate of growth between 2000 and 2003 for the cities of Florence and Reedsport. The shares of earnings, investments, and transfers from adjacent counties are used as a proxy.

Source: Study, U.S. Bureau of Economic Analysis, Bureau of Labor Statistics, Census Bureau, and Portland State University Population Research Center (PSU).

Figure IV.1

Share of Total Personal Income Sources for Identified Sectors by Coastal County in 2003



- Notes: 1. Total personal income expressed in millions of dollars.  
 2. Graphs for coastal Lane and Douglas counties are not displayed, but analysis results are included in the coastal counties summation graph.

Source: Study.

reduction of about 90 percent in average fishing related personal income for coastal counties in 2000. Small ports along the coast have historically relied upon the salmon trolling industry to generate local income and to support vital services such as local marinas and have used the local fishing industry to justify dredging operations by the U.S. Army Corps of Engineers.

Several species of rockfish have been declared "overfished." This means that the allowable harvest of these fish is curtailed in order to rebuild these stocks. Harvest of groundfish in some ports along the West Coast is being reduced by over 50 percent. The challenge for the fishing industry is to minimize the harvest of those overfished species while targeting other species. The good news for seafood businesses is that per capita consumption of seafoods has reached a record of 16.3 pounds in 2003 (Sackton 2005). The bad news for captured seafood businesses is that much of this increased consumption is being supplied by aquaculture.

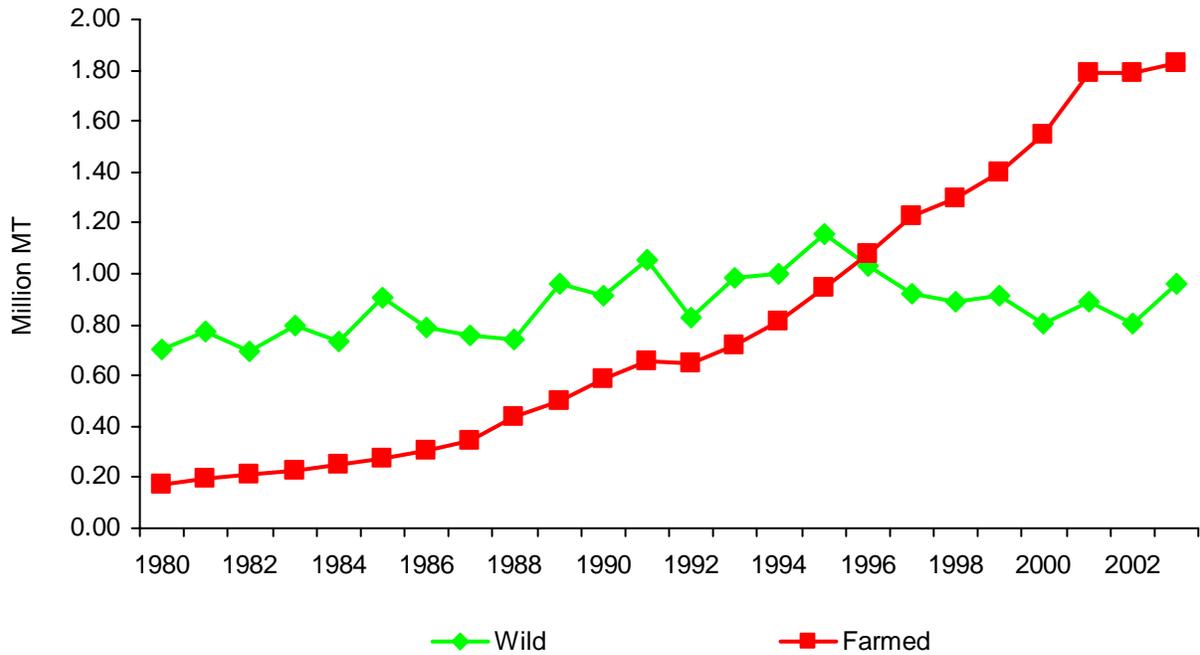
An important current issue is the expansion of aquaculture. Salmon farming has increased substantially, especially in Chile and Norway. Salmon farming currently determines the price for most salmon products (Figures IV.2 and IV.3). Salmon prices for troll caught Chinook have declined from \$5.00 per pound in 1988 to about \$1.50 in 2000. Some increase in price for wild caught salmon has taken place. Shrimp aquaculture produces shrimp of various sizes that directly and indirectly compete with pink shrimp. During the 1980's, the "real" price of pink shrimp was as high as \$1.00 per pound. In 2000, the pink shrimp price averaged about \$0.35. As the U.S. dollar lost its value compared to some currencies, the prices of several products have increased in 2003. This may continue, but aquaculture will continue to set the price for most seafood. Aquaculture is also being developed for several other species, such as halibut and black cod. And consideration is being given in Congress to expand aquaculture in U.S. open waters. Dr. Gilbert Sylvia of OSU suggests Oregon should keep its options open when considering policies to address this issue (Sylvia 2005). Many other people on the Oregon Coast strongly oppose fin-fish aquaculture off the Oregon Coast for environmental reasons. The expansion of fish aquaculture is expected to maintain downward pressure on prices (unless the limited supply of some Oregon seafood products can be marketed in specialty "niche" markets).

Species abundance available for harvest has probably peaked. There is an expected cyclical downturn in some of the "money" fisheries. New harvest management regimes like individual permit quota programs and continued processor ownership consolidation will cause unequal distributional impacts to coastal communities. There may be new markets for value added processed products, but plant location and hence employment does not have to be at existing regional fishing centers. World market price pressures will continue to dampen ex-vessel price increases except for troll caught salmon. There will be good opportunities for exclusive markets demanding quality.

## **2. Agricultural Sector**

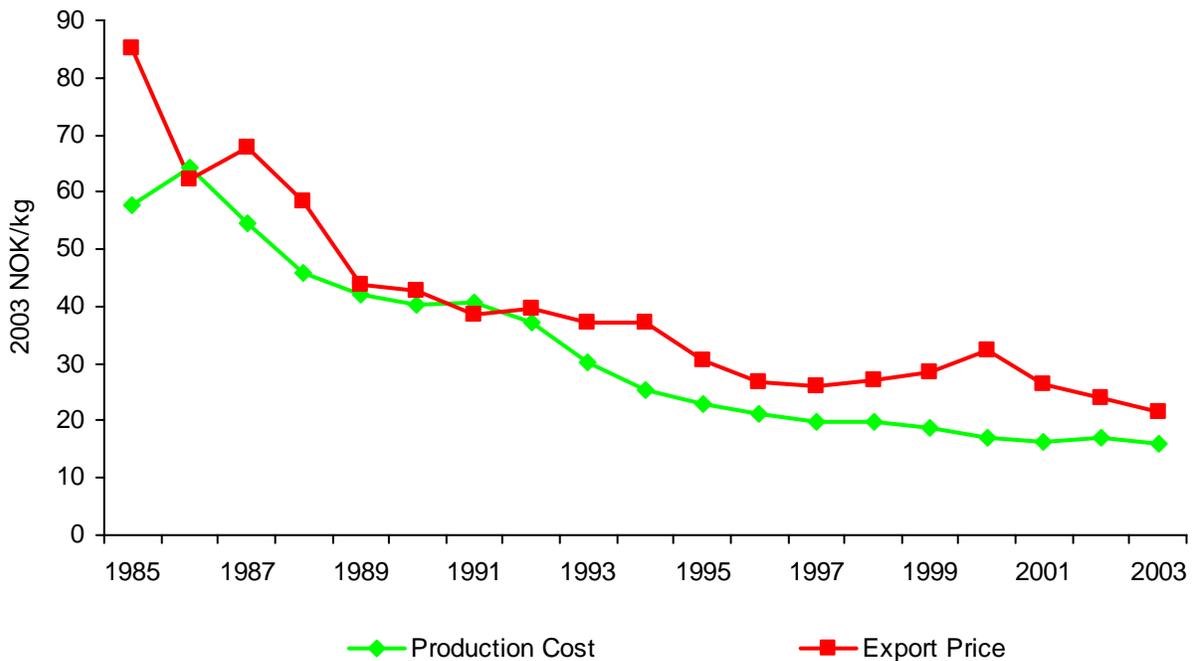
Agriculture in the coastal economies is part of a lifestyle and contributes diversity to the local economy. It also helps provide a buffer to the sometimes cyclical nature of the forest, fishing, and recreational industries. The mild coastal climate is ideal for vegetable, berry and nursery crops, and livestock production for meat and dairy are important sources of income for Tillamook, and to a lesser degree Coos and Curry counties. Tillamook county is the primary

Figure IV.2  
World Salmon and Trout Wild Harvest vs. Mariculture



Notes: 1. World salmon aquaculture grew at an average annual rate of 11% between 1980 and 2003.  
Source: Sylvia (2005).

Figure IV.3  
Export Price and Production Cost of Norwegian Atlantic Salmon



Source: Sylvia (2005).

producer of milk in the State, and much of it is used in cheese manufacturing. The agricultural industry has remained consistently strong in Tillamook County, and is continuing to change and diversify. The Tillamook Creamery has purchased the Bandon Cheese factory operations and has expanded its dairy operation to eastern Oregon (Pacific Northwest Cheese Project 2005).

The value of agricultural production in Oregon in 2003 was \$3.5 billion. Of this, Tillamook County produced \$90.3 million in sales (2.6 percent of the State). Agriculture production and processing in 2003 generated total personal income of \$81 million in Tillamook County.

There are no expectations that climate and scale will allow this industry to develop. There are nursery stock business opportunities that have not yet been capitalized by coastal businesses.

### **3. Timber Sector**

The trend in timber harvests since 1970 for the coastal counties has been a gradual decrease in harvests from about 1.8 bbf in the 1970's to about one bbf in 2003. All coastal counties, especially Coos County, have experienced cyclical harvests, depending on national demand patterns for fiber and on local availability of timber. However, the harvest volumes in these areas have generally declined since the 1980's. Most of these counties' timberlands are in private ownership, except Tillamook, where over two thirds of the timberlands are in federal or State ownership.

Stumpage prices have increased as final product prices have increased; therefore, transportation costs have become a smaller part of final manufacturing costs. Mills are willing to expand their timbershed boundaries. This has resulted in a dramatic reduction in processing capability on the Coast. Most timber in Oregon is now shipped to the major processing centers of Roseburg, Eugene, Albany, or the Portland area.

The timber grown, harvested, and processed in the coastal counties of Oregon produced an estimated \$457 million in total personal income; this is equivalent to about 16,600 annual jobs. The largest portion of this income and annual jobs is generated by logging and harvesting.

The third generation private property timber will be available. The question is where and how it is to be promised. A lot of second generation timber was shipped overseas as logs, but size and quality may not open that market. Small timber and wood fiber feed into many more products now and large processing facilities exist outside of coastal economies.

### **4. Tourism Sector**

Tourism is experiencing a steady growth in coastal economies. The growth of tourism has served to diversify coastal counties' economic bases, but this industry is characterized by low wage rates and seasonal demand for jobs. These characteristics do not assist in ameliorating seasonality effects from the other natural resource based industries.

Wages and salaries in travel related industries totaled \$363.8 million for the coastal counties in 2003. In terms of full time equivalent jobs (at \$27,500 per year salary), this is equivalent to

13,200 annual jobs in the tourist industry. After correcting for sales to in-area residents, the total estimated personal income generated by the tourist-oriented industries is \$298 million (or about 10,800 jobs).

## **5. Other Identified Export Based Industry Sector**

Not identified is 19 to 44 percent of total personal income in these coastal counties. (The indirect and induced effects of investment income and transfer payments are included in this calculation.) For some coastal areas, many small manufacturing and service companies export their product. Such industries as plastic wedge manufacturers, plastic water tank manufacturers, computer hardware and software developers, writers, and artists sell products outside the coastal area and bring income back to regional economies for spending. Such small industries are important when summed together. However, they are too dispersed to be identified in this study.

Other observations about businesses represented in this sector deserve mention.

- Paper and Paperboard Mills. More than 60 percent of processed paper is from recycling supplies and the share is expected to grow. The locational advantages of the Coast is for offering pollution sites and not for offering wood fiber.
- Waterborne Commerce. There should be no expectations for a turn-around in industry needing Oregon Coast waterborne commerce facilities. For example, the recent interest for liquefied natural gas facilities in Astoria may be transparent. The forecast is for the nation to only need three or four new facilities and a couple of those are replacement for inadequate existing locations. Energy prices in the northwest are a disincentive for producing electricity using natural gas.

## **6. Investments and Transfers Income**

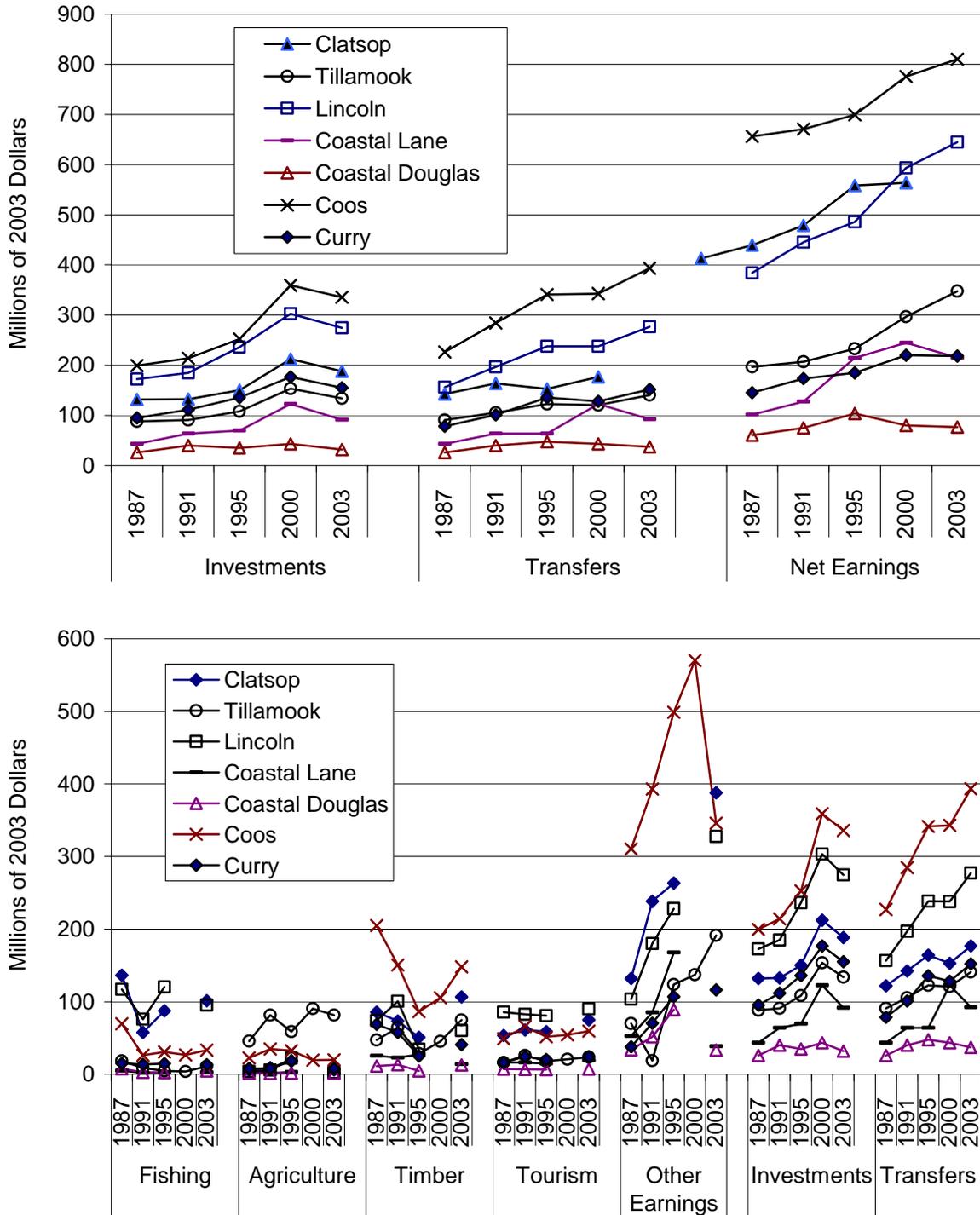
There has been a dramatic increase in transfer payments as a percent of total personal income. This is partially a function of the increase in retirees collecting Social Security payments. Transfer payments and returns from investments range from 39 to 58 percent of the total personal income in coastal counties of Oregon. This compares to about 31 percent for the U.S.

The growth of non-earned or previous generational income, particularly from retirement, represents a major source of purchasing power in rural areas. The in-migration of retirees to Pacific Northwest coastal areas has helped increase investment income and transfer payments to be from nine to 28 percent higher share in Oregon coastal counties than for the U.S. These higher percentages may be viewed as the "immigrant retiree effect."

## **B. Sector Trends**

Economic analyses have been completed for Oregon coastal counties' export based industry sectors since 1987. The economic contribution trends are shown in Figure IV.4. Observations

Figure IV.4  
Oregon Coast Trends in Personal Income From Net Earnings,  
Industry Sectors, Investments, and Transfers in 1987 to 2003



- Notes: 1. Personal income in millions adjusted to 2003 dollars using the GDP implicit price deflator developed by the U.S. Bureau of Economic Analysis.  
2. Other earnings includes the sectors for "other identified export based industries" and "other earned income."

Source: U.S. Bureau of Economic Analysis and Study.

about the trends for natural resource industries, tourism, other earned income, transfers and investment income, demographics, and overall personal income follow.

### Natural Resources Industries

- Most of the natural resource based sectors declined during this period. The exception is agriculture, and specifically the dairy industry in Tillamook. The timber sector declined between 1987 and 1995, but increased slightly between 1995 and 2003. Commercial fishing economic contributions continue to be important to the overall coastal economy and certainly for a few communities, but are decreasing in relative proportion to the total economy. There are good and bad years in this sector, depending on cyclical abundances of crab and shrimp and how ocean conditions affect salmon returns.

### Tourism

- The industries that are part of the tourism sector (lodging, eating and drinking places, some retail) show steady trend increases between 1987 and 2003. This may be a result of the way expenditure patterns of tourists are counted. The increased tourism trade that is sometimes noted by industry advocates is not resulting in increased employment in the sectors that make up the tourism sector.
- There is an extreme skew in this sector's income. Most jobs have wages at poverty level, but there are some proprietorships and professional jobs at high income levels.
- Many communities are already saturated during the summer and need to work on flattening the seasonal demand curve.
- There are high infrastructure costs related to this sector and the challenge is to extract rent from visitors to pay for it.

### Other Earned Income

- Other earnings show an increase, especially for Coos County. This increase is from small other manufacturing. As the large, resource based industries declined, more jobs were contracted to self employed individuals. Also, the trend toward small businesses being established in rural areas continues. This is partly due to more accessible telecommunication opportunities.

### Transfers and Investment Income

- Returns from investments generally increased for all study estuary counties between 1987 and 2003. The largest increase took place in the late 1990's.
- Transfer payments increased up to 1995, but the rate of change decreased in the late 1990's. This is most likely due to the growing economy and the reduction in income support programs resulting from strong overall economic growth.



## V. PLANNING AND POLICY IMPLICATIONS

Coastal communities in Oregon and elsewhere are undergoing significant social and economic transition as traditional industries decline, new industries emerge, and population ages and expands with the flow of migrants from inland areas. Decreases in the overall supply of timber and short-term declines in demand for wood products has led to recent rapid downturns in the wood products industries. Likewise, the importance of commercial fishing has been reduced due to decreases in available fishery stocks' abundances and declining real prices. Industries benefiting from tourism and retirement have been expanding, leading to economic diversification in coastal communities. Many coastal communities have taken advantage of these trends by focusing on developing their tourism and other service industries as traditional natural resource based industries decline.

The following is a discussion of some global, national, and regional trends that may affect coastal communities' social and economic growth. The discussion references several important studies and quotes are liberally repeated. Care was taken to ensure the quotes are within the context of authors' conclusions. The discussion is included to provide a larger view of social and economic forces that affect coastal communities.

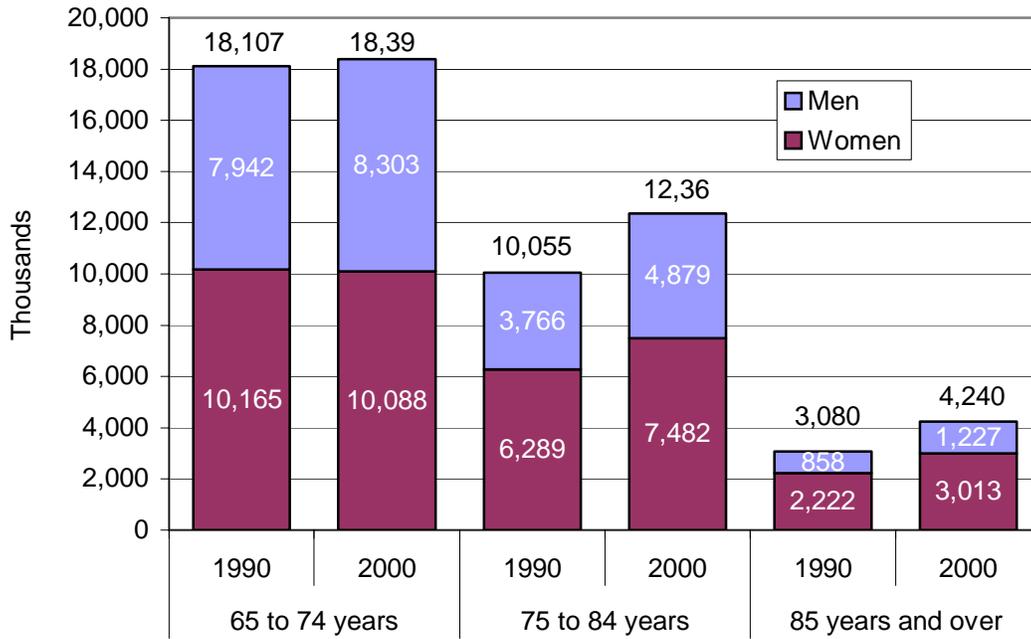
### A. Social Trends

Parts of the global population are growing at or close to three percent per annum. In other settings, population growth is either flat or increasing at a low rate. Most of the larger growth rates are taking place in underdeveloped or developing countries. The countries with low growth rates tend to be the economically developed areas. This creates a dilemma for world trade. The effective demand for natural resource commodities will not increase with population increase. Also, the shift toward lower growth rates and older population in the developed countries will also reduce the demand of commodity goods and increase the demands for specialty goods, free time goods and other services.

In 2000, 35 million people 65 years of age and over were counted in the United States. This represents a 12 percent increase since 1990, when 31.2 million older people were counted (Figure V.1) (U.S. Census Bureau 2001). The change in Oregon mirrored the national trend. Oregon went from 391,324 (13.8 percent total) to 438,177 (12.8 percent total) or 12.0 percent increase.

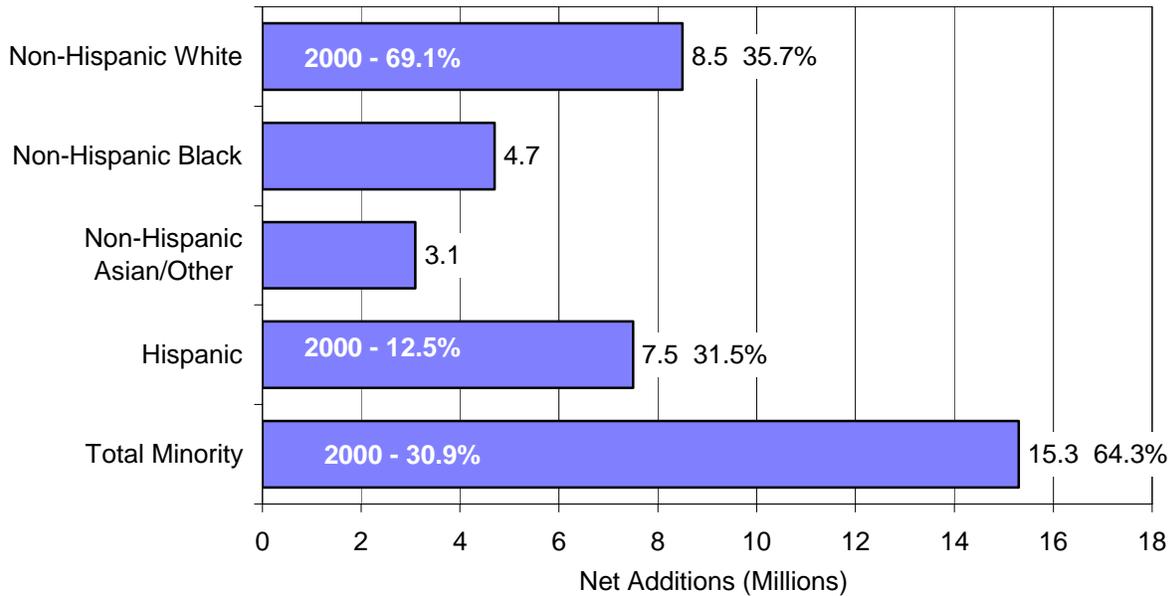
Minority households will increase much more dramatically than the non-minority population (Masnick and Di 2003). It is expected that Hispanic households will likely increase by 32 percent between 2000 and 2020 nationwide (Figure V.2 and Table V.1). Total minority households will increase by 64 percent compared to non-Hispanic Caucasian households at 36 percent. Implications for these social changes are considerable. The fertility rate of Hispanic families is much higher than the general population. Oregon's household size for Hispanics was 70 percent higher than the State as a whole.

Figure V.1  
U.S. Population 65 Years and Over by Age and Sex in 1990 and 2000



Source: U.S. Census Bureau (2001).

Figure V.2  
U.S. Projected Household Growth in 2000 to 2020 by Race/Hispanic Origin



Source: Masnick and Di (2003).

Table V.1  
Oregon Population and Households by Ethnicity and Household Size in 2000

	Population		Households		Persons Per Household
	Number	Percent	Number	Percent	
Not Hispanic or Latino	3,146,085	92.0%	1,270,016	95.2%	2.48
Hispanic or Latino	275,314	8.0%	63,707	4.8%	4.32
Total	3,421,399		1,333,723		2.57

Source: U.S. Census Bureau.

The changing population base (global, U.S., and statewide) will influence every aspect of the coastal communities. It will affect such areas as the composition and quality of the work force, social and health care needs, education, and housing.

The Pacific Northwest rural population has fluctuated in response to business cycles. There was significant increase in population in the 1970's and again in the 1990's. However, during the natural resource recession of the 1980's, there was a loss of population. The sudden downturn in the economy of 2001 and 2002 did not translate into negative population growth rates (Oregon Department of Administrative Services 2002).

For the next 10 years, the elderly population will continue to increase steadily, but not dramatically. The older members of the baby boom will be nearing 60, and the youngest members will just have passed age 40. Then, from the years 2010 through 2030, growth will virtually halt for any age group other than the elderly. By the Year 2020, the U.S. will have nearly as many people over 60 as under 20 years of age. Furthermore, the size of the elderly population will be at least two and a half times the size of the elderly population in 1980 (Hanus 1988).

The principal cause of the aging of the American population is the decline in fertility. Many demographers believe fertility levels will remain low and could drop further. The entrance of large numbers of women into the work force, together with modern contraceptives, has afforded women the choice to be more financially independent and to control their fertility.

The labor force will be shaped primarily by three factors: the aging of the baby boomers, the shortage of entry-level workers due to the low birth rates, and the influx of women into the work force. Due to the scarcity of educated entry-level workers, employers will face increased costs of upgrading prospective hires through training and development, and producing compensation and career development packages to attract the best talent. Basic educational competency and literacy will become increasingly important. For children, this may mean much greater emphasis on early childhood education. Among early entrants into the job market and for the existing work force, it will mean lifelong training and retraining.

A greater proportion of women in the work force will mean that programs geared toward assisting their needs will be required. Child care, flexible work rules, pensions that

accommodate absences for pregnancy leave, job sharing, and special training will be considered. Adult day care will become necessary since fewer women will be home to care for aging parents.

## **B. Natural Resources Use Trends**

The world experienced some substantial economic growth during the last 25 years due to a relatively peaceful period and integration of technologies in most economies. This has brought about integration of the economies of developed and developing countries. The result of this integration is better markets for some products and increased competition for others, especially natural resource commodities. Increased supply and aquaculture substitutes for natural resource commodities (products from agriculture, timber, and marine based industries) have created downward price pressure on products that are the mainstay of developing countries.

As the world economy slowed, additional demand pressures are affecting these commodities. Following the unusual high growth in 2000 of 4.7 percent, world economic output started contracting significantly after late 2000 (FAO 2002). The global economic slowdown negatively affected international trade and commodity markets. International commodity prices, which were already weak, suffered further downward pressures caused by the economic downturn. Non-fuel primary commodities suffered an overall decline of an estimated five to six percent in 2001.

Natural resource extractions have provided fairly steady employment in periods of strong U.S. economic growth. However, declines in natural resources available for harvests and declines in prices have reduced the total employment of these sectors. Global supply/demand changes have decreased the real prices offered for these commodities. Shifting demographic factors are increasing the demand for service jobs that support the tourist and retiree industries. The following contains a summary description of the expected changes in Oregon's natural resource industries due to the global and national influences.

It's tempting to take short-term occurrences and predict long-term trends. However, both the long-term increase in supply due to increase in technology and productivity, and the slow increase in effective demand points to no expectation of real price increases for natural resource commodities. The following is a brief discussion of expectations for prices for the major natural resources produced in Oregon coastal economies.

### **1. Commercial Fishing**

For the two decades following 1950, world marine and inland capture fisheries production increased on average by as much as six percent per year, trebling from 18 million metric tons in 1950 to 56 million metric tons in 1969 (FAO 2000). During the 1970's and 1980's, the average rate of increase declined to two percent per year, falling to almost zero in the 1990's.

This leveling off of the total catch follows the general trend of most of the world's fishing areas, which have apparently reached their maximum potential for capture fisheries production, with the majority of stocks being fully exploited. Therefore, it is unlikely that substantial increases in

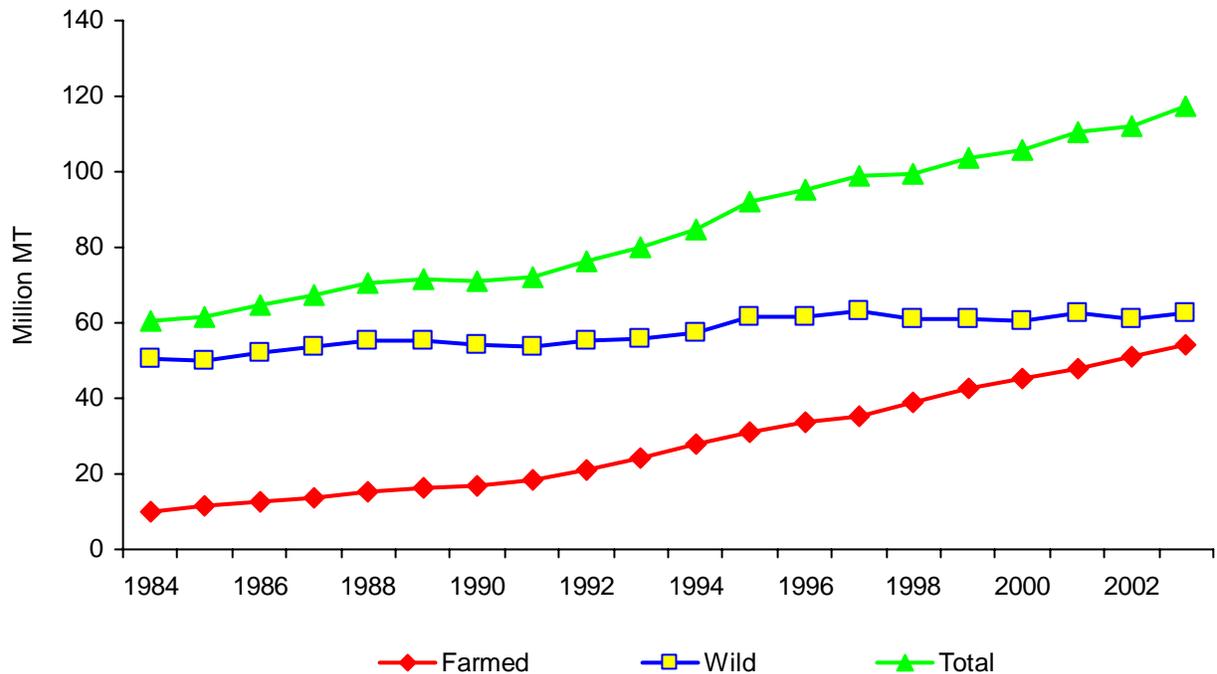
total catch will be obtained. In contrast, growth in aquaculture production has shown the opposite tendency. Starting from an insignificant total production, inland and marine aquaculture production grew by about five percent per year between 1950 and 1969 and by about eight percent per year during the 1970's and 1980's, and it has increased further to 10 percent per year since 1990 (Figure V.3).

The global patterns of fish production owe much to the activities of China, which reports production in weight that accounts for 32 percent of the world total. Other major producer countries are Japan, India, the United States, the Russian Federation, and Indonesia (FAO 2000).

Total aquaculture production reveals the enormous potential of this source of food towards food security and poverty alleviation, if the environmental impacts and other issues of sustainability relating to aquaculture facilities and to aquaculture production receive sufficient attention.

For captured fish, the number of underexploited and moderately exploited fisheries resources continues to decline slightly and, as fishing pressure increases, the number of fully exploited stocks remains relatively stable, while the number of overexploited, depleted, and recovering stocks is increasing slightly. Indices that were developed to monitor changes on marine ecosystems suggest that ecosystems may be shifting away from the underexploited state, giving cause for concern that continued heavy fishing may lead to more widespread changes.

Figure V.3  
World Production of "Food" Fish



Notes: 1. Aquaculture accounted for 46% in 2003. Aquaculture accounted for only 17% in 1984.  
Source: Sylvia (2005).

Rivers, lakes, and wetlands account for less than one percent of the global surface area, but yield at least eight percent of global fisheries production. However, these productive ecosystems are under pressure from the needs of a growing human population. The World Resources Institute reported that half of the world's wetlands were lost in the last century and that dams, diversions, and canals fragmented almost 60 percent of the world's largest rivers. Per capita water consumption increased by 50 percent between 1950 and 1990, and human use of available water resources is expected to increase from its current level of about 54 percent to more than 70 percent by 2025.

Even though there is a concern about the long-term sustainability of capture fisheries and water demands of aquaculture, the short to medium term expectations are that increased production will sustain downward pressures on seafood production. From a production point of view, there are dozens of promising species being farmed or under development. Tilapia, catfish, cod, halibut, red drum, cobia, black cod, and various species of bass, bream, and snapper all have attributes that make them candidates (Forster 2002).

The decline of available fish and fish prices has been well documented. The Magnuson-Stevens Act of 1976 provided for expansion of the American fishing fleet and the "fishing down to maximum sustainable yield" has been accomplished, although there has been a recent increase in commercial seafood landings due to recurrence of sardine availability and the unexpected continuation of strong Dungeness crab landings. The long-term viability of Oregon's commercial fishing industry will be dependent on the ability to make more with less. Competing directly with fish produced in other countries or by aquaculture does not provide an opportunity for a stable coastal fishing fleet. Any seafood development projects will have to include "niche" marketing that sells the cultural and environmental values provided by the Pacific Ocean waters.

Developing "niche" markets are for selected species, such as Chinook salmon and Dungeness crab. The U.S. dollar is expected to decline further. This trend, coupled with an increase in consumer desire to purchase "non-commodity" items such as wild harvested Chinook and whole Dungeness crab, provides some opportunities for expansion for Oregon seafood products (Sackton November 2005).

## **2. Agriculture**

In 1918, the German chemist Fritz Haber won a Nobel Prize for the process of turning air into nitrogen fertilizer (National Public Radio 2002). Without this innovation, the Earth would not have been able to support its increasing population. Today, fertilizer factories pour out 100 million tons of nitrogen each year, and an estimated two billion people depend on the process to help grow the food they eat. This process, coupled with other technologies and marketing strategies helped some regions experience strong increases in output.

Viewed in the longer-term context, annual agricultural production growth over the last five years averaged 1.7 percent, compared with 2.1 percent over the preceding five-year period and 2.5 percent in the 1980's. The declining trend in agricultural output growth in Asia is largely attributable to China, where the growth rates are tapering off. In eastern Europe, a strong increase of 11 percent in grain production helped depress prices of wheat and other commodities.

The developed countries are faced with large subsidies for agricultural producers, while the developing countries face low subsidized world agricultural prices as they are searching to join world markets with their agricultural production (Klug 2005). The prospect for agriculture is at best constant prices. For specialized agriculture, adaptation to changing markets is the key to survival. "Essentially, farmers are targeting a market, then finding what they have to do to make those consumers happy, rather than simply growing a product and hoping it will sell. ... Having niche markets is the only way that farmers are going to be able to stay in the game." (Lee 2000).

Professor emeritus Desmond O'Rourke presents a bleak future for the Pacific Northwest's agriculture. His analysis was developed historically based on constrained world markets, federal subsidies, and cheap land and water. He predicts reduction in production in most agricultural commodities in the Pacific Northwest. The only significant expansion may be specialized markets such as berries and wine grapes (O'Rourke 2004).

The coastal communities produce a diversity of crops and livestock. This includes vegetables, livestock, hay, dairy cattle, cranberries, Christmas trees, holly, wild mushrooms, and nursery and horticultural crops such as lilies. The Tillamook area has been very successful in marketing premium products. The success of this marketing effort continues. However, because about 80 percent of feed for the dairy herd is imported, and because environmental regulations have made disposal of dairy waste costly, an expansion of the dairy herd for the Tillamook Creamery has moved to eastern Oregon.

Cranberries provided substantial income for farms in the Coos Bay area as well as in Pacific County. Due to very high prices for cranberries in the 1990's (as high as \$50 per barrel), expansion in the U.S., and investments in other parts of the world (Chile and the Baltics), production increased and prices have declined to as much as \$10 per barrel in 2000. The growth potential in agriculture in coastal areas is for some specialty crops and nursery (horticultural) crops.

### **3. Timber**

Timber supply and demand are determined by interactions of global, national, regional, and local consumers, producers, and land owners. International trade in forest products increased during the periods of global trade expansion. For example, global production of solid wood products (which includes sawnwood and wood based panel) increased during 2000, rising by 1.7 percent to a level of 610 million cubic meters. The increase in production was attributable to the developed countries, where production increased by 2.6 percent. Overall, global output of pulp and paper products continued to show strong growth, with an increase of 3.2 percent during 2000.

The most important change in timber production is in the composition of product consumption. In the U.S., for example, per capita consumption of solid wood products has fallen, while per capita fiber consumption has increased 45 percent throughout the past four decades. Recent research suggests that per capita wood product consumption will decline over the next 50 years. There will be less reliance on solid wood products manufactured from logs and greater reliance on engineered and reconstituted products for structural applications (Haynes and Horne 1997). Greater use of recycled fiber will also decrease the demand for timber.

As the plantation production of the 1950's and 1960's in areas such as South America and New Zealand begins to emerge into the global market, the most optimistic assumption is that in the long-term prices will stabilize. The more pessimistic forecasts call for a decrease in forest product prices in the medium term.

The economies of many Pacific Northwest coastal communities were constructed on harvesting historical inventory of timber (mostly Douglas fir). Inventory harvesting gave way to plantation management. Falling prices for timber and plantation management costs are affecting decisions for harvests. At investment requirements of about seven percent, timber will provide prudent returns if harvesting takes place under 40 years of age. Or, as was anticipated for many years, the real price of timber increases by one to three percent per year. The outlook for lumber and fiber products at the global level does not support these price projections. In addition, the plantation style forests in coastal communities are facing diseases, such as Swiss needle cast, and a possibly devastating "Sudden Oak Death" disease (Cole 2002).

Timber that is harvested tends to be processed in several central manufacturing centers distant from the harvesting sites that have been upgraded and retooled for plantation logs. Milling used to occur close to cutting, but transportation costs as compared to milling capital costs have declined. Many factories cannot afford to have stranded investments and will haul logs long distances for processing. Consequently, lumber and wood products employment has declined much more dramatically due to productivity increases and the geographical concentration of milling centers. There is some possibility that growth in specialty species such as cedar and lumber grade alder may provide niche markets for growth in timber-based jobs in coastal communities.

Oregon's timber industry potential is linked to a strong "forestry services" sector. "Long-term innovation and vitality of Oregon's forest sector is integrally linked to the competitive edge of the critical service infrastructure." (E.D. Hovee and Company 2004). "Oregon State University has created a new Wood Innovation Center to help the State's forest products companies create new products, research new markets, and improve their efficiency." (Rivera 2005). This may address the need for increased forest management services.

#### **4. Tourism**

Demand for natural resource based recreation is based on available time and disposable income. The trend in developed countries is slower population growth and a shift toward older and wealthier populations. In the U.S., for example, population is expected to continue to grow, albeit at a declining rate, over the next 50 years. The population will become older, more affluent, more educated, and more racially and culturally diverse. The gross national product is expected to grow at an average rate of 2.7 percent over the next half century, and growth in per capita disposable income is expected to increase in line with general aging.

Population growth and the proportion of that population having a degree of affluence are the most significant factors to increase in recreation activity. The significant population increases expected for the Pacific Northwest and the rest of the U.S. over the next 50 years are a harbinger that major increases in recreation outdoor activity will occur.

Age structure influences recreation activity in that older people tend to travel farther for recreation, stay in developed campgrounds, and stay longer than young people. Older age groups will tend to be more educated than people in those age groups today, suggesting their participation rates in active outdoor recreation will be higher. As more people travel to the Pacific Northwest for vacations, recreation will become an increasingly important export of economies.

## **5. Attracting Retirees**

As the population ages, the bountiful coastal natural resources and temperate climate attract tourists as well as retiree settlement. Attracting retirees may be a policy that fits into some coastal communities' economic objectives. It is important to understand that the aged are not a homogenous group, and should not be treated as such. An often overlooked group is residents who grow older in their long-term home communities. Their characteristics and needs are different from in-migrating elderly and they require a different set of services and policies.

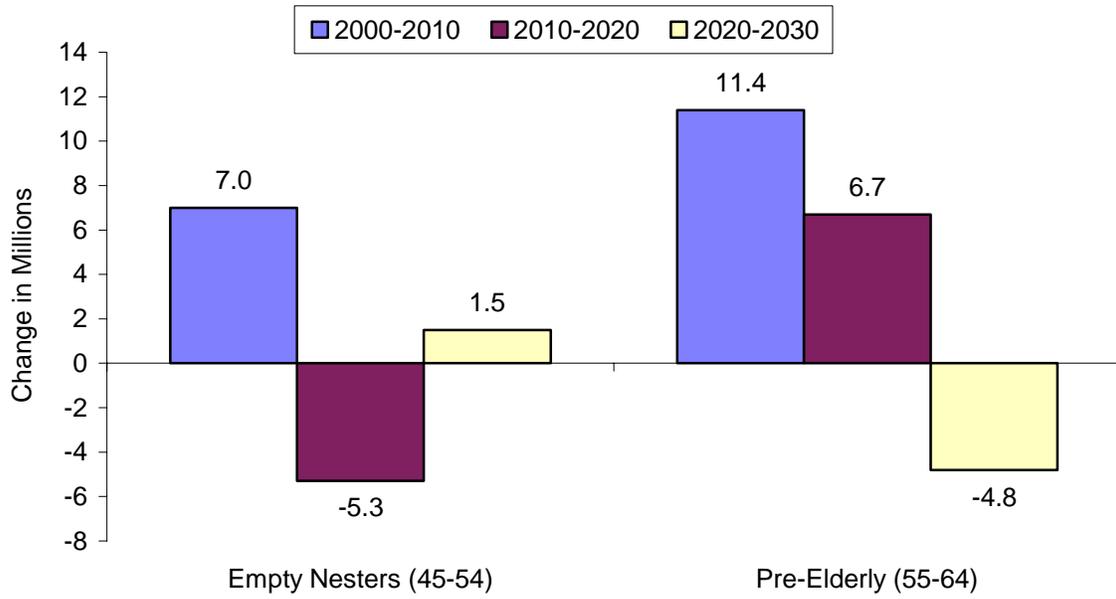
Frey (2000) distinguishes four age cohorts for their spending patterns and demands for services. Figure V.4 depicts graphically the dominance of the baby boomers over the next 30 years. The 45 to 54 year old empty nester consumer market will change between 2010 and 2020 from a growing to a declining market as the smaller "Generation X" population advances into that age group. The pre-elderly, 55 to 64 year old group will remain large for the next two decades as both halves of the boomer generation pass through it (Frey 2000). In assessing the boomers' effect on the post-65 age groups, it is important to make a distinction between the "yuppie elderly" and the "needy elderly." The yuppie elderly are most prevalent in the 65 to 74 age group. More than half of them are married. They are generally in good health and have high disposable incomes. The needy elderly are typically older than 75. A large portion are widows and dependent on the assistance of their families and social institutions (Frey 2000). In the second and third decades of the new century, the baby boomers will inflate dramatically the ranks of the elderly population. Early on, they will be part of one of the most sought-after markets for retirement communities and other consumer items. However, based upon their circumstances in earlier years, they will exhibit sharp disparities in their ability to afford a comfortable lifestyle - and as time passes, some will increase the size of the needy elderly population group (Frey 2000).

One study (Shields et al. 2002) of older movers finds that those who move for amenity or retirement reasons tend to be younger, wealthier, and more highly educated. These same studies also show that there are significant differences in income characteristics and spending habits between household types and these differences can be used to assess differences in economic and fiscal impacts. This age group also will invest in housing construction and upgrades, which impacts the construction sectors fiscal impacts similar to other age groups fueling community growth. The retiree age group does not have the same demand profile for public services like schools and health facilities; they will impact water, sewer, roads, and other infrastructure.

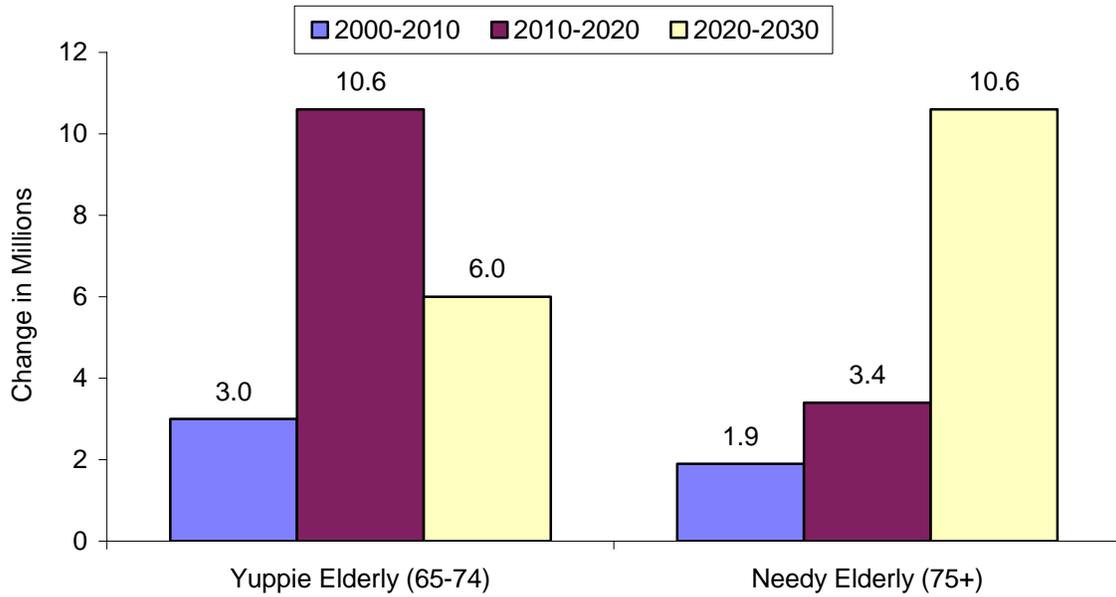
Income for retirees may include items different from the general population. Many retirees will own their own home and receive pensions, annuities, and other benefits that are not included in the usual definition of household income (Aizcorbe et al. 2003). Households of retirees are

Figure V.4  
Population Changes in the Next Three Decades

Empty Nesters and Pre-Elderly



Yuppie Elderly and Needy Elderly



Source: Milken Institute, U.S. Census Bureau.

usually smaller than the average. Comparing household income will thereby distort the income as well as the expenditure descriptions.

The low income elderly spend approximately \$13,000 annually while the high income elderly spend \$40,000. There are also notable differences in average household size (1.5 people for low income versus 2.3 people for high income). For the low income elderly households, Shields et al. (2002) suggest that 500 new households will create 100 initial jobs and a total of 156 jobs or 0.2 jobs for every person in the household. This compares with 600 initial jobs for higher income elderly with a total employment impact of 810 jobs or 0.7 jobs for every person in the household. For the Oregon Coast where purchases tend toward larger urban areas, these ratios may be much lower. The primary cause of the larger employment impact for the higher income households comes from greater levels of local purchases.

Research of the consumption patterns in local coastal areas as well as demand for local services by age and income groups is needed to provide information on the business and local fiscal impact of this growing population. For economic development policy in coastal communities, the comparison needs to be made between the benefits of attracting this age cohort with the overall cost in public services, changes to land use demands, and other impacts.

### **C. Effects of Natural Resource Use Trends on Coastal Communities**

Increased technological input in natural resource production is increasing output of traditional natural resource commodities. Chemical fertilizers have changed the capacity of limited land and water resources to produce agricultural commodities. Engineering advances are increasing the capability to harvest timber in areas that were formerly inaccessible. At the same time, the growth of plantation forests is producing fiber that is utilized in engineered wood products, and increased recycling and electronic communication is decreasing the demand for low quality pulp wood. In fisheries, as new harvesting technologies are used to fully utilize most fisheries, a growing number of fish stocks are placed in the overfished status. The high prices of some species in the late 1980's encouraged aquaculture in species such as salmon and shrimp. Aquaculture produced output is now the determining factor in prices of fishery products.

In the short to medium term the technological advances have increased world production and reduced real prices for most natural resource commodities. In the longer term, the byproducts of this increased production will have some predictable consequences. Increased nitrogen run-off will result in higher ecosystem costs, such as algae clogged waters. Increased plantation timber production will affect diversity of timber areas. Water resources are the most likely to be most affected by increased aquaculture production. Additional pollution and the threat of chemical and disease contamination will have to be addressed. The coastal areas are an attractant for future residents and visitors, because of the relative abundance of natural resources. These are a comparative advantage at present to draw visitors and will become a greater attractant as other areas in the world and in the U.S. become more developed. The challenge will be for the coastal areas to protect this comparative advantage while at the same time keeping pace in economic development.

#### **D. Lessons Learned From Economic Dependence on Natural Resources**

The economic growth of the American West was highly dependent on the availability of cheap or free natural resources. For most of the 19th century the emphasis on public land management was simply to move land from federal to private ownership. During this formative period, many Americans viewed federal lands as a vast resource to be settled and exploited. Driving economic interests were fur trading, transportation, homesteading, agriculture, mining, fishing, and forest use (Lynch and Larrabee 1992).

For example, the post-World War II housing boom, predictions of long-term demand for timber and shortage of private timber resulted in federal policies that authorized twice as much federal timber to be cut between 1950 and 1966 as had been cut in the 45 years before the war. Since the 1960's, demands for sustainable use of natural resources, particularly federal forest lands, led to federal laws such as the Multiple Use Sustained-Yield Act of 1960.

Wilderness enthusiasts and others sought to place recreation on equal footing with extractive uses. At the same time, traditional users -- timber operators, ranchers, and miners -- argued for greater allocation. As extractive uses were curtailed, many communities sought a resumption of traditional use for the economic benefits. There are studies, however, which cast light on the economy during this natural resource dependent era. These studies suggest the era was not as prosperous as some remember it to be. A socio-economic study of the Columbia Basin summarized that, "New evidence suggests many of these rural communities - and particularly those which still rely primarily on natural resources - are falling farther behind their urban counterparts." (Columbia Basin Consultants 2000). Southwick Associates (2000) found in Oregon that the presence of roadless or protected areas did not correlate with slower income or employment growth.

Power and Barrett (2001) describes the changes in the West as once-important natural resource industries declined dramatically in terms of jobs and incomes. These industries - mining and metal processing, logging and lumber products, and agriculture - historically supported European settlement. They are still widely believed to be the economic lifeblood of the region's rural areas and small cities. Their decline still provokes deep anxiety. The fear is the region will become more depressed and more residents will be forced to leave.

Despite these fears, the changing industrial structure has not triggered an overall decline in jobs, income, or residents in the region. On the contrary, as industrial transformation proceeded, in-migration, employment, and aggregate real income have boomed. During the last half of the twentieth century, the Mountain West was the fastest growing multi-state region of the United States. During this period, only the Pacific Northwest, seriously challenged this lead. The Mountain West grew twice as fast as this region. Power and Barrett conclude that environmental protection supports the economic vitality the Mountain West enjoys.

In this difficult transition, as total personal income grew, per capita income may not have increased at the same rate. This may be a result of national demographic and lifestyle trends more than an indicator of local or regional economic well-being. Although falling pay per job signals an erosion of earning opportunities, it tends to overstate how badly workers and their

families are doing. This is true for a variety of reasons. As more of the population joins the work force, the decline in pay per job may be the result of a growing preference among workers for part-time employment. And, by holding more than one job, workers can increase their earnings as individuals, even if each job pays less. In addition, income per capita rose steadily because non-employment income rose. The increase in the number of part-time workers during the 1980's and 1990's should not necessarily be seen as a sign of deteriorating job market. Approximately nine of every ten workers working part-time say they do so by choice.

Power and Barrett conclude by recommending several public policy alternatives for economic development. These are:

- Public policy makers should recognize that local government cannot manipulate local pay and income by subsidizing job creation.
- Local economic policy should focus first on enhancing the ability of existing residents to earn a decent living rather than recruiting new employers with tax breaks and other subsidies.
- Public policy makers should focus on the present and the future and try not to dwell on the past economy.
- Local economic policy should treat the community's site-specific characteristics, both public services and the quality of the natural and social environments, as important determinants of both citizen well-being and local economic vitality.

A study by ECO Northwest (1999) found that "the sky did not fall." Harvests in Oregon and Washington declined from a peak level of 15.7 bbf in 1988 to 8.3 bbf in 1996. The reduction in logging triggered a widespread fear of economic catastrophe. While some painful local dislocations happened, these dire predictions did not materialize. Instead of collapsing, the region's economy expanded. While timber harvests fell 86 percent on federal lands and 47 percent overall from their peak 1988 to 1996, employment in the lumber and wood products industry only fell 22 percent. In contrast, total employment in the region rose 27 percent.

ECO Northwest cites several reasons for the diminishing importance of logging in the region's economy. Some of these are:

- Lumber and wood products employment had been steadily decreasing in the Pacific Northwest.
- The lumber and wood products industry represents a small component, about 1.9 percent of total employment in 1996, of the Pacific Northwest economy.
- Analysts have known for several decades that the timber industry has been liquidating the stock of timber at such elevated rates that the logging levels had to eventually decrease.
- Before 1991 the timber industry exported more than three bbf of logs annually, or about one-fourth of all logs cut in the region. As the Asian economies cooled, log exports dropped by half and the industry diverted logs to domestic mills.
- Although most trees grow in rural areas, the bulk of the lumber and wood products industry is located in or near the metropolitan areas, where the timber industry plays a relatively small role.

ECO Northwest then concludes that unlogged forests have become more important to the economy. The vitality of the region's economy depends in no small part on the health and vitality of its forests. Many firms locate in the Pacific Northwest because the region has a good workforce and many workers. These workers are drawn to the region because they cherish the quality of life. Residents of the region derive numerous services from healthy forests. The services constitute, in effect, a "second paycheck" which complements the "first paycheck" derived from their place of employment and pension programs.

Several policy implications for economic development are advanced by this study. They are:

- States with the best economic performance typically have the highest environmental quality.
- States with the most stringent actions to protect threatened and endangered species typically have the best economic performance.
- Counties with scenic and natural resource amenities typically exhibit stronger economic performance, in terms of jobs and incomes, than counties with high concentrations of extractive industries and less scenic qualities.
- Counties adjacent to wilderness typically exhibit stronger economic performance, measured in jobs and incomes, than other counties.

However, taken together, the ECO study concludes that logging reductions on federal lands in the Pacific Northwest are an integral part of, and not an impediment to, the region's economic evolution.

Thinning and forest fire protection measures on forest lands is needed to promote forest health. Such operations on public lands can provide a major source of income and employment on the Oregon Coast. Traditional management of private timber lands will continue to make an important contribution to the region's economy.

Cogan Owens Cogan (2005a and 2005b) addressed how Oregon can replace jobs lost to the downturns in natural resource extraction activities. The study examined how American natural resource industries have shifted from growing and harvesting raw materials to producing and exporting value-added, engineered products. This shift towards value-added natural resource products is particularly important for economic development in rural communities. In particular, the study addressed how Oregon can leverage its assets and opportunities to commercialize research, transfer technology, and create "traded-sector" jobs in sustainable industries related to:<sup>1</sup>

- Green building, community infrastructure and value-added wood products
- Water and water management systems
- Renewable energy production and management

Rural communities can take advantage of new opportunities in renewable energy, such as wind, solar, hydro, geothermal and biomass. When sited correctly, these new energy sources can

---

1. Traded-sector jobs are those resulting from the export of products or services. Traded-sector jobs increase wealth locally by importing it from outside the exporting state or region.

coexist with existing agricultural and forest use practices and provide supplemental income for farmers and forest landowners. Surrounding communities can benefit from having new residents employed at equipment maintenance and facility operations jobs, as well as causing an increase to the property tax base.

#### **E. Challenges to Economic Growth in Coastal Communities**

The challenges facing economic growth in coastal communities include dealing with its unique social and economic characteristics.<sup>1</sup>

- Problems of distance and accessibility
- Narrower bases of economic activity, making it vulnerable to cyclical swings
- Lower levels of labor, skill sets, and education/training facilities
- Gaps in communication and transportation infrastructure
- Greater distance to producer's markets
- Lower population densities that deny "critical mass" levels for certain businesses, public services, and organizations
- Smaller tax bases, making the provision of public infrastructure and services more difficult to finance
- Less access to and local control over investment capital
- Dependence on a small circle of leaders who are often volunteers serving a variety of roles
- Higher quality of life (lower crime rates, cleaner environment, scenic views, and less congestion)

The coastal economy is heavily influenced by seasonal industries; these include forest products, fishing, and sectors dependent on tourism, such as those in trade and services. During the winter months, when rains and wind make outdoor activity difficult and visitor levels are down, major layoffs in these seasonal industries raise unemployment through much of the region (ODA June 2002). In the summer, the situation is reversed. Local unemployment levels generally reach their annual low point. In fact, many coastal employers dependent upon tourism report difficulty in securing an adequate supply of workers during the busy summer months.

Policies to increase economic activity on the Oregon Coast should seek to smooth out the economic seasonal roller coaster of the coast. Infrastructure requirements designed for peak load are too expensive and not providing services at the peak level discourages sustainable investments.<sup>2</sup>

The transportation system, which mixes chip trucks, logging trucks, in-a-hurry tourists, and RV's driven by retirees at 30 mph, presents major challenges. Efforts should be made to encourage

---

1. Factors are adapted from NGACPR (1990).

2. Traffic patterns on coastal routes vary a great deal between summer and winter months (Appendix E). Such variance requires roads to be constructed for high flow times, and/or results in slow traffic and unsafe driving.

truck traffic to take an east-west route to major markets inland to preserve the capacity of coastal highways to serve visitors and residents.

In economic terms, an area may have a "comparative advantage" over another area for reasons of proximity to manufacturing inputs, product markets, labor availability, transportation, etc. Economic development efforts should promote these advantages. The Oregon Coast's comparative advantage is the natural amenities. Pricing is another tool for marketing goods or services that are in demand. Is it wise to provide and price goods and services that attract and overwhelm coastal areas for three months of the year? A review of public services should include these seasonal variation issues.

Oregon coastal communities in closer proximity to large metropolitan areas are faring better economically than the more remote communities. Natural resource extractive industries are still important in these areas, but the commodity value is no longer an automatic competitive advantage for economic development. These areas have other advantages for economic growth: high quality of life being in a rural setting, sufficient medical, shopping, and other services, and comparably low land values. They also have transportation infrastructure and proximity that allows a convenient driving distance to higher levels of education, medical services, airports, etc. Economic development public policy in other coastal communities needs to recognize the success in these mentioned communities, and where possible, promote the same advantages.

Local government leaders should avoid trying to manipulate local pay and job creation through subsidization (Cortright 2002). Local economic policy should focus on enhancing the ability of existing residents to earn a decent living rather than seeking new employers with tax breaks or other subsidies. Local economic policy should treat the community's site-specific characteristics, both public services and the quality of the natural and social environments, as important determinants of both citizen well-being and local economic vitality. In turn, visitors will be attracted from metropolitan areas for ecological and cultural based tourism. This will make public goods an important part of the local economic base, and attract desired economic growth. Cortright found economic growth can occur from distinctive places with a high quality of life:

- A resource base is still important, but it no longer an automatic competitive advantage.
- Traditionally, more capital and more labor is what made economies grow.
- An extraordinary quality of life can attract and retain talented people.
- Knowledge businesses can occur anywhere, but adequate telecommunication infrastructure is required to take full advantage of these opportunities.
- Talented and skilled people are key to supporting a knowledge economy. Opportunities for educational enrichment are needed from kindergarten through life.

Large expanses of timberlands, water vistas, low density development, and footloose business opportunities (not tied to nearness of manufacturing input and market centers) will draw visitors and permanent residents. Knowledge based industries dependent on reliable and robust broadband services will be attracted to the quality of life amenities available to owners and workers in these coastal areas (OCZMA 2005). The biggest challenge will be to maintain these amenities as the region experiences growth.

Oregon's land use planning encourages protection of rural lands committed to agriculture and timber use. It also protects lands of unique qualities and promotes keeping open spaces. As such, unchecked and low-density sprawl is not a problem in Oregon (Northwest Environment Watch 2004). Economic growth can occur without the despoiling of the very reasons businesses and workers may be attracted to a region.

A study to determine the adequacy of sufficient supply of industrial and commercial lands to encourage economic development was completed (Oregon Industrial Conversion Study Committee 2004). The study had a statewide perspective, but there are results applicable to the Oregon Coast. In short, there is a lack of specific project-ready industrial lands in certain areas of the State and there should be a balance when considering changing zoning from one proposed use to another. The study provides a useful checklist to communities for protecting and readying lands for economic development.

At a congressional hearing in 2005, Fluharty (2005) highlighted the rural development problems and possible solutions. "First of all, we must acknowledge that what has worked in the past will no longer suffice. We live in a global economy, which requires understanding and acceptance of a new economic geography. The old rural economy, based on commodity production, will no longer sustain us. Globalization advantages the lowest cost producer, forcing rural commodity producers, be they in agriculture, minerals, timber, or manufacturing, to compete in a global system where even our advancing economies of scale may not enable U.S. producers to compete with those in nations with lower land, labor, and input costs."

There are ways that community-based initiatives that encourage development of sustainable communities can effectively deal with these issues. Oregon Coast community specific practices were determined and reported in an Oregon Transportation and Growth Management Program (TGM) sponsored by the Oregon Department of Transportation and the Department of Land Conservation and Development. The TGM produced significant information about growth management objectives and practices. Publications and information about funding opportunities can be found at the Program's website listed in Appendix A.

The following list of economic development practices was adapted from Johnson (1993) and Wilderness Society (1992).

- Plan for new economic and regulatory policies

Community based initiatives are vulnerable to economic forces and resource policies far beyond their control. Resolving timber management controversies is only one action that would provide greater certainty to these efforts. New economic incentives and more flexible means to achieve economic development are necessary to minimize adverse natural resource management effects and smooth the transition of communities.

- Plan for economic development at the correct scale

Individual rural communities are not well equipped to address the multiple obstacles to economic development and diversification. Conversely, when small communities in a

geographic area begin to work together, a number of important benefits accrue. Several communities can develop a coordinated plan for marketing the area's distinctive assets and features. Staff and volunteer resources can be pooled to organize and sustain the planning effort. Responsibility for physical, educational, and social service infrastructure needs can be shared. Furthermore, public and private funders can support rural development without having to work on a piecemeal basis with each community.

Communities need to make choices to minimize economic development obstacles. A fundamental rule is to base economic development plans on the strengths and values of an area. For rural, forest-based communities, natural resources can be the foundation for economic diversification. Where reductions in timber harvest or processing employment have occurred, communities may find ways in which the forest can provide other economic benefits. For instance, recreation and tourism plans should highlight the features of their forested lands.

An alternative approach is to mimic what other successful communities have done. There are lessons to be learned from other communities, but there should be caution too. The fundamental reasons a community may be thriving are probably related to unique features that make the place special. So the lessons learned may not be transferable or acceptable to other communities.

Historically, many economic development plans have not succeeded. It is difficult to translate dreams into reality. The planning process itself can contribute to these difficulties. To succeed, the planning process must be thorough, detailed, and anchored in reality. Perhaps most important, the means to carry out a plan must exist. Community leaders must be patient, because economic development takes time.

- Develop locally relevant economic information

Economic information that is directly related to their areas is crucial for successful economic development planning. While many people are aware of general international, national, and regional economic trends, there are many questions about how those trends relate to local situations.

Locally relevant economic information provides communities with a means to project the benefits of their economic development plans. This is important in analyzing potential projects and in attempting to "sell" the projects to funding sources, especially private funders such as banks.

Shortage of information about the attempts of other rural areas to diversify their economies can be a problem. This can be as seemingly simple as finding the staff time to learn about and then prepare applications for various funding programs that are available at the state and federal levels. Rural communities need information about how other communities are responding to economic development challenges, which approaches are working, which are failing, and why. Any group of people or organizations with a common interest has a need for shared information; the degree to which that need is not

met, however, seems to be larger for rural communities. Their small size, the distances between them, and scarce financial resources make it difficult to create opportunities to build networks.

- Promote community based conflict resolution

Facilitation and other conflict resolution techniques can help communities and environmental organizations resolve disputes and begin working together to achieve common goals. However, many communities lack adequate funds to bring all "stakeholders" to the table on an equal basis. Efforts need to be made to encourage "bottom up" economic development planning that involves a broad cross-section of the community.

- Encourage sustainable enterprise financing

Rural development efforts traditionally have suffered from a lack of access to capital. The problem is even more severe when exploring the new territory of sustainability. Policy makers should work with rural development practitioners, small business owners, and nontraditional lenders to fund new options, but businesses to benefit from these options should be within industries with growth opportunities.

- Build local infrastructure

Rural areas are nearly always short on infrastructure of all types. Initiatives to promote these areas as thriving communities in which to live and work will require investments in infrastructure.

Transportation links to urban areas are essential. Communities will benefit from good road access to the State's population centers. Reestablishment of commercial air service will assist economic development. Communication linkages are also important, especially for remote areas where improved transportation routes are unlikely in the short term.

Local planning must provide land which is appropriately located for commercial and industrial development and has all of the necessary urban services. Areas with substantial amounts of environmentally sensitive lands such as wetlands must find a way to make permitting of development projects practical or move the commercial and industrially zoned land away from the sensitive areas. No one benefits from zoning land for development that is effectively undevelopable because of regulatory constraints.

The region's educational system and medical services must be sound. In deciding whether to locate in a rural area, prospective employers will want to know their employees' families will be well educated and cared for. Availability of adequate medical facilities is also an important consideration for retirees moving to a rural community.

- Provide for community and environment initiatives

Many communities and local environmental organizations have more dreams and energy than they have resources. Additional efforts need to be made to direct national and state funding programs to unleash the creative energies of local participants. Such policy efforts will ensure governments and residents are developing growth strategies and management objectives that incorporate the witnessed trends in social and resource use impacts.

How will planning and policy making anticipate and take advantage of population growth patterns? Deavers (1992) points out there are two primary challenges to overcome. First, there needs to be ways to deal with scale. Cooperation in the operation of public facilities and services is needed between single communities that cannot afford on their own. Governments need to be imaginative in trying to stimulate this kind of analogous scale in rural communities. An example is that it may be more cost effective for regional public facility authorities and service districts to provide services rather than traditional general purpose government. Second, the key for rural economies is going to be connectedness. That is, rural areas such as the Oregon Coast have to be able to communicate and transport. They need to be connected to Portland and other growth centers in the Willamette Valley.

Other challenges are to have an institutional structure that is informed about innovation and about rapid changes in the marketplace, technology, and finance. Rural areas need to gain access to information about and expertise in such areas as business planning and development and national and international competition. Government alliances for consolidation of public services should be explored whenever possible. A more educated work force must be provided. Revitalization efforts must address the problems of sustaining the environment, improving infrastructure, and capitalizing on the area's quality of life. An efficient and well maintained surface and air transportation system has to be provided.

## VI. BIBLIOGRAPHY

- Aizcorbe, Ana M., Arthur B. Kennickell, and Kevin B. Moore, Division of Research and Statistics. "Recent Changes in U.S. Family Finances: Evidence from the 1998 and 2001 Survey of Consumer Finances." *Federal Reserve Bulletin*. January 2003.
- Beyers, William B. "Trends in Service Employment in Pacific Northwest Counties: 1974-1986." *Growth and Change*. Fall 1991.
- Claritas. Demographics USA, County Edition, 2003. Undated.
- Cogan Owens Cogan. Key Market and Technology Trends in Natural Resources and Sustainable Development. Prepared for Oregon Economic and Community Development Department. <http://www.econ.state.or.us/NatResTrends.pdf>. June 30, 2005(a).
- Cogan Owens Cogan. Strategic Assessment and Action Plan for Natural Resources and Sustainable Development. Prepared for Oregon Economic and Community Development Department. <http://www.econ.state.or.us/NatResAction.pdf>. June 30, 2005(b).
- Cole, Michelle. "Researchers Trying to Save Oregon Douglas Fir From Sudden Oak Death Fate." *The Oregonian*. September 16, 2002.
- Columbia Basin Consultants. Columbia Basin Socio-Economic Assessment. Oregon Economic and Community Development Dept.; Idaho Rural Partnership; Montana Dept. of Commerce; and Washington Dept. of Community, Trade, and Economic Development. June 2000.
- Cortright, Joseph. 21st Century Economic Strategy: Prospering in a Knowledge-Based Economy. Prepared for the Oregon Business Council. 2002.
- Davis, Shannon W. and Hans Radtke. A Demographic and Economic Description of the Oregon Coast. Prepared for the Oregon Coastal Zone Management Association. March 1994.
- Dean Runyan Associates. Oregon Travel Impacts Reports: State Impacts and County Level Impacts. Prepared for the Oregon Tourism Commission. February 2005.
- Deavers, Kenneth L. "The Role of Rural America in the U.S. Economy and the National Policy Debate." in Rural Development: Rural America Faces Many Challenges, General Accounting Office, GAO/RCED-93-95. November 1992.
- E.D. Hovee and Company. Oregon Forest Sector Contributions and Potential. Oregon Forest Resources Institute. June 2004.
- ECO Northwest. The Sky Did Not Fall: The Pacific Northwest's Response to Logging Reductions. Prepared for Earthlife Canada Foundation and Sierra Club of British Columbia. April 1999.

- Fluharty, Charles W. Written statement before the Subcommittee on Economic Development, Public Buildings, and Emergency Management, U.S. House of Representatives. March 17, 2005.
- Food and Agriculture Organization of the United Nations (FAO). The State of World Fisheries and Aquaculture 2000. via Internet: <http://www.fao.org/DOCREP/003/X8002E/X8002E00.HTM>. 2000.
- Food and Agriculture Organization of the United Nations (FAO). The State of Food and Agriculture, Agriculture and Global Public Goods Ten Years After the Earth Summit. 2002.
- Forster, John. "Aquaculture's Next Move?" *Pacific Fishing*. October 2002.
- Frey, William H. and Ross C. Derol. America's Demography in the New Century: Aging Baby Boomers and New Immigrants as Major Players. Milken Institute. Santa Monica, California. March 2000.
- Fullerton, Howard N. Jr. "Labor Force Projections to 2008: Steady Growth and Changing Composition" in *Monthly Labor Review* No. 31. November 1999.
- Hanus, Ann. Looking to the Future: The Implications of Demographic Trends for the State of Oregon. Office of Economic Analysis. July 12, 1988.
- Haynes, Richard W. and Amy L. Horne. "Economic Assessment of the Basin." Chapter 6, Volume IV in An Assessment of the Ecosystem Components in the Interior Columbia Basin. Pacific Northwest Research Station, Portland, Oregon. June 1997.
- Johnson, R.L., B. Shelby, and E. Moore. Chetco River User Study. Final report to Chetco River Ranger District, USDA Forest Service, Brookings, OR. 1989.
- Johnson, Rebecca and David Ervin. Analysis of Transition in Oregon Coastal Communities and Identification of Options for Managing Future Development. Oregon State University Department of Forest Resources. 1993.
- Klug, Foster, The Associated Press. "WTO Nations Strike Deal, But It's Less Than Hoped For." *The Oregonian*. December 19, 2005.
- Larson, Jerry. Oregon Department of Agriculture. Personal communication. December 1998.
- Lee, Mike, staff writer. "Losing Ground, Part 5: Adapting to Market Key to Survival." Via Internet: <http://archive.tri-cityherald.com/losingground/part5.html>. Tri-City Herald. April 20, 2000.
- Lettman, Gary. Timber Harvesting Behavior on Private Timberland in Oregon. May 27, 1998.
- Lettman, Gary, Oregon Department of Forestry. Personal communication. November 2005.

- Liegel, Leon, David Pilz, and Tom Love. "The MAB Mushroom Study: Background and Concerns." *AMBID* (a Journal of the Human Environment). Special Report No. 9. September 1998.
- Lynch, D.L. and S. Larrabee. Private Lands Within National Forests: Origins, Problems, and Opportunities. p 198-216 in Steen (1992). 1992.
- Masnack, George S. and Zhu Xiao Di. "Projections of U.S. Households By Race/Hispanic Origin, Age, Family, Type, and Tenure to 2020: A Sensitivity Analysis," in *Issue Papers on Demographic Trends Important to Housing*. Urban Institute Final Report to the U.S. Department of Housing and Urban Development, Washington, D.C. February 2003.
- Minnesota IMPLAN Group, Inc. (MIG, Inc.). IMPLAN Professional User's Guide, Analysis Guide, Data Guide. Stillwater, Minnesota. Third edition. February 2004.
- Moore, Eric and Johnny Vong. Labor Force Participation Rates -- What are They and Why Should I Care. Oregon Labor Force Trends. September 3, 2004.
- National Governor's Association Center for Policy Research, et. al. A Look at Economical Social Trends Affecting Rural Oregon. October 1990.
- National Public Radio (NPR). Fritz Haber and the Nitrogen Cycle. via Internet: <http://www.npr.org/programs/morning/features/2002/jul/fritzhaber/index.html>. 2002.
- O'Rourke, Desmond. "Playing Ag Survivors: Will the Pacific Northwest be Voted Off the Island?" Pacific Northwest Regional Economic Conference. May 2004.
- Oregon Coastal Zone Management Association (OCZMA). Oregon Coast Telecommunications Economic Development Strategy. Economic Development Administration and Oregon Economic and Community Development Department. September 2005.
- Oregon Department of Administrative Services (ODA), Office of Economic Analysis. Oregon Economic and Revenue Forecast. Quarterly report, Volume XXII, No. 2. June 2002.
- Oregon Department of Forestry. Oregon's Timber Harvests: 1849-2004. 2005.
- Oregon Department of Forestry. Annual Timber Harvest Reports. Via Internet [http://www.odf.state.or.us/DIVISIONS/resource\\_policy/resource\\_planning/Annual\\_Reports/default.asp?id=401010205](http://www.odf.state.or.us/DIVISIONS/resource_policy/resource_planning/Annual_Reports/default.asp?id=401010205). 2005.
- Oregon Department of Transportation. Traffic Volume Tables. Via Internet: [http://egov.oregon.gov/ODOT/TD/TDATA/tsm/tvt.shtml#Traffic\\_Volume\\_Tables](http://egov.oregon.gov/ODOT/TD/TDATA/tsm/tvt.shtml#Traffic_Volume_Tables). Annual report.
- Oregon Housing and Community Services. Report on Poverty 2004. 2004.
- Oregon Industrial Conversion Study Committee and Department of Land Conservation and Development. Promoting Prosperity: Protecting Prime Industrial Land for Job Growth. Report to Governor Kulongoski. November 2004.

- Oregon Progress Board. Oregon Benchmarks, County Data Book. November 2005.
- Oregon State University Extension Service, Oregon Agricultural Information Network. Via Internet <http://oregonstate.edu/oain/Database/signin.asp>. 2006.
- Mapes, Jeff, Alex Pulaski, and Gail Kinsey Hill. "The Nine States of Oregon." *The Oregonian*. <http://www.oregonlive.com/special/ninestates/>. November 2, 2003.
- Northwest Environment Watch. The Portland Exception, A Comparison of Sprawl, Smart Growth, and Rural Land Loss in 15 U.S. Cities. October 25, 2004.
- Pacific Northwest Cheese Project. "Tillamook Closes Bandon Retail Store." Via Internet: [http://pnwcheese.typepad.com/cheese/2005/10/tillamook\\_close.html](http://pnwcheese.typepad.com/cheese/2005/10/tillamook_close.html). 2005.
- Power, Thomas Michael, and Richard N. Barrett. Post-Cowboy Economics: Pay and Prosperity in the New American West. Island Press. 2001.
- Radtke, Hans D. and Shannon W. Davis. Some Estimates of the Asset Value of the Columbia River Gillnet Fishery Based on Present Value Calculations and Gillnetters' Perceptions. Salmon For All, Astoria, Oregon. August 1994.
- Rivera, Dylan. "New OSU Wood Center Out to Aid State Industry." *The Oregonian*. December 21, 2005.
- Sackton, John, President, Seafood.com. "Outlook for U.S. Seafood Market in 2005." Presentation. 2005.
- Sackton, John. "Report on Crab Markets 2005-2006." Presented at Dungeness Preliminary Price Negotiation Meeting, hosted by Oregon Dungeness Crab Commission, Newport, Oregon. November 2, 2005.
- Schlosser, William E. and Keith A. Blatner. "Critical Aspects of the Production and Marketing of Special Forest Products." Prepared for the President's Forest Conference Committee, Portland, Oregon. May 3, 1993.
- Shields, Martin, Judith I. Stallmann, and Steven C. Deller. "Does Retiree Household Income Matter? Comparing the Economic and Fiscal Impacts of Low and High Income Retirees in Rural Wisconsin." *Community Economics*. Center for Community Economic Development; Community, Natural Resource, and Economic Development Programs; and University of Wisconsin-Extension, Cooperative Extension Service. Newsletter No. 306. April 2002.
- Siegel, Jacob. A Generation of Change. New York: Russel Sage. 1993.
- Southwick Associates. Historical Economic Performance of Oregon and Western Counties Associated With Roadless and Wilderness Areas. Prepared for the Oregon Natural Resources Council and the World Wildlife Fund. August 15, 2000.

Sylvia, Gil, Marine Resource Economist, Coastal Oregon Marine Experiment Station. "The Possibilities and Risks of Open Ocean Aquaculture." Presentation. 2005.

U.S. Census Bureau. The 65 Years and Over Population: 2000. Census 2000 Brief. October 2001.

Ward, Franklin R., Gary J. Lettman, and Bruce A. Hiserote. Oregon's Forest Products Industry: 1998. U.S. Forest Service, Pacific Northwest Research Station, and Oregon Department of Forestry. February 2000.

Wilderness Society. From Dreams to Realities. Northwest Area Foundation. 1992.

Wolf, Edward C. A Tidewater Place: Portrait of the Willapa Ecosystem. The Willapa Alliance. 1993.

