Management Context

The Pacific Region includes California, Oregon, and Washington. Federal fisheries in this region are managed by the Pacific Fishery Management Council (PFMC) and NOAA Fisheries (NMFS) under four fishery management plans (FMPs).

Pacific Fishery Management Plans

1. Pacific Coast Groundfish
2. Pacific Coast Salmon
3. Coastal Pelagic Species
4. West Coast Highly Migratory Species

Of the stocks covered in these fishery management plans, canary and yelloweye rockfish, petrale sole and cowcod are currently overfished. Bocaccio, Pacific ocean perch, cowcod, and darkblotched and widow rockfish are currently in rebuilding plans. These stocks are subject to unprecedented harvest, season, and depth-based area restrictions to address rebuilding requirements for these overfished species.[1] Eastern Pacific yellowfin tuna and Pacific bigeye tuna stocks[2] which are internationally managed are currently characterized as subject to overfishing.[3]

Interesting management techniques are employed in the Pacific Region's fisheries. The Pacific groundfish and salmon fisheries are subject to "weak stock management" where access to the harvestable surplus of healthier stocks is often restricted to protect weaker stocks with which they co-mingle in the ocean. These weaker stocks include eight overfished groundfish stocks and salmon is listed under the Endangered Species Act as well as other non-listed stocks that also constrain the fishery.

Salmon management is further complicated by the need to ensure equitable allocation of harvest among diverse user groups and to coordinate with other entities that have jurisdiction over other aspects of salmon management. Decades of habitat modification, hatchery practices, harvest, and growing competition for water have affected the viability of salmon stocks and made them more vulnerable to adverse environmental conditions including the prolonged drought and adverse ocean conditions experienced in recent years. Low returns of salmon to the Klamath River in 2006 and to the Sacramento River in 2008 resulted in unprecedented closures of ocean and in-river fisheries and federal disaster relief to affected entities.

Coastal pelagic species (CPS) are highly variable, environmentally sensitive stocks that provide forage for marine mammals, birds and fish. These species include Pacific sardine, northern anchovy, Pacific and jack mackerel, and market squid. Of these, Pacific sardine is the most commonly targeted CPS finfish and is managed via an innovative harvest control rule whereby allowable harvest varies with sea surface temperature. Because the geographic range of sardine tends to expand with abundance, harvest allocation between California and Pacific Northwest fisheries is an ongoing and dynamic issue.

Key Pacific Commercial Species

- Crab
- Flatfish
- Hake (whiting)
- Other shellfish
- Rockfish
- Sablefish
- Salmon
- Shrimp
- Squid
- Albacore tuna

Catch limits for Pacific halibut, a transboundary fish stock, are set every January by the International Pacific Halibut Commission (IPHC). This bilateral commission between the U.S. and Canada determines total allowable catch levels (TACs) for Pacific halibut that will be caught in the U.S. and Canadian Exclusive Economic Zones (EEZs).[4] Once catch levels are determined, the PFMC develops a catch-sharing plan for tribal and non-tribal (commercial and recreational) fisheries conducted in the federal waters of California, Oregon, and Washington.

Market-based management tools are used by fishery managers to reduce overcapitalization, increase the economic viability of fisheries, and promote individual accountability for harvest and harvesting practices. Limited access privilege programs (LAPPs) and other catch share programs comprise a category of such tools. LAPPs are used in various sectors of the groundfish fishery. The whiting industry voluntarily instituted the Pacific Whiting Conservation Cooperative in 1997. In 2001, the PFMC implemented the Pacific sablefish permit stacking program whereby vessels are allowed to stack permits in order to obtain additional trip limits. The PFMC is now considering a trawl rationalization program involving individual fishing quotas (IFQs) for non-whiting groundfish trawlers and coops and/or IFQs for whiting trawlers. The shore-based commercial groundfish fishery had an ex-vessel value of $59.3 million in 2007.

Ecolabels are another market-based management tool that is intended to encourage fishermen to adopt harvest practices that are considered sustainable by an organization such as the Marine Stewardship Council (MSC). The Oregon pink shrimp fishery, Pacific hake midwater trawl and the American Albacore Fishing Association albacore tuna fishery have received certifications from the MSC. The California and Oregon dungeness crab fisheries are currently undergoing assessment to receive MSC certification.

[1]These species are part of the Pacific Coast groundfish fishery, a multispecies fishery involving multiple commercial gear groups (trawl, line, and pot vessels) and recreational for-hire (party/charter) and private boat anglers.

[2]These stocks are part of the West Coast highly migratory species (HMS) fishery that includes tunas, sharks, marlin, swordfish, and dorado. Longline and drift gillnet activity has been severely restricted due to potential interactions with marine mammals, turtles, and seabirds.

[3]In contrast to Inter-American Tropical Tuna Commission's recent stock assessments, the scientific committee of the International Seafood Sustainability Foundation, a tuna fishing industry organization, recently suggested that the Eastern Pacific yellowfin tuna stock is not overfished nor subject to overfishing.

[4]Waters off the coasts of California, Oregon, Washington, and Alaska comprise the U.S. EEZ subject to management by the IPHC.

Commercial Fisheries

In 2008, commercial fishermen in the Pacific Region landed 1.1 billion pounds of finfish and shellfish, generating $504 million in ex-vessel revenue. Landings revenue was dominated by crab ($107 million) and other shellfish ($133 million). These high value species groups commanded an annual average price of $2.38 and $4.56 per pound, respectively, and comprised 48% of landings revenue but only 7% of total landings. Hake landings were the highest at 531 million pounds in 2008. However, with an annual price of $0.11 per pound, hake contributed less than 12% to total landings revenue.

Washington contributed most to landings revenue in the region with over $243 million in 2008, followed by California ($113 million), and Oregon ($103 million). In terms of pounds landed, California contributed the most (315 million pounds), followed by Oregon (196 million pounds), and Washington (174 million pounds).

Commercial Fish Facts

Landings revenue

- On average, the key species or species groups accounted for 90% of total revenue ($459 million) generated in the Pacific Region over the 1999 to 2008 time period.
- Crab contributed more than any other species or species group, averaging $101 million in landings revenue from 1999-2008. In 2008, Washington contributed the most to crab revenue in the region, followed by Oregon and California.
- Hake had the largest annual increase during the 10 year time period, increasing 80% from $33 million in 2007 to $59 million in 2008. Shrimp had the largest annual decrease in landings revenue (44%) from 2002 to 2003.

Landings

- Key species and species groups in the Pacific Region contributed an average of 76% annually to total landings.
- Hake, also known as whiting, contributed the most to landings in the region, averaging 446 million pounds from 1999-2008. In 2008, commercial fishermen in Washington harvested the more of this species than any other state.
- The largest annual changes in landings both occurred between 2002 and 2003. Crab experienced the greatest increase (93%) from 42 to 82 million pounds and shrimp experienced the greatest decrease (44%) from 59 to 33 million pounds.

Prices

- Other shellfish had the highest average annual ex-vessel price per pound ($4.56) in 2008, followed by crab ($2.38) and sablefish ($2.10).
- Hake ($0.11), squid ($0.31), and flatfish ($0.42) had the lowest average annual ex-vessel price per pound.
- The largest annual increase in annual ex-vessel price was for squid, a 136% increase from 2002-2003. The largest annual decrease in price was for salmon, dropping 42% from 2000-2001.

Economic Impacts

In 2008, the Pacific Region's seafood industry generated $9.1 billion in sales impacts in California, $3.7 billion in Washington, and $960 million in Oregon. California generated the largest income and employment impacts ($4.7 billion; 160,000 full and part-time jobs), followed by Washington ($2.0 billion; 72,000 jobs) and Oregon ($517 million; 19,000 jobs).

Landings Revenue

In 2008, ex-vessel revenue for finfish and shellfish totaled $503 million, a 43% increase (14% in real terms) from landings revenue in 1999 ($353 million). However, this was a 13% increase from $445 million in 2007. Shellfish revenue ($288 million) accounted for 57% of the 2008 revenue generated. There was a 47% increase in revenue (18% in real terms) generated by shellfish compared to revenue in 1999 ($210 million). Finfish revenue totaled $215 million, a 37% increase (10% in real terms) from 1999 ($157 million).

Washington contributed the most to shellfish revenue, generating $176 million in 2008. This was a 93% increase (54% in real terms) from 1999 ($91 million). Landings revenues from shellfish decreased 3.9% (23% in real terms) in California and increased 28% (3% in real terms) in Oregon during this period. In contrast, finfish revenue increased modestly across the region despite a drop in finfish revenue in California (42% from 1999 to 2008). Finfish landings revenue in Oregon (61%, 28% in real terms) and Washington (140%, 89% in real terms) increased between 1999 and 2008.

Between 1999 and 2008, the ex-vessel revenue from crab increased 32% and from other shellfish increased 81%. Other species or species groups with large increases in landings revenue between 1999 and 2008 includes hake (209%), salmon (87%), albacore tuna (62%), and sablefish (53%). Rockfish (47%) were the only species or species group to experience a large decrease in landings revenue.

Landings

Fishermen in the Pacific Region landed over 1 billion pounds of finfish and shellfish in 2008. This was a 15% decrease from the nearly 1.3 billion pounds landed in 1999 and a 2% drop from the 1.1 billion landed in 2007. Finfish landings contributed 83% of total landings in the Pacific (900 million pounds) in 2008, a 10% decrease from 1999. From 2007 to 2008, finfish landings dropped 0.4%. Shellfish landings decreased substantially during this period, from 290 million pounds in 1999 to 186 million pounds in 2008, a 36% decrease. Shellfish landings dropped 10% between 2007 and 2008.

Decreases in finfish landings in the Pacific Region occurred in California (50%) and Oregon (22%) between 1999 and 2008, while Washington experienced a 127% increase. Landings of shellfish increased 19% in Oregon and 42% in Washington, but decreased 56% in California. Washington contributed the most to both finfish (127 million pounds) and shellfish (47 million pounds) landings in 2008.

Of the Pacific Region's key species and groups, hake and squid contributed the most to total landings, with 531 million and 85 million pounds, respectively. Together, these species made up 57% of total landings in 2008. Washington and Oregon fishermen were major contributors to hake landings, while squid landings were mostly harvested by California fishermen.

Key species or groups with the largest increases in annual landings totals from 1999 to 2008 were salmon (42%), albacore tuna (14%), hake (11%), crab (10%) and shrimp (9.3%). Total landings of rockfish (70%), squid (58%) and sablefish (14%) dropped during this period. The decrease in rockfish landings is partly attributable to the establishment of rockfish conservation areas[5] that were instituted in response to declining populations of this long-lived, slow-growing species group.

Prices

All ex-vessel prices in 2008 for each of the Pacific Region's key species and groups was higher than their 10 year average annual price per pound. Ex-vessel prices for hake, squid and sable fish, saw the biggest increases between 1999 and 2008, increasing 175% (120% in real terms), 94% (55% in real terms) and 76% (41% in real terms) respectively. Hake prices increased 175% (120% in real terms) in Washington from $0.04 to $0.11 and 200% (140% in real terms) in Oregon during this time period ($0.04 to $0.12 per pound).

In California, the species or species group with the largest increase in ex-vessel price from 1999 to 2008 was salmon (148%, 98% in real terms, from $1.68 to $4.16), squid (94%, 55% in real terms, from $0.16 to $0.31), and rockfish (86%, 49% in real terms, from $0.79 to $1.47). The largest increases in species prices in Oregon were oysters (300%, 220% in real terms), hake (200%, 140% in real terms), and Pacific sardine (120%, 76% in real terms). There were no decreases in price in Oregon between 1999 and 2008. Hake and salmon experienced the greatest increases in Washington at 175% (120% in real terms) and 100% (60% in real terms). Mussels were the only species or species group to experience a decrease in both nominal and real prices (20%, 36% in real terms) in Washington.

Relative to ex-vessel prices in 2007, albacore tuna (39%, 25% in real terms), hake (57%, 42% in real terms), and other shellfish (26%, 14% in real terms) prices increased in 2008. Flatfish (2.3%, 12% in real terms) and rockfish (3.0%, 12% in real terms) prices decreased.

Recreational Fishing

In 2008, over 1.45 million recreational anglers took 5.8 million fishing trips in the Pacific Region. Most of these anglers (73%) were residents of a regional coastal county. Of the total fishing trips taken, 67% of them were shore-based. Mackerels were the most caught key species or species group with over 2.7 million fish caught in 2008, 26% of total fish caught in the region. Rockfishes and scorpion fish (2.3 million fish), surfperches (1.6 million fish), and barracuda, bass and bonito (1.5 million fish) were also species groups caught in large numbers.

Economic Impacts and Expenditures

Recreational fishing activities in California supported more jobs than in any other state in the region with approximately 12,000 full- and part-time jobs supported in 2008. Washington (3,700 jobs) and Oregon (1,500 jobs) followed in terms of employment impacts from recreational fishing activities. The majority of these jobs in each of these states were related to durable equipment expenditures (versus trip-related expenditures): 75% of jobs in Washington, 65% of jobs in California, and 39% of jobs in Oregon.

Key Pacific Recreational Species

- Barracuda, bass, and bonito
- Croakers
- Flatfishes
- Greenlings
- Mackerels
- Rockfishes and scorpionfishes
- Salmon
- Sculpins
- Surfperches
- Albacore and other tuna

In terms of employment impacts related to fishing trips taken by anglers, shore fishing trips supported most of the trip-related full-and part-time jobs in California (1,961 jobs). Trip-related employment impacts were highest for the private boat mode in Oregon (515 jobs) and in Washington (501 jobs).

The contribution of recreational fishing activities in the Pacific are also reported in terms of state level sales and value-added impacts, and direct expenditures on fishing trips and durable equipment. In 2008, in-state sales and value-added impacts were highest in California ($1.8 billion in sales impacts; $924,000 million in value-added impacts). Washington ($386 million; $207 million) and Oregon ($158 million; $87 million) followed in terms of sales and value-added impacts. Across the region, these economic impacts were largely generated from durable equipment expenditures made by anglers rather than trip-related impacts.

Total fishing trip and durable equipment expenditures generated $1.97 billion across the Pacific Region in 2008. Approximately 76% of these expenditures were related to durable equipment purchases. Boat-related ($409 million) and fishing tackle expenses ($537 million) accounted for the majority of durable equipment expenditures. Expenditures by Pacific Region residents related to fishing trips totaled $448 million. Most of these purchases were related to fishing trips taken from shore (45% of trip-related expenditures by residents). The region's non-resident anglers generated $24 million in trip-related expenditures with most of these expenses related to for-hire fishing trips (74% of trip-related expenditures by non-residents).

[5]More information about these rockfish conservation areas is available at: http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/Groundfish-Closed-Areas/.

Participation[6,7]

In 2008, there were 1.45 million recreational fishermen from either a coastal or non-coastal county in the Pacific Region. This was a 9% decrease from 2004 (1.6 million anglers) and a 7% decrease from 2007 (1.56 million anglers). Over 73% of total anglers in 2008 were a resident of a coastal county. Over 79% of Pacific Region coastal and non-coastal county resident anglers resided in California.

In 2007, the majority of recreational fishermen who fished in California and Washington were residents of coastal counties within their respective states. In California, 71% of total anglers were coastal county residents and in Washington, 83% of total anglers were from coastal counties. In contrast, most of Oregon's anglers were residents of non-coastal counties within the state. Approximately 57% of anglers in Oregon in 2007 were from non-coastal counties. In all three states, out-of-state resident anglers were the minority accounting for 7.2%, 6.6%, and 7.4% of total anglers in California, Oregon, and Washington, respectively.

Fishing Trips

In the Pacific Region, anglers took 5.78 million fishing trips in 2008. This was a 13% decrease from 2004 (6.7 million trips) and an 8% decrease from 2007 (6.25 million trips). In the Pacific Region overall, fishing trips taken from each fishing trip mode decreased relative to 2004. In 2008, most fishing trips were taken from shore (3.84 million trips). Shore-based fishing trips accounted for 67% of total fishing trips taken in the Pacific Region. Fishing trips from a private or rental boat (1.4 million trips) and a for-hire boat (514,000 trips) followed. The majority of fishing trips were taken in California: 4.2 million fishing trips or 72% of total trips in the region.

Shore-based fishing trips were the most popular fishing trip mode in California and Washington. In 2008, these trips comprised 74% of total trips taken in California and 52% of total trips taken in Washington. In 2008, California's shore-based fishing trips increased 1% while Washington's shore-based fishing trips did not change. Anglers who fished in Oregon in 2007 favored fishing trips taken from a private or rental boat. This fishing mode made up 56% of total trips in 2008 despite dropping 12% relative to 2007.

Harvest and Release[7]

Of the Pacific Region's key species and species groups, mackerels; rockfishes and scorpionfishes; surfperches; and barracuda, bass and bonito were the most often caught by anglers. In 2008, 2.7 million mackerels, 2.3 million rockfishes and scorpionfishes, and 1.64 million surfperches were caught by anglers fishing in the region. Sculpins (78% released), mackerels (65%), and barracuda, bass, and bonito (72%) were more often released than harvested. Anglers harvested rockfishes and scorpionfishes (80% harvested), greenlings (55%), and albacore and other tunas (100%) more often than releasing these species groups. Most of the rockfishes and scorpionfishes in the Pacific region were caught in California while most of the albacore and other tunas were caught in Washington and Oregon.

Recreational Fishing Facts

Participation

- An average of 1.6 million anglers fished in the Pacific region annually from 2004 to 2008. Most of these anglers lived in California.
- Coastal county residents accounted for 73% of total anglers in both 2008 and on average between 2004 and 2008.
- Coastal county resident anglers increased 22% from 2005 to 2006, the largest annual increase in participation. Coastal county resident anglers decreased 21% from 2006 to 2007, the largest annual decrease.

Fishing trips

- In the Pacific Region, an average of 6 million fishing trips were taken annually between 2004 and 2008. Most of these trips were taken in California.
- Shore-based fishing trips were the most popular fishing trip mode with over 3.8 million of these trips taken in 2008. Shore-based trips accounted for 67% of trips taken in the region.
- From 2004 to 2008, shore-based fishing trips increased 24%, the largest annual increase in trips taken by anglers. Private or rental boat trips decreased 59% from 2003-2004, the largest annual decrease.

Harvest and release

- On average, 3 million mackerels were caught annually from 2004 to 2008. Of these, 67% were released rather than harvested.
- Five of the Pacific's ten key species or groups were more often released by anglers rather than harvested in 2008. Sculpins (78% released), mackerels (65%), and barracuda, bass, and bonito (72%) are examples.
- Tuna (albacore and others) (99% harvested), rockfishes and scorpionfishes (80%), and surfperches (51%) were key species or groups that were more often harvested than released by recreational fishermen in the Pacific.
- Tuna (albacore and others) had the largest annual increase in catch, increasing 141% from 2006 to 2007. The largest annual decrease in catch was also for tunas, dropping 74% from 2004 to 2005.

Between 2004 and 2008, nine of the Pacific Region's key species or species groups showed decreases in catch totals. Key species or groups with the largest decreases were salmon (79%), barracuda (68%), croakers (54%), and greenlings (44%).

Mackerels and rockfishes were the most caught key species or species group in California and Oregon, respectively. In 2008, approximately 2.7 million mackerels were caught in California, a 33% increase relative to 2007 totals. Of these fish caught in 2008, 65% were released by anglers. In Oregon, 355,000 rockfishes were caught in 2008 with 87% of these harvested. Relative to 2007, this catch total was a 2% decrease. Herring and smelt was the key species most commonly caught in Washington with 2.6 million fish caught in 2008. Over 95% of these fish were

[6] In *Fisheries Economics of the U.S., 2006* (FEUS 2006), angler participation totals from 1997-2006 incorrectly included out-of-state anglers at the region level. In this report, the 1999-2008 angler participation totals exclude these anglers.

[7] Due to changes in data collection methods, the Pacific Region's participation, effort, and catch estimates for 1999-2003 are not comparable to 2004-2008 estimates.

harvested. Catch totals for herring and smelt remained constant between 2004 and 2008.

Relative to 2007, catch totals for three of the Pacific's key species or species groups increased: mackerels (33% increase), flatfish (18%), and sculpins (12%). Catch totals for all other key species or groups declined for 2007-2008 with the largest decreases seen for salmon (66%) albacore tuna (56%), croakers (44%) and barracuda, bass, and bonito (22%).

Marine Economy[8]

The sum of the gross domestic products by state for Washington, Oregon, and California was $2.27 trillion in 2007. Employee compensation totaled $1.3 trillion and annual payroll totaled $822 billion. These economic measures increased 64%, 32%, and 59%, respectively, between 1998 and 2007, and 3.9%, 4.6%, and 3.9% between 2006 and 2007. Approximately 1.2 million establishments employed 18 million full- and part-time employees across the region in 2007. This was a 15% increase in establishment numbers and a 15% increase in employee numbers from 1998-2007. A small increase in these numbers was observed from 2006 to 2007 (1.8% and 0.2%, respectively).

In 2007, California had the highest establishment and employee numbers, annual payroll, employee compensation, and gross state product levels in the Pacific. California's approximately 890,000 establishments employed approximately 14 million employees in 2007. Gross state product in California was $1.8 trillion, followed by Washington ($310 billion) and Oregon ($158 billion).

When considering commercial fishing-related industries in 2007, the commercial fishing location quotient (CFLQ) for Washington was highest in the region at 13.2. This was an 6.3% increase from 1998 and a 4.5% decrease from 2006. Washington's CFLQ suggests that the level of employment in commercial fishing-related industries in this state is approximately 13 times higher than the level of employment in these industries nationwide.[9] The 2007 CFLQ in Oregon was 2.92 (a 14% decrease from 1998 and a 1.4% decrease from 2006), while the 2007 CFLQ in California was 0.71 (a 29% decrease from 2006; and a 2.7% decrease from 2006).

Seafood Sales and Processing

In 2007, there were 184 nonemployer firms engaged in seafood product preparation and packaging across the Pacific Region. This was a 77% increase from 1999 levels, despite a 100% decrease in number of firm in Oregon over this time period. In 2007, 66% of these firms were located in California. Region-wide, annual receipts totaled $16 million in 2007 and increased 20% from 1999-2007. Annual receipt totals experienced large increases in Washington (139%) over the same time period.

In contrast to an increase in nonemployer firms region-wide, the number of employer establishments engaged in seafood product preparation and packaging decreased 21% from 214 in 1999 to 169 in 2007. Approximately 58% of these establishments were located in Washington. Employee numbers also decreased across the region, decreasing 25% to approximately 8,300 full- and part-time workers in 2007, despite annual payroll increasing 31% to $379 million.

There were 445 seafood wholesale establishments in 2007 that employed approximately 5,500 full- and part-time workers. However, from 1999 to 2007, the number of seafood wholesale establishments and employees declined 18% and 4%, respectively across the Pacific Region.

In 2007, 75% of establishments and 78% of employees were located in California. Across the region, the number of establishments and the number of employees both increased between 13% and 17% from 1998 to 2007. Annual payroll totaled $822 million in 2007, region-wide. This was a 59% increase from 1998 to 2007. California's total annual payroll increased 61% during this time period while Washington's total increased 53% and Oregon experienced a 48% increase. Almost 80% of annual payroll in the region was generated in California.

Nonemployer firms engaged in seafood retail in the Pacific Region totaled 265 in 2007, a 20% increase relative to 1999. Eighty-four percent of these firms were located in California. At the state level, these firms showed double-digit increases in Washington in California between 1999 and 2007. Oregon experienced a 15% decrease. Annual receipts in the region totaled $22 million in 2007, a 1% increase from 1999 (10% decrease in real terms) and a 1% decrease from 2006 (6% real terms). Despite region-wide decrease of 10% in real terms, Oregon experienced a 25% increase in real terms.

Compared to nonemployer firms, employer establishments engaged in seafood retail increased 18% from 1999-2007, totaling 255 in 2007. These establishments employed 1,400 workers. Over 71% of these establishments and employees were located in California. Region-wide, the numbers of employees increased 20% between 1999 and 2007 with the largest increase seen in Oregon (73% increase). Annual payroll also increased across the Pacific, a 71% increase region-wide (51% in real terms), to $32 million in 2007. The largest increases were seen in Washington (86% increase) and Oregon (78%).

Transport, Support, and Marine Operations

Marine cargo handling industries employed more people than any other industry in this sector, employing approximately 27,000 people in 2007. This industry also had the highest annual payroll in the region, totaling $1.8 billion. Marina industries had the highest number of establishments in 2006 with 428 establishments, followed by the ship and boat building sector with 343 establishments. Deep sea passenger transportation had the fewest number of establishments (18).

In California, industries with large changes in establishment numbers, employees, or annual payroll from 1999-2007 were: marine cargo handling (141% increase in

[8]Information for 2007 is reported in this section; 2008 data were not available for this report.
[9]The CFLQ for the U.S. is 1.0. This provides a national baseline from which state CFLQs can be compared.

employees, 78% increase (57% in real terms) in annual payroll); navigational services to shipping (92% increase (70% in real terms) in annual payroll); deep sea passenger transportation (30% increase in establishment numbers); and marina operations (80% increase (60% in real terms) in annual payroll), and port and harbor operations (58% increase (40% in real terms) in payroll). Large decreases occurred in number of establishments (30%) and employees (20%) in the seafood product preparation and packaging industry and in the number of employees in the port and harbor operations (32%).

In Oregon, large changes were seen for coastal and Great Lakes freight transportation (117% increase in establishments). Modest changes were seen in the ship and boat building industries (31% decrease in employees; and a 40% decrease (47% in real terms) in annual payroll).

In Washington, large changes were seen in the coastal and Great Lakes freight transportation (89% decrease (91% in real terms) in annual payroll); in marine cargo handling (108% increase in employees and a 79% increase (59% in real terms) in payroll).