Fisheries, Seafood Processing, and Mariculture

Fisheries

Fishing's long history in the region, the variety of species, harvesting methods, end markets, and product forms presents an array of analytic challenges for any observer. In this section we address a few of the many highlights. Indeed, one of the industry's challenges statewide is that despite vast amounts of data, the economic analysis that can inform policy making is somewhat limited. Hopefully, the highlights presented in this Asset Map and some of the questions raised will illustrate the scope and potential of the sector and spark interest and commitment to more fully realize its economic potential for Southeast Alaska. This chapter reviews fishing, processing, and mariculture.

Fish are among Alaska's most important natural resources, with a 2009 statewide harvest valued at more than $1.2 billion. The commercial fishing industry employs almost 54,000 workers sometime during the year, in either harvesting or processing. Commercial fish harvesting and processing is thus one of the largest private sector industries in the state. These activities account for more than 50 percent of basic private sector employment in many coastal communities ("Employment in the Seafood Industry," November 2010 Alaska Economic Trends, ADOLWD).

A recent Commercial Fisheries Entry Commission (CFEC), National Marine Fisheries Service (NMFS), and ADOLWD analysis found that in Southeast Alaska, there were an estimated 10,150 harvesters (commercial fishing permit holders and crew) in 2009. It is estimated that on an annual basis about 18 percent of Southeast Alaska's private sector work in 2009 was fishing-related ("Employment in the Seafood Industry", November 2010 Alaska Economic Trends, ADOLWD).

The gross earnings of those engaged in commercial fishing is estimated at $173 million in 2009. This is about 14% lower than 2008; the value of fisheries was lower all over the state in 2009 compared to 2008, except for Bristol Bay.

Preliminary 2010 ADF&G data for the ex-vessel value of the salmon harvest in Southeast Alaska is $131,240,000; this is about 17 percent higher than 2009's ex-vessel value of $111,522,000 (ADF&G; Catch, Effort and Value, Salmon Fisheries in Alaska).

In 2009, of the top 15 ports in the US for dollar value of commercial fish landed, five are in Alaska, and one is in Southeast: Sitka, ranked 9th in the US, with $51.3 million dollars of commercial fish landed in 2009. In terms of volume of commercial fish landed, there are five Alaskan ports in the

top 15 including Sitka ranked 14 and Ketchikan ranked 15, with 78.4 million pounds and 75.9 million pounds of commercial fish landed respectively in 2009.[1]

There are approximately 60 seafood processing facilities in Southeast Alaska; they are found from Yakutat south to Craig and range in size from grocery stores that process fish for their customers to large processing facilities that employ hundreds of workers and provide lodging and meals.

Mariculture, a specialized branch of aquaculture, cultivates marine organisms for food and other products in the open ocean, an enclosed section of the ocean, or in tanks, ponds or raceways which are filled with seawater. In Southeast Alaska there are currently 10 productive mariculture farms located in clusters in Yakutat, Kake and Naukati Bay that produce primarily oysters and clams. In 2009, total farmgate sales were about $184,000.

In addition, thousands of visitors come to Southeast Alaska each year to enjoy the world class sport fishing, and they contribute to the economy by supporting local businesses. Fish also comprise 60 percent of subsistence foods taken each year in the state, which has been fundamental to Alaskan culture for thousands of years. In Southeast both Alaskan Natives and non-Natives rely on fish for subsistence and this tradition allows a love of fishing to be passed from one generation to the next.

In 2009, approximately 24% of Southeast Alaska's commercial permit holders were non-residents and 30% of the region's total gross earnings went to non-residents. These percentages are about the same as for the Southcentral and Kodiak fisheries regions, but half of those experienced by Bristol Bay. And, in the Aleutians region, 84% of the gross earnings went to non-residents.

Commercial Fisheries Harvesting Workforce and Gross Earnings Southeast Alaska, 2006 to 2009

Year	Individuals who fished Permits*	Percent Nonresident Permit Holders	Estimated Number of Crew Members	Total Estimated Workforce**	Total Gross Earnings of Permit Holders***	Percentage of Total Gross Earnings by Nonresident Permit Holders
2006	2,520	21.2%	6,545	9,065	$135,937,555	27.8%
2007	2,638	22.6%	6,897	9,535	$191,835,207	26.8%
2008	2,815	22.5%	7,170	9,985	$201,478,290	26.2%
2009	2,835	23.8%	7,315	10,150	$173,481,400	30.4%

* Commercial Fisheries Entry Commission
** Workforce refers to the number of individual fishing permits plus the crew members needed for the permit they fish. Statewide crew member counts are estimated derived from crew member license sales.
*** Gross earnings, or revenue, are currently the most reliable data available, but they are not directly comparable to wages as expenses have not been deducted.
SOURCE: "Employment in Alaska's Seafood Industry," Alaska Economic Trends, November 2010. CFEC, NMFS, ADOLWD R&A Section.

1 NOAA Fisheries http://www.st.nmfs.noaa.gov/st1/commercial/landings/lport_yeard.html

Fisheries Utilized by Southeast Alaskans

Commercial fisheries In Southeast Alaska include:

- **Salmon:** hatchery terminal areas (primarily chums and pink, but other too), seine (primarily pinks, but some chum and sockeyes), hand and power troll fisheries (primarily kings and cohos, some chum), driftnet/gillnet (primarily sockeye, with some chum and pinks), and some setnet (primarily cohos). In addition salmon subsistence and personal use is regulated.
- **Shellfish:** sea cucumber, tanner crab, shrimp pot, geoduck, dungeness crab, sea urchin, golden (brown) king crab, red/blue king crab, and shrimp trawl. A personal use king crab fishery is also regulated by ADF&G.
- **Herring:** herring bait, herring test, herring sac roe, and herring eggs on kelp.
- **Groundfish:** halibut, groundfish, rockfish, lingcod, and sablefish.

Regardless of whether one considers Southeast Alaskan's harvest by pounds, gross earnings, or the number of permit holders who fished, salmon, halibut, herring roe, and sablefish all top the chart. The table below reviews the top five fisheries for Southeast Alaskans in 2009, and how many of those participating in each fishery are Southeast Alaskans.

Eighty percent of the state's salmon power and hand troller fleet are from Southeast Alaska. In 2009, the salmon power troll fishery is ranked 3rd for the most pounds Southeast residents harvested, ranked 3rd for the most earnings, and ranked 2nd for the number of Southeast permit holders fishing. The other fishery that ranks for all categories is the halibut longline fleet whose vessels are under 60 feet in length. About 39 percent of those who fished in this fishery (statewide) were Southeast Alaskans in 2009 and they brought home the highest gross earnings of any fishery in our region this year at $25.8 million dollars. Of the top fisheries that are limited to Southeast, only half the salmon purse seiners and half the state's total earnings for this fishery accrue to Southeast residents. However, this half did amount to $25.4 million in 2009, the 2nd most valuable fishery for Southeast residents. For the herring roe purse seine fishery, 52 percent of those who fished were Southeast Alaskans, and they harvested about one-third the total catch.

Southeast Alaskan Resident's Top Five Fisheries, 2009

(state fisheries only)

Rank	Top Five SE Fisheries by Pounds Harvested	Pounds Harvested by Southeast Residents	Total Pounds Harvested, Statewide	% SE Residents
1	Salmon, purse seine Southeast Alaska	73,762,638	144,726,376	51%
2	Salmon, drift gillnet Southeast Alaska	24,376,918	31,155,566	78%
3	Salmon, power troll, statewide	12,161,271	15,451,386	79%
4	Halibut, longline vessels <60 feet, statewide	10,968,588	42,554,010	26%
5	Herring roe, purse seine Southeast Alaska	10,181,726	29,551,858	34%
	Top Five SE Fisheries by Gross Earnings	**Gross earnings for Southeast residents**	**Total Gross Earnings, Statewide**	**% SE Residents**
1	Halibut, longline vessels <60 feet, statewide	$25,843,750	$98,528,940	26%
2	Salmon, purse seine Southeast Alaska	$25,451,983	$50,191,745	51%
3	Salmon, power troll, statewide	$16,839,527	$21,457,637	78%
4	Sablefish, longline vessel under 60', statewide	$15,814,510	$40,332,472	39%
5	Salmon, drift gillnet Southeast Alaska	$15,228,708	$19,521,060	78%
	Top 5 SE Fisheries by Number who Fished (permit holders only, does not include crew)	**No. Southeast Resident Fishermen Who Fished**	**Total No. Fishermen Who Fished, Statewide**	**% SE Residents**
1	Halibut longline vessels <60 feet, statewide	735	1877	39%
2	Salmon, power troll, statewide	604	750	81%
3	Salmon , hand troll, statewide	325	368	88%
4	Salmon drift gillnet Southeast Alaska	315	410	77%
5	Sablefish , longline vessel under 60', statewide	219	456	48%

Source: Commercial Fisheries Entry Commission, 2009 Participation & Earnings Statistics, by borough/census area, and statewide data

Approximately 170 million pounds of seafood was landed by Southeast Alaskan fishermen in 2009, which generated estimated gross earnings for harvesters of $143 million. The pounds and value of fish landed by commercial harvesters who list a Southeast community as their home in 2009, 2008, 2000 and 1990 is shown on the table below. These fish were not necessarily caught or landed in Southeast Alaska, but were caught by Southeast Alaska residents, and the earnings accrue to those resident permit holders.

The average dollars per pound of fish harvested dropped between 1990 and 2000, and rebounded somewhat through 2008-2009. Salmon prices in Alaska 'bottomed-out' in 2001-2002 as the worldwide farmed salmon industry took off. Marketing of Wild Alaskan Salmon has helped salmon prices in Alaska rebound, though they are only now returning to the nominal values of 1990, and are still below 1990 when corrected for inflation. Fish prices were down throughout the state in 2009 compared to 2008, except for Bristol Bay.

Average per pound Seafood Values, and Total Landings and Values by Residents of Southeast Alaskan Communities, 1990 to 2009

	1990	2000	2008	2009	Change 1990-2000	Change 2000-2009	Change 2008-2009
Haines Borough ($/lb)	$1.48	$0.60	$0.96	$0.86	-59%	43%	-10%
Pounds Landed (1,000)	4,394.90	6,842.70	7,601.72	6,105.39	56%	-11%	-20%
Estm. Gross Earnings ($1,000)	$6,497.30	$4,092.30	$7,312.32	$5,243.53	-37%	28%	-28%
Juneau City and Borough ($/lb)	$1.38	$0.94	$1.33	$0.95	-32%	1%	-29%
Pounds Landed (1,000)	17,973.80	17,496.60	16,789.08	18,485.51	-3%	6%	10%
Estm. Gross Earnings ($1,000)	$24,874.10	$16,372.90	$22,342.20	$17,526.87	-34%	7%	-22%
Ketchikan Gateway Borough ($/lb)	$0.80	$0.51	$0.81	$0.57	-36%	13%	-29%
Pounds Landed (1,000)	29,868.40	27,350.00	24,710.63	31,285.38	-8%	14%	27%
Estm. Gross Earnings ($1,000)	$23,786.60	$13,921.00	$20,036.78	$17,958.97	-41%	29%	-10%
Prince of Wales-Outer Ketchikan ($/lb)	$1.16	$0.83	$1.26	$0.76	-28%	-8%	-40%
Pounds Landed (1,000)	10,523.70	8,739.90	11,458.41	15,031.76	-17%	72%	31%
Estm. Gross Earnings ($1,000)	$12,188.80	$7,277.20	$14,483.78	$11,460.55	-40%	57%	-21%
Sitka City and Borough ($/lb)	$1.35	$1.10	$1.74	$1.04	-19%	-6%	-40%
Pounds Landed (1,000)	22,682.30	29,144.60	22,001.42	29,350.22	28%	1%	33%
Estm. Gross Earnings ($1,000)	$30,564.10	$32,041.10	$38,266.06	$30,489.46	5%	-5%	-20%
Skagway-Hoonah-Angoon ($/lb)	$1.36	$1.32	$1.98	$1.49	-3%	13%	-25%
Pounds Landed (1,000)	9,179.60	4,758.20	3,850.67	3,758.64	-48%	-21%	-2%
Estm. Gross Earnings ($1,000)	$12,526.30	$6,272.60	$7,643.43	$5,589.77	-50%	-11%	-27%
Wrangell-Petersburg ($/lb)	$1.03	$0.89	$1.25	$0.82	-14%	-8%	-34%
Pounds Landed (1,000)	61,214.90	52,577.60	54,419.25	64,249.43	-14%	22%	18%
Estm. Gross Earnings ($1,000)	$62,748.30	$46,697.90	$67,904.34	$52,623.67	-26%	13%	-23%
Yakutat City and Borough ($/lb)	$1.67	$0.84	$1.51	$1.07	-50%	27%	-29%
Pounds Landed (1,000)	3,329.80	1,800.90	2,167.41	2,225.61	-46%	24%	3%
Estm. Gross Earnings ($1,000)	$5,564.90	$1,507.30	$3,266.49	$2,374.04	-73%	58%	-27%
Southeast Region Total ($/lb)	**$1.12**	**$0.86**	**$1.27**	**$0.84**	-23%	-2%	-34%
Pounds Landed (1,000)	**159,167.40**	**148,710.50**	**142,998.59**	**170,491.94**	-7%	15%	19%
Estm Gross Earnings ($1,000)	**$178,750.30**	**$128,182.20**	**$181,255.40**	**143,266.85**	-28%	12%	-21%

Source: Commercial Fisheries Entry Commission.

Trends and Issues

Salmon remains the value leader in the region's major fisheries. Preliminary 2010 ADF&G data for the ex-vessel value of the salmon harvest in Southeast Alaska is $131,240,000; this is about 17 percent higher than 2009's ex-vessel value of $111,522,000. Salmon prices have more than doubled from the decade's low point in 2002 of $50 million.

Ex-Vessel Value of Salmon, Southeast Alaska

	2006	2007	2008	2009	Estm 2010
Salmon	$103,223,000	$113,359,000	$133,089,000	$111,522,000	$131,240,000

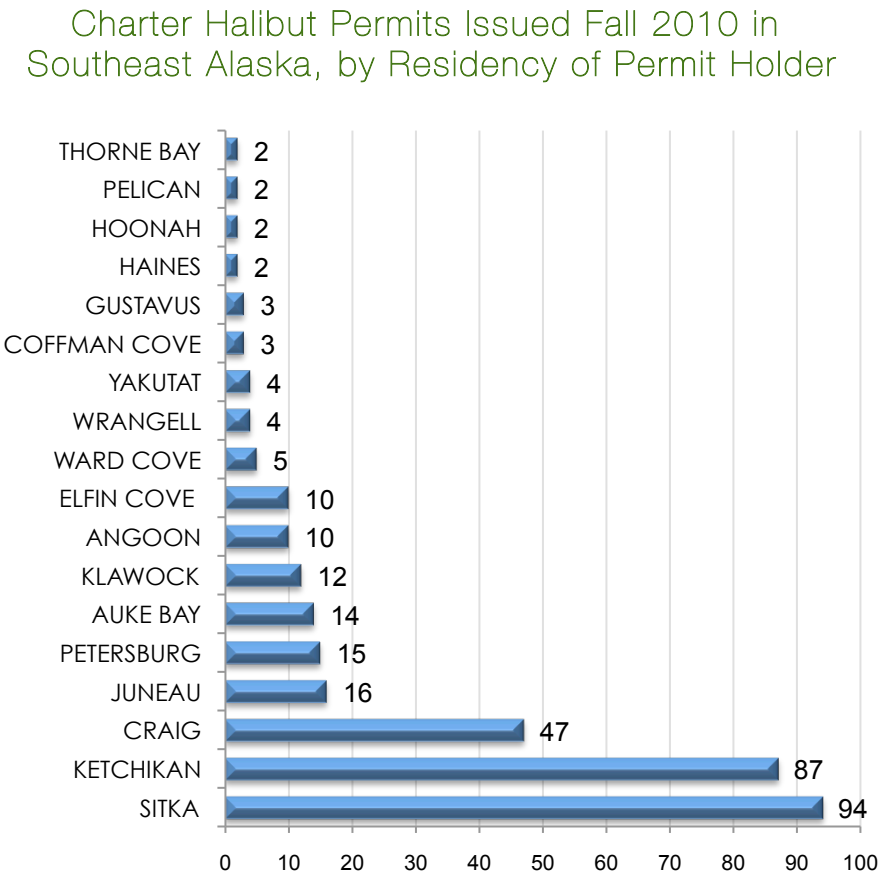
Source: ADF&G; Catch, Effort and Value, Salmon Fisheries in Alaska

Southeast relies heavily on pink and chum salmon. The value growth in salmon is derived by a combination of strong harvest volumes for pink and chum salmon and steady growth in the price per pound of all five salmons species caught in the region over the last decade. The harvest volume for pink salmon was down 20,000 pounds in 2010 compared to 2009, but the average price was a penny a pound higher. The market strength of pink and chum salmon improved dramatically in the past several years, as processing lines upgraded and moved from traditional bone-in, skin-on canned product to alternatives like canned product without bones and skin, ready to eat pouches and burgers; steady growth in the average wholesale price of meat products (frozen, canned etc); and by an increase for roe products (the primary driver for chum prices). While this is a critical transformation for the industry, the shift in product form is moving significant volumes of salmon to low-cost countries such as China for value added production.

Halibut emerged as a valuable fishery for harvesters after it became managed as an Individual Fishing Quota (IFQ) fishery in 1995. Participants must hold federal IFQ in order to commercially fish halibut. The quota system helped increase the value of the fishery for participants and benefits consumers with fresh halibut year round. Commercial halibut quotas have been cut significantly reducing the value to the region. The IFQ area 2C halibut quota has declined from 10.3 million pounds in 2006 to 4.4 million pounds in 2010. Despite a continuing decrease in market supply prices have risen to all time highs since 2007 and have not dropped much generating, with sablefish, the highest gross earnings for the region after salmon.

A recent challenge in Southeast Alaska (and the Gulf of Alaska) is the growing conflict between commercial fishermen and sport charter operators. The halibut charter fleet caught 1.3 million pounds in 2009 and 1.9 million pounds the year before. However, the harvest level had been set at 788,000 pounds, so charter boats hauled in more halibut than management agencies wanted them to. NOAA initiated a new permit system for halibut charters in Southeast and Southcentral Alaska in January 2010. During fall 2010, NOAA issued Charter Halibut Permits, and 332 individuals that list a Southeast Alaska community as their address were issued permits. Note that additional

permits may still be issued. Most permits are held by individuals residing in Southern Southeast Alaska. However, approximately one-quarter of Southeast Alaska's commercial permit holders were non-residents and 30% of the region's total gross earnings went to non-residents.



When the state and federal water harvest is combined sablefish is often the second-largest contributor to ex-vessel value in the region. Harvests come from the NOAA managed Southeast area IFQ fishery and in state waters of Chatham Strait and Clarence Strait. The value increase is primarily the result of steady growth in Alaska sablefish values, which has offset reduced landing volumes some years. Harvest quotas in the region's sablefish fisheries have sustained steady reductions in recent years. In 2000, the federal IFQ allocation for Southeast was 7.8 million pounds; in 2010 the allocated harvest has been reduced to 5.7 million pounds. Consolidation in this fishery has occurred under the IFQ system, which was an intended consequence as there were too many participants during derby fishing days. When derby style fishing for halibut and sablefish ended it removed the necessity of icing and selling as close to the fishing grounds as possible, which

harmed remote fishing communities in Southeast as fish deliveries went to ports with better transportation to markets.[2]

Southeast has several other relatively small, yet valuable fisheries including a wide variety of shellfish fisheries such as Dungeness, Tanner and king crab species, shrimp, and dive harvest species such as cucumber, sea urchin and geoduck. These fisheries can be lucrative for permit holders – or at least a profitable addition to a fishing operation. In fact, diversification in the fishing fleet may be an increasingly necessary strategy.

The region-wide total shellfish value in 2006 was $18.2 million and was $20 million in 2009. Prices for most commodities have been rising during the 2000's. The price for Southeast Dungeness crab bottomed out this decade in 2002 at $1.00/pound and has been climbing steadily since; it was selling for $2.18 pound in 2009. Southeast geoducks had an estimated ex-vessel value of $1.60/pound in 2000, and in 2009 are at $3.68/pound. Pot shrimp from Southeast have had an average ex-vessel price of about $2.50/pound (Data from ADF&G, Alaska Commercial Shellfish Catches & Exvessel Values). Increased demand for products from Asia, concern over the gulf oil spill's effect on seafood have all contributed to rising market value. Southeast Alaska shrimp value though has fluctuated widely and increased pressure from foreign shrimp farmers and fishermen, including coldwater Canadian shrimp, has taken a toll. To address this, Alaska's USDA Farm Service Agency is offering Southeast Alaska commercial shrimp fishermen up to $12,000 to provide training for people in industries suffering from foreign competition. Because of low prices and lack of markets only about 100 of the state's 300 permitted shrimp fishermen actually fished in recent years. Most of the permit-holders live and work in Southeast Alaska. Shrimpers must sign up in December 2010, and then take several hours of industry-specific training and write a business plan that implements changes to their operations aimed at making them more profitable and competitive.

Southeast Alaska commercial herring fisheries occur during the winter when herring are harvested for use as bait and also during the spring when herring are harvested for their roe. The roe harvest includes the traditional sac roe fisheries (set gillnet and purse seine) and, in recent years, spawn-on-kelp pound fisheries. Spawn-on-kelp pound fisheries are conducted by regulation at Craig-Klawock, Ernest Sound, Hoonah Sound and Tenakee Inlet, and utilize open or closed pounds. Southeast's herring value has increased dramatically in recent years.

A positive trend in Southeast is the increasing value of seafood extending to captains and crew. However, the number of fishing participants is declining in Southeast, as it is across the state, essentially consolidating harvest capacity and resource access. There are opposing views regarding the consolidation. On one hand, the increased values are now making operations profitable when before they were not. Reinvigorated earnings allow for greater reinvestment,

[2] Small rural Southeast communities quota share ownership is down 47% between 1995 and 2009. Data from US Department of Commerce, National Oceanographic & Atmospheric Administration, National Marine Fisheries Service, Restricted Access Management.

which helps diversify these operations. Conversely, the consolidation imposes a greater burden for entry into the industry. New entrants are necessary for the long-term viability of the industry. Workforce development efforts are important to ensure young Alaskans are ready to take over the helm of these operations.

As discussed earlier, the value of fish was down in 2009 compared to 2008 in most places in Alaska. This is shown on the following table, which breaks out Southeast Alaska first wholesale values by species. In 2009, total Southeast Alaska first wholesale values decreased by eight percent.

Southeast Alaska Commercial Seafood First Wholesale From Processors, by Species, 2008 and 2009

Species	Number of Processors 2009	Net Weight in Pounds	2009 Production Value ($000s)	2008 Production Value ($000s)	Change 2008-2009
Salmon	456	141,643,722	$259,613	$267,524	-3%
Halibut	25	8,315,252	$40,262	$57,626	-30%
Sablefish	18	6,368,989	$33,968	$41,949	-19%
Pacific Cod	13	183,613	$519	$584	-11%
Dungeness Crab	12	2,309,355	$10,136	$13,987	-28%
Herring	10	27,841,967	$27,140	$24,945	9%
Dive Fisheries	16	1,312,061	$11,183	$7,453	50%
Large Crab	10	790,522	$4,069	$5,428	-25%
Shrimp	84	582,256	$2,366	$2,051	15%
Other	160	1,060,698	$2,353	$5,260	-55%
Total	**597**	**190,408,435**	**$391,609**	**$426,807**	**-8%**

Source: ADF&G
Note: Processor activity does not necessarily represent fishing activity in a specific area.

Ex-Vessel Value[3]

In 2009, the ex-vessel value (or money paid to fishermen) of the Southeast Alaska fisheries was $234 million. In dollars, fishermen earned 18 percent less for their seafood in 2009 over 2008, despite a 22 percent increase in pounds landed. Prices almost everywhere in Alaska were lower in 2009 than 2008.

Southeast Alaska Commercial Seafood Industry Harvest & Value Information, 2008-2009

Species Groups	Landed (Fish Ticket Pounds)			Calculated Ex-Vessel Value		
	2009	2008	Change	2009	2008	Change
Salmon	217,704,265	162,174,245	34%	$111,215,839	$133,184,217	-16%
Halibut	10,039,049	11,564,930	-13%	$32,755,929	$50,191,720	-35%
Sablefish	9,847,620	11,724,439	-16%	$49,075,299	$54,952,948	-11%
Dungeness crab	3,572,064	4,736,319	-25%	$6,326,238	$10,231,466	-38%
Herring	34,341,480	34,112,064	1%	$17,991,427	$21,206,373	-15%
Geoduck, Sea Cucumbers, Urchins	2,709,504	2,521,625	7%	$8,505,381	$5,944,931	43%
King and bairdi crab	1,298,359	1,243,644	4%	$3,949,943	$4,032,078	-2%
Shrimp	612,862	503,827	22%	$2,462,540	$2,281,874	8%
Miscellaneous Groundfish	2,783,320	2,543,280	9%	$1,816,298	$1,948,106	-7%
Total	**282,908,521**	**231,124,371**	**22%**	**$234,098,894**	**$283,973,713**	**-18%**

Source: ADF&G - COAR & Fish Ticket Databases, 07/20/10

In 2009, the five salmon species represented more than three quarters (77 percent) of the region's catch in terms of volume and less than half (48 percent) of the total ex-vessel value. In 2009, sablefish made up three percent of the total volume caught yet accounted for 21 percent of the total ex-vessel value. Participants must hold federal quota rights, or Individual Fishing Quota (IFQ) in order to fish sablefish, and there is a small state managed sablefish fishery in Lynn Canal just north of Juneau.

[3] "Ex-vessel" value is the price paid to fishermen or harvesters. First wholesale value (also known as production value) is the revenue received by processors recorded when they sell processed seafood resources outside of their network.

Wholesale Values[4]

Wholesale values in Southeast are steadily increasing. From 2000 to 2008, the total regional wholesale value increased 33 percent (see next table). A fair amount of the appreciation stems from rebounding salmon prices and steady gains in halibut and sablefish.

Southeast Alaska Commercial Seafood First Wholesale From Processors, by Area, 2000-2008, in millions

Year	Juneau/ Yakutat	Ketchikan/ Craig	Petersburg/ Wrangell	Sitka/ Pelican	Southeast Alaska Total
2000	$91	$82	$88	$62	$322
2001	$70	$83	$104	$52	$309
2002	$64	$75	$89	$47	$274
2003	$60	$73	$91	$59	$284
2004	$85	$83	$109	$68	$346
2005	$87	$83	$82	$89	$342
2006	$102	$71	$138	$93	$404
2007	$90	$124	$119	$102	$434
2008	$108	$78	$103	$137	$427
Change 2007-08	**20%**	**-37%**	**-13%**	**35%**	**-2%**
Change 2000-08	**20%**	**-4%**	**17%**	**121%**	**33%**

Source: ADF&G
Note: Processor activity does not necessarily represent fishing activity in a specific area.
Note: The above groupings were made for confidentiality reasons.

Changes within sub-areas of Southeast reflect shifting processing activity and relative market strengths and weaknesses of certain species. The combined Juneau-Yakutat processor wholesale value, for example, increased 20 percent in this time to $108 million. Juneau's growth is strong and steady thanks in part to several highly productive mid-size processors. Juneau's relatively low cost of energy and reliable transportation helps in paying higher prices to the fishing fleet. The Douglas Island Pink and Chum hatchery, DIPAC, produces a significant volume of salmon for all area users. Currently the commercial production available through DIPAC is not widely used by local processors, but this may change when and if processing capacity grows.

Sitka's strong growth in recent years, up 121% from 2000 to 2008, is attributable to increasing values for King and Coho salmon in its dominant troll fishery; increasing values in the halibut and sablefish longline fishery just off the coast; some recovery in the herring sac-roe fishery; a new pink salmon

[4] First wholesale value (also known as production value) is the revenue received by processors recorded when they sell processed seafood resources outside of their network. "Ex-vessel" value is the price paid to fishermen or harvesters. (As first wholesale values increase, the ratio paid to harvesters increases and generally benefits all those who participate in the fisheries.)

processor that is emerging as a major buyer; and a consistent hatchery presence in the Northern Southeast Regional Aquaculture Association (NSRAA).

Seafood Processing

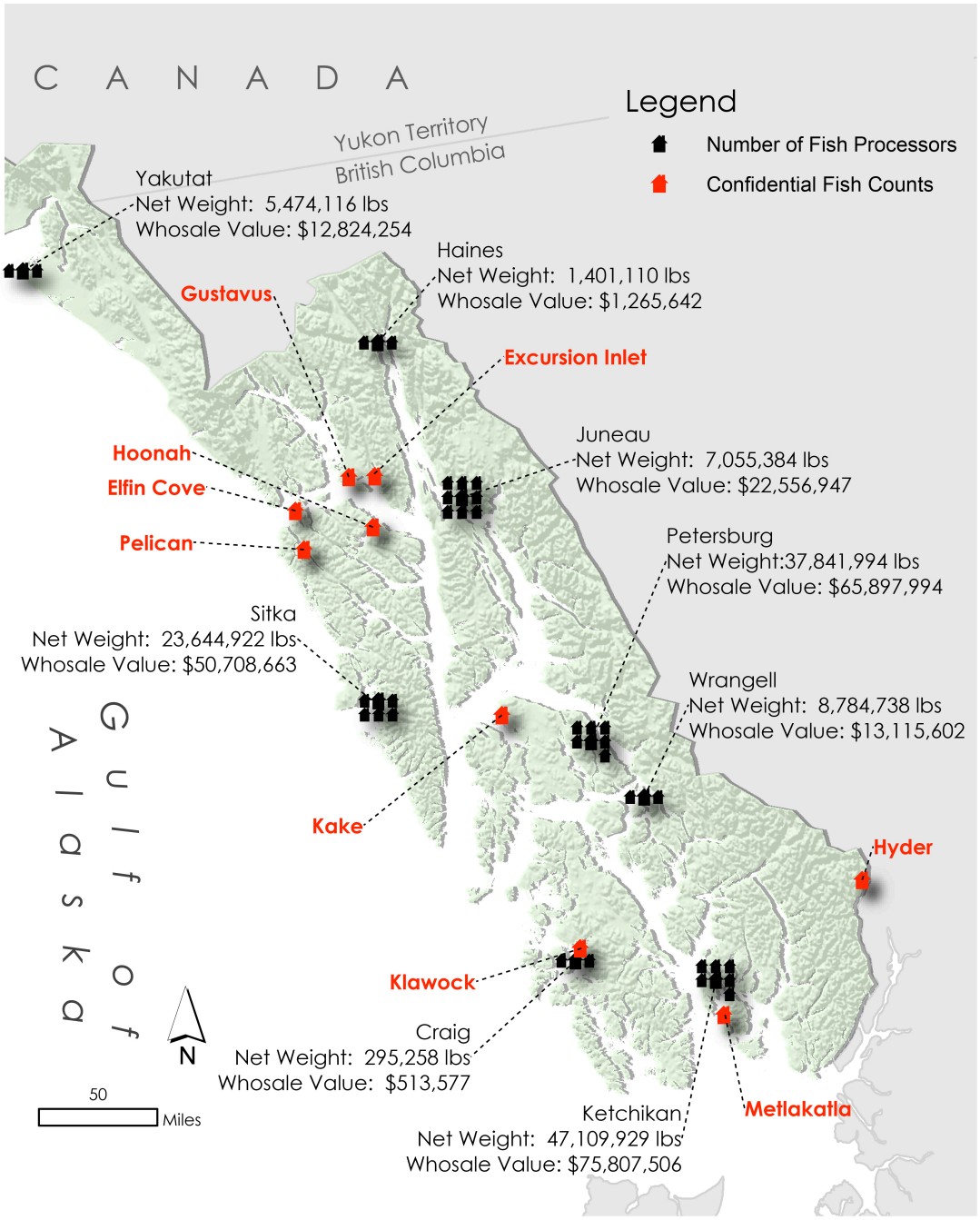
In 2009, 53 seafood processing facilities were active in Southeast Alaska that collectively processed 178 million pounds of product with a wholesale value of $374 million. This is a 30 percent increase in wholesale value since 2000.

Seafood Production at Shorebased Plants in Southeast Alaska Communities, by Port, 2000 and 2009

Port Name	Processor Count 2009	2000 Net Weight	2009 Net Weight	Change 2000-2009	2000 Wholesale Value	2009 Wholesale Value	Change 2000-2009
Craig	3	295,258	9,781,302	3213%	$513,577	$12,575,787	2349%
Elfin Cove	1	Confidential	Confidential	Confidential	Confidential	Confidential	Confidential
Gustavus	1	Confidential	Confidential	Confidential	Confidential	Confidential	Confidential
Hyder	1	Confidential	Confidential	Confidential	Confidential	Confidential	Confidential
Hoonah	1	Confidential	Confidential	Confidential	Confidential	Confidential	Confidential
Haines	3	1,401,110	174,576	-88%	$1,265,642	$824,483	-35%
Juneau	10	7,055,384	14,087,817	100%	$22,556,947	$39,225,818	74%
Kake	1	Confidential	Confidential	Confidential	Confidential	Confidential	na
Klawock	1	Confidential	na	na	Confidential	na	na
Ketchikan	8	47,109,929	39,790,687	-16%	$75,807,506	$91,447,293	21%
Metlakatla	1	Confidential	na	na	Confidential	na	na
Petersburg	8	37,841,994	38,621,534	2%	$65,897,994	$79,238,744	20%
Pelican	1	Confidential	Confidential	Confidential	Confidential	Confidential	Confidential
Sitka	6	23,644,922	54,618,094	131%	$50,708,663	$103,781,071	105%
Wrangell	3	8,784,738	6,168,541	-30%	$13,115,602	$9,891,141	-25%
Excursion Inlet	1	Confidential	Confidential	Confidential	Confidential	Confidential	Confidential
Yakutat	3	5,474,116	3,507,595	-36%	$12,824,254	$11,383,943	-11%
Total	**53**	**158,479,721**	**178,710,664**	**13%**	**$287,631,306**	**$374,268,754**	**30%**

Source: ADF&G COAR Production database, 11/08/2010
Notes: Port refers to the port indicated on the Intent to Operate. Wholesale value reported in nominal dollars. Information is masked where fewer than 3 processors are reflected in the data.

Seafood Production at Shorebased Plants in Southeast Alaska Communities, by Port 2009



Source: ADF&G COAR Production database, 11/08/2010
Notes: Port refers to the port indicated on the Intent to Operate. Wholesale value reported in nominal dollars. Information is masked where fewer than 3 processors are reflected in the data.

Mariculture

While the farm gate value of Southeast Alaska's mariculture farms is tiny compared to the value of other fisheries, the potential of the industry in Southeast Alaska could be significant with jobs distributed around the region. The table below estimates the industry's value in the state if obstacles to its growth were removed.

Alaska Shellfish Potential: Ex Vessel/Ex Farm Value in millions

	Current*	5 Year	10 Year	15 Year	20 Year
Wild Harvest	$6.8	$10.6	$14.7	$18.6	$19.1
Farm Harvest	$0.6	$4.2	$10.9	$22.6	$31.4
Total Shellfish	**$7.4**	**$14.8**	**$25.6**	**$41.2**	**$50.5**

*Current year is defined as the year a systematic research and development plan and funding are put in place.
Source: Data is from the Alaska Department of Fish and Game, Division of Commercial Fisheries, 2004

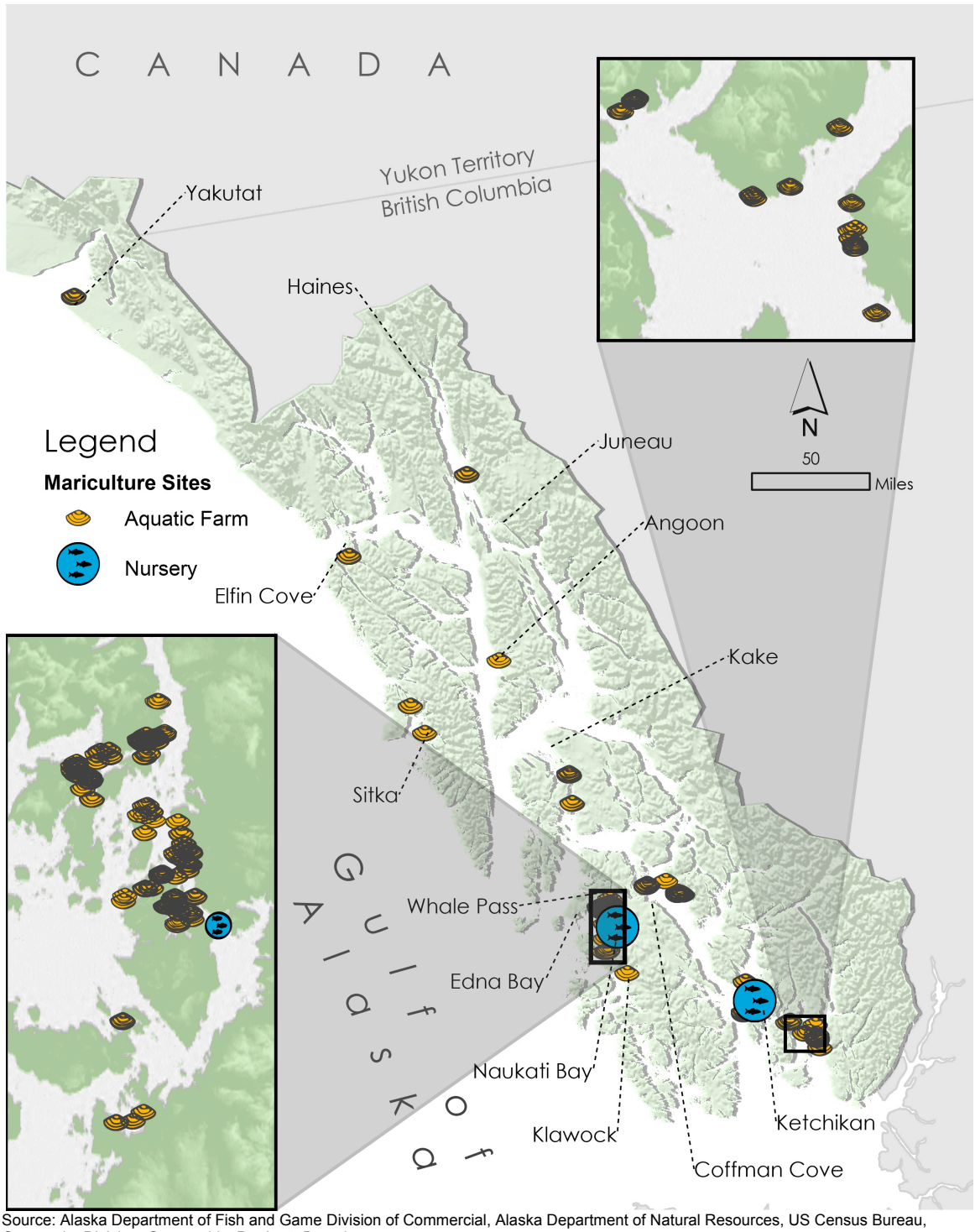
There are 56 mariculture farms in Alaska today and about half of them are located in Southeast. Due to colder water climates that slow down maturation, oysters grown in Alaskan waters are of a higher quality and available year round. The growth of this industry in recent years has spurred private stakeholders to seek the development of a regional shellfish-processing facility. Currently, individual farms are processing their own product for distribution to the market. A regional facility would improve efficiency in costs, time it takes to get the goods to the market, and holding capacity for efficient transportation. In addition, several facilities produce shellfish seeds, or spat, for shipment to other farms outside the region. A regional shellfish processing facility will assist in the development and growth of the 10-15 farms currently producing 300,000-500,000 oysters each year and create new jobs in the region. Seventy cents of every dollar spent in direct industry purchases remains in the local economy (Oceans Alaska). The next table shows the unprocessed shellfish value against the number of farms.

Aquatic Farming Production and Farm Gate Value

Year	Farms	Productive Permitted Farms	Oysters (ea)	Sales	Clams (lb)	Sales	Other (lb)	Sales	Total Sales
1990	16	7	166,503	$45,638	0	$0	0	$0	$45,638
1991	26	7	160,376	$44,440	0	$0	0	$0	$44,440
1992	25	8	355,762	$112,980	0	$0	0	$0	$112,980
1993	21	11	328,290	$114,908	0	$0	150	$288	$115,196
1994	17	9	528,540	$138,993	5,396	$18,238	0	$0	$157,231
1995	15	11	599,106	$185,723	8,319	$28,118	0	$0	$213,841
1996	12	11	624,091	$222,196	16,593	$43,796	500	$2,200	$268,192
1997	13	11	553,694	$202,965	24,814	$93,869	0	$0	$296,834
1998	12	9	579,290	$226,418	28,166	$89,002	238	$417	$315,837
1999	11	9	489,421	$187,605	38,666	$124,054	0	$0	$311,659
2000	11	7	352,478	$146,510	39,135	$120,636	0	$0	$267,146
2001	15	8	247,289	$105,018	35,700	$105,071	10	$150	$210,239
2002	27	9	287,364	$124,770	40,726	$115,038	23	$345	$240,153
2003	25	10	396,684	$163,908	61,658	$148,924	14	$210	$313,042
2004	23	9	446,820	$187,448	68,453	$156,921	1,244	$2,612	$346,981
2005	34	10	538,116	$233,215	43,234	$103,772	0	$0	$336,987
2006	33	11	532,128	$220,907	45,882	$130,930	0	$0	$351,837
2007	33	10	468,018	$199,796	14,374	$40,198	0	$0	$239,994
2008	40	9	449,040	$194,769	8,020	$20,560	0	$0	$215,329
2009	41	10	413,330	$158,725	7,839	$24,841	0	$0	$183,766

Source: Southeast Conference and AKCFEC. Note: *Total Sales represent the total **farm gate value** that is defined as the unprocessed value, excluding the costs of packaging or transport of the product to its first point of sale.

Sites of Aquatic Farms and Nurseries, Southeast Alaska 2010



Source: Alaska Department of Fish and Game Division of Commercial, Alaska Department of Natural Resources, US Census Bureau, Geography Division, Geographic Products Branch

The state owns the tidelands and manages mariculture fishery resources, and thus must be a positive, engaged player for success to occur. There should be a State Mariculture Program; instead, there are multiple obstacles to developing a mariculture industry. This is in contrast to past and current support of other common property resource industries, such as salmon hatcheries. Several obstacles are listed in the last section of this chapter that should be systematically addressed to realize the opportunities that mariculture could provide in Southeast Alaska.

Several industry businessmen have joined forces to try to build a facility devoted to mariculture education, research, and development in Ketchikan.

Fisheries, Seafood Processing, and Mariculture Strength/Constraints

Key Strengths/Opportunities

Limited entry permits and Individual Fishing Quotas (IFQs) have stabilized fisheries in Southeast Alaska and other parts of the state, extended seasons, changed market opportunities, and more, all of which has increased the value of the fisheries. While this has raised the cost of starting a business, it has also raised the market value of limited entry permits and IFQs.

While the cost of transportation is always a concern, compared to other parts of Alaska where fish is harvested and transported, our region's costs are less, plus Southeast Alaska has longer seasons.

The power of coordinated, well-funded, marketing is demonstrated by Alaska Seafood Marketing Institute (ASMI) and its seafood success. A decade ago the Alaskan seafood industry was teetering due primarily to competition from farmed salmon. The ASMI wild fish marketing campaign is almost single handedly responsible for the turnaround and creation of today's valuable seafood industry. In 2002, ex-vessel value of Alaskan salmon was about $155 million; in 2010 it is $500 million. The FY 10 ASMI budget is $17 million with about $9 million coming from an industry voluntary tax, $3.5 million from the state general fund, and $4.5 million from a competitive USDA Market Access Program grant whose purpose is to open up foreign markets.

State of Alaska grants, loans and tax credits over 4-5 years resulted in modernization of industry infrastructure including several canning lines in Southeast. In 2002, 80% of pinks (Southeast Alaska's most important fishery) was canned with bones & skin; today less than 50% is canned and that in cans is now skinless and boneless.

Several opportunity areas for seafood industry include:

1. Extend seasons.
2. Extend production lines.
3. Process more locally (things that now go to Seattle or China).
4. Reduce price of shipping by increasing access.
5. Make materials and labor available locally rather than having to import (but high cost of fuel, electricity, living and housing, etc are deterrents to achieving this).
6. Reduce price of electricity. Places in Southeast on hydropower have competitive advantage compared to parts of Alaska reliant on diesel.
7. Full utilization of resources is a key opportunity area (e.g. fish waste-oil business). Another opportunity - Salmon heads & collars: great Asian market for this (most of protein is in the head). But it costs more to freeze, store and ship it than to dispose of it as waste; it is so expensive by the time it gets to Asia they can't afford it. If cost of energy and transportation was lower we could make this work. It's a problem when it's cheaper to

grind it up and discharge rather than find or develop a market. The cost to freeze and store material onsite is so high that it eats up profit, unless energy costs can go down this will be a limiting factor on innovation.

When marketing seafood, it's the "Alaska" message that sells the product and brings customers: the pristine environment, the beautiful place, the last frontier.

Mariculture strengths/opportunities

Markets are generally strong for mariculture products. When the shellfish farmgate value and wild harvest value (geoducks, sea cucumbers and sea urchin) are combined (many mariculture operations have adjacent dive fisheries and/or operators participate in both industries) a study showed the 2004 statewide value was $7.3 million and a projected 20 year value could be $50 million if obstacles to growth are removed ("Tipping the Balance Removing the Barriers. Growing a Sustainable Shellfish Industry in Coastal Alaska," Oceans Alaska Marine Science Center).

Southeast Alaska has a reputation for innovation and leadership in the Alaska seafood industry. Building on that reputation suggests opportunities in a number of areas. Establishing a mariculture research, training, and development center in Ketchikan (refer to Oceans Alaska effort), and the NOAA Sea Grant Aquaculture Extension and Technology Transfer Program are two examples of educational potential within the region. Shellfish Growers Cooperative, Alaska Oyster Cooperative, Southeast Shellfish Association, and other organizations are working toward further development of mariculture. Programs like the Weekend Warrior Program help to balance out the startup cost/time with hands-on education and shared labor.

Key Constraints/Obstacles

The seafood risk-reward equation is different in Alaska than the remainder of the U.S. Business is seasonal; materials, cans, supplies, and labor has to be imported, and it is hard to access capital. Tyson Seafood is an example of a large US industry player coming to Alaska but not able to make it work here.

New businesses in the seafood industry that utilize raw product (e.g. canning, head and gut, fillets) find the market fiercely competitive because the amount of resource is limited so the 'pie' does not get bigger but divided into smaller pieces. By contrast, new businesses that take under or non-utilized product or waste stream and create value are generally welcomed. Often these are smaller innovative businesses and individuals, and, the pattern has been that they end up being bought-out by bigger seafood businesses, typically based in Seattle. Insufficient funding for ADF&G is a concern, particularly when trying to get an underutilized species fishery started.

A comprehensive, regularly updated, economic performance analysis for the commercial fisheries harvesting/processing sector is needed. Some suggest that an explicit policy at the State level on value-maximization is needed.

The re-emergence of the sea otter, a USFWS listed threatened species, will likely be a challenge since they are voracious eaters of shellfish, putting pressure on shellfish, crab, and sea urchin stocks. Interest in "de-listing" the sea otter is likely to increase.

A limited entry system for charter halibut fishermen in Southeast Alaska was enacted in 2010 to be able to better enforce harvest limits by the fleet. There is concern that this will harm the charter fishing industry as stricter limits may lessen the interest of clients in paying for a sport fishing experience. This also raises tension between some charter and commercial fishermen, who are using the same resource.

Mariculture constraints and obstacles

Some in the industry find that the state permitting process for mariculture operations is a disincentive to success and growth of the industry. The state owns the tidelands and manages mariculture fishery resources, and thus must be a positive, engaged player for success to occur. There should be a State Mariculture program; instead, there are multiple obstacles to developing a mariculture industry. This is in contrast to past and current support of other common property resource industries, such as salmon hatcheries. Current obstacles:

1. State mariculture permit period is only open once every two years.
2. It takes 18-24 months to obtain a permit for a mariculture farm.
3. Creating some private control over specific sites is done through state issuance of conditional use permits. The upfront costs associated with the biological, water quality, site use conflict determination is front end loaded on the applicant at a reported average cost of $30,000-$40,000. Instead, the state could offer financing that could be paid back during, or at the end of, the lease period after the opportunity to generate revenue has occurred, to encourage the industry.
4. Mariculture operations typically cannot get commercial financing. Banks can't collateralize and issue a loan for a 10-year lease/ conditional permit. Contrast this with offering quota share, that has a value and banks will loan on it.
5. ADF&G requires a 5-10 year operating plan be submitted and reviewed for permitting; hard to know in a developing industry and changing markets what you'll be doing that far ahead of time. This limits the farm owner's ability to respond effectively to changing conditions.
6. A change in equipment during the operating period requires resubmittal of operating plan and lengthy re-review and approval which eliminates ability to respond quickly to market changes and learn from mistakes. Why do this; instead put performance standards on to protect resources of concern. The state shouldn't care how you achieve the required protection, as long as you achieve it.
7. The limited capacity of the state ADEC testing lab in Anchorage is an obstacle to growth of the industry. Lab managers cannot support growth of Alaskan farms or the mariculture industry because they are under mandates to not expand the lab's budget or employees. By contrast, a state contribution to build the industry would be to build a lab in Southeast Alaska where half the mariculture farms are and thus increase the capacity for testing. Another state contribution to encourage growth of this developing industry would be if the state paid for the testing.

8. No ADF&G shellfish biologist is dedicated to research and development of a mariculture industry; instead the focus is primarily on permitting.