On-Time Public Comment List

Alaska Board of Fisheries Prince William Sound Finfish | Valdez, December 1-5, 2017

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MEMORANDUM STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

Boards Support Section

TO: Alaska Board of Fisheries

DATE: November 9, 2017

THRU:

PHONE: 907-465-6095

FROM: Glenn Haight, Executive Director
Alaska Board of Fisheries

SUBJECT: Prince William Sound
Finfish Proposal 41

Boards Support heard from the author of Proposal 41, Ms. Shawna Williams. Ms. Williams felt the lead-in language prepared by the Department incorrectly positioned her proposal. The lead-in language reads:

> 5 AAC 24.335. Minimum distance between units of gear.
> Prohibit operation of commercial salmon drift gillnet gear within 60 fathoms of the shoreward of a set gillnet in the Crafton Island Subdistrict, as follows:

Ms. Williams asked it to read:

> 5 AAC 24.335. Minimum distance between units of gear.
> **Allow** [PROHIBIT] operation of commercial salmon drift gillnet gear within 60 fathoms of the shoreward of a set gillnet in the Crafton Island Subdistrict, as follows:

Ms. Williams proposal seeks to allow drift gillnet harvesters to operate on the shore side of a gillnet operation in the Crafton Island Subdistrict when the gillnet is affixed to an offshore pinnacle that puts the set gillnet operation beyond the shore.

The department reviewed Ms. Williams concerns and agrees that the lead-in language should be reflected to read “Allow”.

Submitted By
Rod Arno
Submitted On
11/16/2017 11:54:15 AM
Affiliation
Alaska Outdoor Council

Phone
907 841-6849
Email
Rodarno@gmail.com
Address
310 K Street, Suite 200
Anchorage, Alaska 99501

The Alaska Outdoor Council's position and comments on select proposals before the Alaska Board of Fisheries (BOF), December 1 - 5, 2017.

Proposal 10. Adopt. A large portion of the 18.9 million acres in the Copper River drainage is accessible to and fished by a number of holders of Alaskan fishing license. As written in 5 AAC 39.222(f)(25) defines optimal escapement goal as the number of salmon allowed inriver to meet biological and allocative management goals. Such action by the board would be consistent with the Alaska State Constitution Article VIII Sections 1 through 3. Providing a consistent salmon harvest for a large proportion of Alaska's current population of licensed users would be in the public's interest.

Proposal 18. Adopt. With current salmon stocks in the Copper River drainage there appears to be no good justifiable statutorial reason to tie the low percentage of salmon harvest by Alaskan residents with that of commercial fishing opportunity. Inriver users in the Copper River drainage are a small percent of the total salmon harvest and could be better assured of an annual harvest.

National Garden Clubs, Inc.

Deen Day Sanders
Honorary Life President

November 17, 2017

Re: ACR01

Dear Members of the Alaska Board of Fish and Game ~

I have lived in Fairbanks for 45 years, and I own a cabin in Minto Flats. I have frequented the Flats for the past 36 years. When I first started fishing there, the pike fishery was fairly exciting! (I use the word "fairly" because the old-timers told me there were not near as many fish as there had been previously.) It was not uncommon to catch a large pike - and as you must know, there are few fish that are as exciting to land. That was 35 years or so ago. Over the course of these years, I have personally seen the fishery in a major decline, to the point where now you are lucky to catch a nice fish.

What a shame to let this pristine fishery decline to such a degree before taking action. I was so proud of the Board when I heard you had restricted subsistence fishing through the ice for three miles upstream from the mouth of Goldstream on the Chatanika River, in order to save approximately half of the spawning females and let the fishery recover. Now, as I understand, after only one season, you are considering reducing that restriction from the three miles to only one mile.

I have seen the studies by our Fish and Game professionals that prove that very little of the population overwinters within one mile of that confluence. Most of them overwinter within miles 2 through 3, and 5 through 10 upriver from the confluence. If the three mile limit stays in effect, you are helping to save about half of the females. If you reduce that to the proposed one mile limit, you are saving very few. This has been proven by Fish and Game studies and it's my understanding that you've been provided copies of those studies. Reducing these limits to one mile is unacceptable.

Even though I have heard that a subsistence fisherman fished at a spot above the three mile closure and only caught one fish, the studies referred to above have proven that

the fish are there. It is my hope that we have not let the fishery decline so much since those studies, by our inaction to conserve these pike for so many years, that the Minto Pike are possibly at more of a risk that we think!

These pike are important to many of us, as are our lands. Alaska is one of the last great frontiers and it's our job to protect all of it - not just for a few but for us all! We must practice conservation and sustainable harvesting - we need to preserve, protect, and restore our natural environment, natural ecosystems, vegetation, and wildlife for our future generations.

This is important, and it's in your hands. Please act responsibly for us and our children!

Sincerely,

Becky Hassebroek

Becky Hassebroek
Wildlife Chairman
518 Slater Drive, Fairbanks, AK 99701
(907) 456-3066

Submitted By
Bill Sidney
Submitted On
10/29/2017 8:31:34 AM
Affiliation

If you can snag? why not use a BOW to havest your fish , it is not why should you be able ,

it is why you should NOT be able ? This is a very small portation of the sporting public that will do it ,

Submitted By
Brian charlton
Submitted On
11/17/2017 6:28:33 AM
Affiliation
Dipnetter

I am in support of continued dipnetter from boats in the subsistence areas of the copper river. I have been a dipnetter for over 20 years. I have fished in the canyon, I have chartered with Hem, I ran a fish wheel, and now I dip from a boat. It is clear to me that dipnetter in boats are taking way fewer fish than fish wheels. Also, not all boats or people are capable of handling the treacherous nature of the canyon. The subsistence area is much safer and accessible. I urge you to support fair and equal access for all Alaskans!

Chairman John Jensen
Alaska Board of Fisheries
Board Support Section
PO Box 115526
Juneau, AK 99811

RE: Comments on the 2017 PWS Finfish Proposals 42-45

Dear Chairman Jensen and Members of the Board,

Thank you all for your service and the opportunity to submit opinion regarding the upcoming 2017 PWS BOF meeting. My name is Christopher Scott Thomas and I am a lifelong Alaskan. I have been a PWS setnet permit holder for 14 years, served as the PWS Setnet Association representative, and actively fish in the Eshamy District with my wife and two daughters.

Proposal 42: Oppose.

Proposal #42 looks to eliminate setnetting as a viable means of fishing. It allocates more area to the drift fleet, reduces access to waters for the setnet fleet, and allows for the operation of nets 3 times the length of a setnet on either side of that given setnet. Proposal 42 would "throw-out" all existent distance between gear regulations. All leased sites would be delegitimized and worthless. Proposal 42 would increase conflict, jeopardize safety, and have a huge impact on allocation.

Proposal #43: Oppose.

Additional time is not necessary. Drift fishermen need only move the portion of their net that is that is in violation of statute. Most can do this without much time. Adopting this proposal would create enforcement ambiguity, bordering on impossibility. Generally, active and used setnet sites are not a mystery. Most setnetters check their gear prior to an opener, and all gladly indicate to neighboring drifters if they intend to place gear at a particular site.

Proposal #44: Oppose.

Under current state law, setnet crew members are allowed to set and operate gear. These laws are consistent across the State of Alaska. Setnet skiffs are generally not well suited to operating a full 150 fathoms of gear. Hence, many setnet permit holders and family have multiple skiff to share in the burden of deploying and recovering gear in a manner that is safe and reduces conflict. The notion by the proposal that the permit holder is absent is misleading. Often adjacent sites are held by the same permit holder, if not adjacent, most are within sight. Additionally, many setnet holders and crew are family run. One family member sets one net, a

daughter/son/spouse sets another, the family regroups and starts working the gear. My case in point, I set one net, my spouse sets a second, and my two daughters set the third. This is not only legal; it is likely the exact reason for the statutes written as they read. The notion that this type of operation is illegal, is inconsistent with all existent Alaska statutes. Finally, Proposal 44 is strongly allocative in that it delays the deployment of gear of a single group. Drifters would be allowed to deploy a full allotment of gear at 8am, setnetters would only be allowed 1/3 of that.

Proposal 45: Oppose.

Proposals similar to this have been submitted the previous 3 board cycles. The Board has ruled that it would create too much conflict, safety concerns, and enforcement issues. The number of permits has not changed. The perception of more gear is probably the result of recent management reductions in fishing area. Adding to that perception are fishing periods that change area during an opener. Many fisherman (same as the drifters) will fish one place, until the point that everyone must move to a smaller geographical area. Openers such as this require setnetters to have multiple sets in order to be able to fish for the entire period. No other fishery in the state limits the number of sets.

Many Thanks for your time, service, and efforts on all our behalf,

C. Scott Thomas

Submitted By
Caleb Preston
Submitted On
11/16/2017 4:19:46 PM
Affiliation

2017 Board of Fish Written Comments

Submitted by Caleb Preston

Nov 16th, 2017

Dear Board of Fish,

I appreciate the opportunity to submit my comments to the recent 2017 proposals. My grandparents bought our Main Bay set permit in 1979 and as a third generation fisherman, my family's livelihood revolves around a viable fishing operation. With the extremity at which some of these proposals mean to alter this livelihood, I feel compelled to share my comments.

Proposal 40: Support. I too have experienced the frustration of having drift gillnet gear fished at 60 fathoms and drift into the illegal range. It's tough to see a 150 fathom drift net fixed as a set net in front of your gear. If law enforcement feels this proposal will enable them to better prevent the root issue of drift gillnetters operating as set gillnets, then I would support this proposal.

Proposal 41: Oppose. I feel that this could get real messy. If you have a drift gillnet deployed in a parallel arc alongside a setnet, I see only increased conflict between users as the current could push the drift gear into the setnet. Also, it seems like only a handful of set locations would be fishable by drift gillnets under this proposal as most set gillnets are directly fixed to the shore. I don't think this proposal is worth it for either group or enforcement.

Proposal 42. Oppose. This proposal would massively shift allocation away from set gillnetters and I strongly oppose it.

For starters, there is a limited room within the Main Bay Subdistrict and when all gear types are restricted to Main Bay Only. Having the ability to fish 100 fathom sets is essential to deploying all of our gear. Restricting setnetters to fish only 50 fathoms per set would only expand the number of set net sites within Main Bay, reducing the harvest for both gear types, significantly increasing conflict and ultimately going against the author's intent to give the drift fleet more beach access.

Outside of the THA, set nets need to be 100 fathoms apart but drift gillnets can be within 25 fathoms of a set net. Drift gillnets are able to harvest off the end of a setnet and already have access to multiple beach sets between set nets.

Drift gillnets are designed to drift, not set net. Beach sites have historically been prioritized for set gillnetters which is why we have our Shore Lease sites. Allowing drift gillnetters to fish within 20 fathoms of a set gillnet would effectively eliminate this priority and give drift gillnets the advantage of both gear types, thus massively reducing set net allocation and viability of set gillnetting in Main Bay.

The final point is that this proposal would put even more burden upon law enforcement in Main Bay. Increasing the density along the shore, and allowing drift gillnets to override set gillnet's historic beach site priority is only going to increase conflicts and reduce enforcement's ability to manage it effectively.

In response, I'd rather see drift gillnets required to fish 30 fathoms away from a set gillnets inside the THA, and 60 fathoms away in the remainder of the Main Bay Subdistrict to match the Crafton Island Subdistrict. This would eliminate the issue of drift gillnets fishing between set nets and would keep both gear types fishing according to their design and reduce the majority of conflict within the district. The majority of fish go around a set net, especially during a build up opener, and drift gillnets are able to effectively harvest these fish off the end of a setnet.

Proposal 43: Oppose. My sites are spread out and it's not uncommon that I'll show up at my 3rd site to find a drift gillnetter has set right up against my running line. Normally, there's no conflict and the fisherman pulls back their gear to the offshore end of my net concurrent with it's deployment. The fisherman has been able to legally harvest in my absence and then pulls their net into legal position. It's only on rare occasion that I've had a drift gillnet not immediately pull back their gear and a conflict has arisen.

In my opinion, this proposal, if passed, would allow a drift gillnetter to take as much time as they wanted to pull their gear back into position. This would only escalate conflicts and increase the burden on law enforcement while detracting from the priority set gillnetters have with our Shore Fisheries Lease sites. I think it's a bad idea.

Proposal 44: Oppose. This issue is already adequately addressed in 5 AAC 39.107 which requires a set permit holder to "Personally operate or assist in operation" in a number of capacities. The current laws allow for crews to set and work gear per the above regulation.

It's not practical nor safe to force a set netter to work 3 separate sites out of 1 skiff, especially when sites are located miles apart and the fisherman is required to travel rough waters in a storm between sites. Many of us fish sites both inside and out of the Main Bay Subdistrict and the ability to set and work those nets concurrently allows us to stay on top of our gear and lower the risk of traveling with heavy loads in rough weather.

I feel this proposal is highly allocative in nature, especially when viewed in light of the others proposed by the same [illegible] could restrict set netters to 1 skiff (Prop 44), they'd be able to deploy their nets before we can deploy our 2nd/3rd sites, take as much time as they wanted to retrieve their gear (Prop 43) and override the seniority we have with our shore fisheries leases and site lengths (Prop 42). Any of the proposals, if passed on their own, would materially impact allocation and if all passed would jeopardize the livelihood of setnetting in Main Bay.

Proposal 45: Oppose. This proposal is highly unpractical and would both impact the safety and allocation of gear groups.

I've been running our family's permit for 12 years and it still takes me 4-5 hours to set a net's running line structure. We fish a hook on our nets that require 5+ anchors, each with hundreds of feet of anchor and safety line. It is a structure that's meant to be set at the beginning of the season and pulled up at the end. It is not practical to think that a set netter can pull up and deploy a site at will or in preparation for every opener.

It's also a dangerous process. Some set netters in high current locations use multiple anchors weighing hundreds of pounds. These sets can only be constructed on a calm day during a closure. There's would be no safe way to deploy a running line structure during rough weather or in the presence of drift gillnet gear in the close vicinity of the set location.

Over the past 12 years, I have not seen a significant increase in the rise of set net sites. What I have seen is trend of fishing Main Bay Only or Crafton Island Subdistrict Only. Since a set netter needs sites to house their entire 150 fathoms of gear, it's necessary to have adequate site locations to house those nets whether Main Bay is open or not.

I've seen drift gillnets fish next to un-fished setnet locations consistently over the years and it doesn't appear to limit their harvest. I can understand the frustration of fishing next to running lines, but the irritation it causes the drift gillnet fleet doesn't merit of restriction this would cause on the set gear type.

Proposal 48: Oppose. My desire is to see the chum fishery support cost recovery efforts prior to July 18th as originally intended. The interception of Main Bay sockeye and Wild Coghill sockeye in particular impacts management and our allowable fishing time.

Proposal 49: Support. I support Option 1 which would advise PWSAC to follow the regulation and eliminate the common property seine fishery prior to July 18 and have the fishery return to a cost recovery fishery like it was prior to 2004.

Thank you for your consideration.

Sincerely,

Caleb Preston

Submitted By
Chuck Derrick
Submitted On
11/9/2017 10:00:54 PM
Affiliation
Chitina Dipnetters Association

Phone
907-378-5527
Email
cderrickak@gmail.com
Address
POBox 72665
Fairbanks, Alaska 99707

These proposal comments represent the views of the Chitina Dipnetters Association.

Proposal 10 Support

We feel that it is time for the BOF to establish an Optimum Escapement Goal (OEG) for both Copper River sockeye and a separate OEG for Copper River Chinook. An OEG would better address the needs of the inriver users and could allow the BOF to add to the SEG, additional salmon to meet those needs.

Proposal 13 Oppose

Dipnetting for salmon from a boat has become the preferred method of many users in the upriver Personal Use and Subsistence fishery. Whether from shore or boat, the purpose of dipnetting is to harvest fish.

Proposal 15 Oppose

There is no evidence that monofilament nets increase mortality in released salmon. In the PU diipnet fishery, if this proposal passes, you would be ordering a majority of the 10,000 dipnetters to buy new nets.

Proposal 16 Oppose

Harvests are already recorded on the users permit.

Proposal 17 Support

Increasing the length of the PU dipnet fishery would alleve crowding and open new area that would be better for dipnetting from a boat than the turbulent waters of the canyon. Unlike in the commercial fishery at the mouth where salmon harvest numbers are only limited by time periods, increasing the PU dipnet area would most likely not mean an increased harvest because dipnetters fish under a set bag limit.

Proposal 18 Support

The PU dipnet fishery opening and closing are based solely off of the sonar count passage numbers. When commercial fishermen are restricted because of low run numbers, those low numbers will show as low sonar counts, triggering closures in the dipnet fishery. To require that the PU dipnet fishery salmon allocation drop from 150,000 to 50,000 just because the commercial fleet has been restricted for 13 consecutive days, while the PU fishery would bear the same restrictions, is unjustifiable. This allocation reduction would be for the remaning dipnet season even though run numbers may rebound soon after. It is time to remove this regulation from the books.

Proposal 28 Oppose

The inside mandatory closures were instituted as a chinook salmon conservation measure. Chinook tend to mill in the shallower waters at the mouth of the Copper River and are very vulnerable, especially at low tide, to drift gill nets.

Proposal 36 Oppose

This proposal would prohibit the Dept. F&G from managing the commercial fishery if low run numbers indicated closures were warranted. It would also eliminate the mandatory inside water closures which were put in place as a chinook conservation measure.

Copper River/Prince William Sound Marketing Association

COPPER RIVER
Wild Alaska King, Sockeye & Coho

PRINCE WILLIAM SOUND
WILD ALASKA SOCKEYE

www.copperrivermarketing.org

509 First Street
P.O. Box 199
Cordova, AK 99574
t: 907.424.3459
f: 907.424.3430

November 9, 2017

Chairman John Jensen
Alaska Board of Fisheries
Board Support Section
PO Box 115526
Juneau, AK 99811

RE: Comments on 2017 PWS Finfish proposals 32, 33, 34

Dear Chairman Jensen and Members of the Board,

Copper River Prince William Sound Marketing Association (CR/PWSMA) is the non-profit regional seafood development association for all Area E fisheries, currently marketing salmon for approximately 550 drift and set gillnet fishermen. Our mission is to maximize the value of Copper River and Prince William Sound salmon fisheries through effective marketing, quality enhancement, cooperative partnerships, and organizational competency to the benefit of its members.

Thank you for the opportunity to comment on several of the proposals before you. On behalf of our members, the Board of Directors has prepared the following comments.

Proposal 32: Prohibit commercial salmon fishing in the Copper River District, during the month of May, if the preseason forecast for Copper River king salmon is below the 20-year average, or 35,000 king salmon - OPPOSE

Alaska statute states the Alaska Department of Fish and Game commissioner shall "manage, protect, maintain, improve and extend the fish, game and aquatic plant resources of the state in the interest of the *economy* and general well-being of the state;" (emphasis added) Such a prohibition places an undo burden on the commercial fleet and has the power to devalue the economies of coastal Alaskan communities.

In-season data collection is the foundation of sustainable fisheries management; in-season data is the best data available, a pre-season forecast is not. The commercial salmon harvest is a critical element of the in-season data collection allowing fishery biologists to react to either abundance or scarcity. This proposal places a pre-season forecast in a position of primacy to the fisheries management plan and in-season management.

Proposal 33: Prohibit sale of commercially caught king salmon in the Copper River District if restrictions on Copper River drainage subsistence fisheries have been implemented – OPPOSE

All user groups share the burden of restrictions in times of scarcity as a resource management tool. Commercial harvest in the Copper River district is the first data available that indicates run strength in-season. It is harvest data, provided by the commercial fleet that indicated Copper River Chinook abundance in 2017 allowed for upriver restrictions to be lifted. The commercial fleet continued to fish under time and area restrictions during Chinook and sockeye management.

The purpose of commercial fishing is the harvesting, sale, and distribution of salmon. Not selling commercially harvested Chinook salmon would be a waste of the valuable resource. Arbitrarily prohibiting the sale of salmon regardless of run strength would be detrimental to economies of coastal Alaska.

Proposal 34: Prohibit commercial salmon fishing in the Copper River District until a salmon is recorded at the Copper River sonar – OPPOSE

Customarily the Copper River salmon season opens to commercial and subsistence harvest mid May. The lag or travel time from the mouth of the Copper River on the Gulf of Alaska up to the ADFG sonar station at Miles Lake can be as long as 10 days. Many thousands of salmon can be traveling up river before a fish passes that sonar. For the past 3 years Copper River Prince William Sound Marketing Association has solely funded additional sonar on the Copper River to address this lag time. The Lower Copper River Sonar, operated by the Prince William Sound Science Center, provides ADFG additional data regarding early season fish passage into the Copper River.

The Copper River salmon fishery opens the statewide salmon industry. The early timing of the Copper River fishery drives value for that harvest. Prohibiting early season salmon fishing would have cascading negative effects on 500 plus independently owned small family businesses. The early fresh season sets the tone for Prince William Sound salmon prices throughout the five month salmon season. Knowing the value of salmon to the seafood industry (the most valuable species*) and the contribution of commercial fishing to Alaska coastal communities (the largest private sector employer in the state*) this should not be taken lightly.

We trust that the points raised in these comments provide you with sufficient information to aid in your final determinations during this fishery review. Thank you for your service to this valuable resource and the communities that depend on it.

Sincerely,

Christa Hoover, Executive Director
Copper River Prince William Sound Marketing Association
executivedirector@copperrivermarketing.org

Supporting Documents:
CR/PWSMA Resolution 2006-06-06
Socioeconomic Benefits of the Prince William Sound Gillnet Fishery, Resilient Economics, LLC
*The Economic Value of Alaska's Seafood Industry, Alaska Seafood Marketing Institute

RESOLUTION 2006-06-06

A RESOLUTION by the COPPER RIVER/PRINCE WILLIAM SOUND MARKETING ASSOCIATION BOARD of DIRECTORS SUPPORTING CONSISTENT SHORT EARLY SEASON OPENERS INSTEAD OF PROLONGED CLOSURES OF THE COPPER RIVER DRIFT GILLNET SALMON FISHERY

WHEREAS the Alaska Statutes state the Alaska Department of Fish and Game commissioner shall, "manage, protect, maintain, improve, and extend the fish, game and aquatic plant resources of the state in the interest of the economy and general well-being of the state;" and

WHEREAS the Copper River drift gillnet salmon fishery is important to the economic well-being of the City of Cordova, Alaska; and

WHEREAS prolonged early season closures of Copper River drift gillnet salmon fishery adversely affect the economic well-being of fishermen due to lost fishing time; and

WHEREAS prolonged closures adversely affect seafood processors due to lost markets, reduced productivity, and idle plant employees; and

WHEREAS an unreliable fishing schedule disrupts product distribution to the markets and consumer demand for Copper River salmon; costing the seafood industry millions of dollars; and

WHEREAS a consistent schedule of short early season openers reduce the adverse economic impact felt by fishermen, processors, industry employees, distribution markets and the City of Cordova, Alaska caused by prolonged closures.

NOW THEREFORE BE IT RESOLVED THAT the Copper River/Prince William Sound Marketing Association supports the economic well-being of the Copper River drift gillnet salmon fishery, it's fishermen, processors, seafood workers, seafood distribution chain, and City or Cordova, Alaska and supports having consistent, short early season openers of the Copper River drift gillnet salmon fishery as opposed to prolonged closures.

RESOLVED AND ADOPTED by the Copper River/Prince William Sound Marketing Association Board of Directors and signed on this 22 day of July, 2015, **nunc pro tunc** with an effective date of June 6, 2006.

Thea Thomas

Thea Thomas, Secretary
Copper/River/Prince William Sound Marketing Association

7/22/15
Date

Socioeconomic Benefits of the Area E Gillnet Fishery

Prepared for the Copper River/Prince William Sound Marketing Association

Under Contract # 09012017

Dr. Sarah Kruse, Resilient Economics LLC

November 2017

ABSTRACT

The Area E gillnet fishery is generally recognized as an important contributor to the local and regional economies. In an effort to better understand how future fishery policy changes potentially could impact not just those who fish, but also the broader economy, the Copper River/Prince William Sound Marketing Association contracted Resilient Economics to assess the direct, indirect and induced economic impacts of this fishery.

For such an analysis, collection of primary data specific to the fishery and study area ideally would occur; however, time constraints prevented the collection of any primary data, so all results are derived from existing data and sources publically available at the time this study was conducted. While this is a recognized limitation, we also believe that the existing studies and data sources used provided sufficient detail and specificity, allowing for estimation of a reasonable range of economic benefits associated with the Area E gillnet fishery. Existing data sources are cited in both the narrative and footnotes.

Key findings from this study are as follows:

- In 2016, the estimated value Area E drift and set gillnet permits totals almost $90 million dollars. Alaska residents hold 77.0% of these permits and 41.2% are held by residents of Cordova.
- A recent study by Wood (2017) of Bristol Bay gillnet fishery permit values found that "total earnings have a positive and significant relationship with permit prices, and total costs have a negative and significant relationship in both the short- and long-run"[1] — suggesting that permit holders individual finances and economic behavior may not only be affected by their annual earnings in the fishery, but also by how the fishery does as a whole.
- Over the last ten years, ex-vessel revenues from the Area E gillnet fishery totaled almost half a billion dollars, with average annual revenues of just under $50 million. Alaska and Cordova residents earned 79.5% ($391.1 million) and 41.8% ($205.4 million) of these ex-vessel revenues.
- In 2016, the Area E gillnet fishery accounted for an estimated $20.3 million in direct economic benefits (i.e., ex-vessel revenues of residents and spending by non-residents who season there) and $32.1 million (including harvesting and processing) in total economic impact for Cordova.
- In 2016, the Area E gillnet fishery accounted for an estimated $36.3 million in direct economic benefits (i.e., ex-vessel revenues) and $65.6–$67.7 million (including harvesting and processing) in total economic impact for Alaska.
- From 2007-2016, the Area E gillnet fishery accounted for an estimated $491.8 million in direct economic benefits (i.e., ex-vessel revenues) and $887.8–$915.2 million (harvesting and processing) in total economic impact for Alaska.

[1] Wood, MD. 2017. Analyzing factors affecting Alaska's salmon permit values: evidence from Bristol Bay drift gillnet permits. Thesis (M.S.) University of Alaska Fairbanks.

CONTENTS

TABLES

1. SCOPE OF WORK

The Alaska Department of Fish and Game (ADFG) defines the Prince William Sound (PWS) fisheries management area, also known as Area E, as "all coastal waters and inland drainages entering the north central Gulf of Alaska between Cape Suckling and Cape Fairfield as well as the Bering and Copper rivers".[2] Area E is also further divided into 11 districts for the purposes of salmon and herring management. Within this management area, the commercial gillnet fishery is a limited entry fishery composed of two permit types: S03E – drift gillnet and S04E – set gillnet.

The Area E gillnet fishery is generally recognized as an important contributor to the local and regional economies. In an effort to better understand how future fishery policy changes affecting harvest potentially could impact not just those who fish, but also the broader economy, the Copper River/Prince William Sound Marketing Association (CR/PWSMA) contracted Resilient Economics to assess the direct, indirect and induced economic impacts of the Area E gillnet fishery using existing data sources.

The remaining sections of this study present methods and results for the following:

1. Limited-entry permit values and the distribution of Area E gillnet fishery permit holders by geographic location.
2. Copper River District (CRD) commercial drift gillnet ex-vessel values.
3. Area E gillnet fishery ex-vessel values (drift and set gillnet combined). These results are presented for a) all permit holders; b) Alaska permit holders; c) Valdez-Cordova Census Area (CA) permit holders; and d) Cordova permit holders only.
4. Multiplier values associated with the Area E gillnet fishery.

Note that all dollar estimates included in this document are adjusted for inflation using the Bureau of Labor Statistics Consumer Price Index (CPI) and are presented in real 2016 dollars (2016$) rounded to the nearest hundred.[3]

2. METHODS

This section provides a brief overview of data collection methods used. As there are several different analyses conducted in this study, methods for each analysis are included in that section.

The following data were downloaded from the Commercial Fisheries Entry Commission (CFEC) website[4] for the commercial drift and set gillnet fisheries for the years 2007-16:

- Permanent permits renewed;
- Interim permits issued;
- Total permits issued/renewed;
- Total permits fished;
- Total pounds harvested;
- Average pounds harvested;

[2] Accessed September 2017 at http://www.adfg.alaska.gov/FedAidPDFs/FMR17-17.pdf.
[3] Accessed May 2017 at https://www.bls.gov/data/inflation_calculator.htm.
[4] Accessed September 2017 at https://www.cfec.state.ak.us/fishery_statistics/earnings.htm.

- Total gross earnings;
- Average gross earnings; and
- Average permit price.

These data were downloaded for a) all permits; b) all permits registered in the Valdez-Cordova Census Area; and c) all permits registered in Cordova.

ADFG Annual Prince William Sound Area Finfish Management Reports[5] were used to obtain the following information on the Copper River District drift gillnet fishery for the years 2007-2016:

- Number of permits;
- Number of salmon harvested by species;
- Average weight by species (for PWS - drift gillnet); and
- Average price per pound by species (for PWS - drift gillnet).

Data for the year 2016 were obtained directly from ADFG staff as the 2016 report had not been published at the time this study was conducted.

3. PERMIT VALUES

In 2016, 537 drift gillnet permits and 29 set gillnet permits were issued for the Area E gillnet fishery, with average permit prices of $155,400 and $190,800, respectively. These limited entry permits do not necessarily contribute directly to the economy themselves, but do provide real value to the holders as these individuals have the right to transfer the permits through gift, inheritance or sale.

A recent study by Wood (2017) of Bristol Bay gillnet fishery permit values found that "total earnings have a positive and significant relationship with permit prices, and total costs have a negative and significant relationship in both the short- and long-run"[6] — suggesting that permit holders individual finances and economic behavior may not only be affected by their annual earnings in the fishery, but also by how the fishery does as a whole.

Table 1 shows the estimated value of Area E gillnet fishery permits for the current year and averaged over the last ten years (in real dollars). In both cases, the estimated value of permits from PWS drift and set gillnet combined totals almost $90 million dollars.

Table 1 PWS gillnet permit values

2016	Drift Gillnet	Set Gillnet
Permanent Permits	537	29
Avg. Permit Price	$ 155,400	$ 190,800
Estimated Total Value	$ 83,449,800	$ 5,533,200

2007-2016	Drift Gillnet	Set Gillnet
Permanent Permits	537	29
Avg. Permit Price	$ 160,800	$ 110,400
Estimated Total Value	$ 86,349,600	$ 3,201,600

[5] Accessed September 2017 at http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareapws.salmon#management.
[6] Wood, MD. 2017. Analyzing factors affecting Alaska's salmon permit values: evidence from Bristol Bay drift gillnet permits. Thesis (M.S.) University of Alaska Fairbanks.

We also used the CFEC data to analyze the geographic distribution of Area E gillnet permit holders by geography—with a focus on Cordova and the nearby region. As seen in Table 2, Cordova residents hold over 40% of permits and Alaskans hold almost 80%. It is important to note that residency is based on the address a permit holder registers with the CFEC—which is some cases may or may not be where the individual resides full time.

Table 2 Distribution of PWS gillnet permit holders by geographic area

Area	# of Permit Holders	% of Total
Cordova	233	41.2%
Valdez-Cordova CA	239	42.2%
Alaska	436	77.0%
Total	566	—

4. COPPER RIVER DISTRICT

As mentioned previously, estimates of ex-vessel revenues for the CRD drift gillnet fishery were calculated using ADFG data. The following steps were used:

- For each species (i.e., Chinook, sockeye, coho, pink & chum) the number of fish harvested was multiplied by the average weight per fish resulting in the total pounds harvested. Note that the "average weight" values used were not specific to the Copper River District, but were for PWS as a whole. Average weight estimates were not available at the district level.
- For each species the total pounds harvested was then multiplied by the average price per pound resulting in total ex-vessel revenues.
- Ex-vessel revenues for all species were summed resulting in total ex-vessel revenues for the CRD.
- Estimated total ex-vessel revenues were updated to constant 2016 dollars using the CPI.

In 2016, ex-vessel revenues for the CRD drift gillnet fishery were an estimated $20.5 million—which represents almost 60% of the total Area E drift gillnet ex-vessel revenues ($34.8 million) for this year. It should be noted that this estimated total value (as reported by ADFG) varies slightly from the CFEC estimated total value used in the following sections.

From 2007-2016, ex-vessel revenues for the CRD drift gillnet fishery totaled $221.6 million dollars. While there has been considerable annual variability, mean and median annual ex-vessel revenues were $22.2 million and $24.2 million, respectively (see Table 3).

Table 3 Copper River District drift gillnet ex-vessel revenues

Year	Millions (2016$)
2007	$ 27.8
2008	$ 8.4
2009	$ 15.1
2010	$ 11.5
2011	$ 29.1
2012	$ 25.4
2013	$ 27.7
2014	$ 33.1
2015	$ 22.9
2016	$ 20.5
10-Year Total	$ 221.6
Mean	$ 22.2
Median	$ 24.2

On an individual level, the mean and median ex-vessel revenues for the average active permit holder were $43,800 and $47,200, respectively (see Table 4). In total, the average active permit holder would have earned almost half a million dollars in ex-vessel revenues just from the CRD during these 10 years.

Table 4 Copper River District average earnings

Year	Active Permits	Per Permit ($2016)
2007	494	$ 56,300
2008	492	$ 17,100
2009	486	$ 31,100
2010	495	$ 23,300
2011	485	$ 59,900
2012	510	$ 49,900
2013	515	$ 53,700
2014	533	$ 62,200
2015	515	$ 44,500
2016	509	$ 40,200
	10-Year Total	$ 438,200
	Mean	$ 43,800
	Median	$ 47,200

5. PRINCE WILLIAM SOUND

As mentioned previously, the Area E gillnet fishery is comprised of two permits: S03E – drift gillnet and S04E – set gillnet. Participation and earnings data for each permit were downloaded from the CFEC website for the last ten years. CFEC data were used for this component of the analysis as data can be accessed online for various geographic areas, including those included in this analysis.

The drift gillnet is the larger of the two Area E gillnet fisheries—with 537 permanent permits (as of 2016), as opposed to set gillnet, which has 29 permanent permits. Over the last ten years, on average, 516 permits and 28 permits were active in a given year for the drift and set gillnet fisheries, respectively.

Unless otherwise noted, information in the following sections is for the two fisheries (i.e., drift and set gillnet) combined.

5.1. ALL PERMITS

In 2016, ex-vessel revenues for the Area E gillnet fishery, calculated using CFEC data, totaled $36.3 million—with the drift gillnet fishery accounting for approximately 95% of these revenues (see Table 5).

Table 5 2016 Area E gillnet fishery

Permit	Permanent Permits Renewed	Total Fished	Ex-Vessel Revenues (millions $)	Average Gross Earnings
Drift	537	517	$ 34.4	$ 66,500
Set	29	29	$ 1.9	$ 66,100
Total	566	546	$ 36.3	$ 66,500

From 2007-2016, ex-vessel revenues for the Area E gillnet fishery totaled $491.8 million dollars with mean and median annual ex-vessel revenues of $49.2 million and $49.6 million, respectively (see Table 6).

Table 6 10-year summary for Area E gillnet fishery

Year	Millions (2016$)
2007	$ 42.8
2008	$ 39.0
2009	$ 38.5
2010	$ 57.0
2011	$ 57.6
2012	$ 67.0
2013	$ 56.4
2014	$ 56.4
2015	$ 40.7
2016	$ 36.3
10-Year Total	$ 491.8
Mean	$ 49.2
Median	$ 49.6

5.2. ALASKA PERMIT HOLDERS

Alaska residents hold the majority of Area E gillnet fishery permits—in 2016, they held 77.3% and 72.4% of drift and set gillnet permits, respectively. Over the last ten years, the proportion of drift gillnet permits held by Alaska residents has remained relatively constant, but set gillnet permits ownership by residents

has dropped from 25 to 21 (out of 29 total—except for in 2007 when there were 30 total) over the last ten years.

In 2016, Alaska residents earned almost $28.9 million—representing 79.6% of the total $36.3 million of ex-vessel revenues earned in the Area E gillnet fishery that year. Average earnings per permit holder were an estimated $68,000 (see Table 7). In comparison, non-residents earned, on average, $61,100 per permit in 2016.

Table 7 2016 summary for Alaska permit holders

Permit	Permanent Permits Renewed	Total Fished	Ex-Vessel Revenues (millions $)	Average Gross Earnings
Drift	415	404	$ 27.5	$ 68,100
Set	21	21	$ 1.4	$ 67,100
Total	436	425	$ 28.9	$ 68,000

We also calculated the ex-vessel revenues earned by residents and non-residents over the last ten years (2007-2016). As seen in Table 8, over the past ten years Alaska residents earned the majority of ex-vessel revenues (79.5%), totaling over $391 million dollars.

Table 8 10-year summary for Alaska permit holders

Alaska	Average Permits Fished/Year	Ex-Vessel Revenues (millions $)	% of Total Ex-Vessel Revenues	% of Total Permits Fished
Non-resident	118	$ 100.7	20.5%	21.8%
Resident	425	$ 391.1	79.5%	78.2%
Total	544	$ 491.8	—	—

5.3. VALDEZ-CORDOVA CENSUS AREA PERMIT HOLDERS

In 2016, permit holders registered in the Valdez-Cordova Census Area ("VCCA") held 43.8% (235) and 13.8% (4) of PWS drift and set gillnet permits, respectively. Both permits have seen small but steady decreases in ownership by VCCA residents over the last ten years – in 2007, VCCA residents held 48.8% of drift gillnet permits and 23.3% of set gillnet permits in PWS.

VCCA permit holders earned an estimated $14.2 million in 2016 – representing 39% of total ex-vessel revenues for that year. Average earnings per permit holder were approximately $60,800 (see Table 9).

Table 9 2016 summary for Valdez-Cordova Census Area permit holders

Permit	Permanent Permits Renewed	Total Fished	Ex-Vessel Revenues (millions $)	Average Gross Earnings
Drift	235	229	$ 13.9	$ 60,800
Set	4	4	$ 0.2	$ 58,800
Total	239	233	$ 14.2	$ 60,800

We also calculated the ex-vessel revenues earned by VCCA residents over the last ten years (2007-2016), which totaled approximately $209 million or 42.5% of total Area E gillnet fishery earnings for that time period.

5.4. CORDOVA PERMIT HOLDERS

In 2016, permit holders registered with addresses in Cordova held 42.6% (229) and 13.8% (4) of PWS drift and set gillnet permits, respectively. Permit holders registered in Cordova earned just over $14.0 million in 2016 —representing 39% of total ex-vessel revenues for that year. Average earnings per permit holder were approximately $61,500 (see Table 10).

Table 10 2016 summary for Cordova permit holders

Permit	Permanent Permits Renewed	Total Fished	Ex-Vessel Revenues (millions $)	Average Gross Earnings
Drift	229	224	$ 13.8	$ 61,600
Set	4	4	$ 0.2	$ 58,800
Total	233	228	$ 14.0	$ 61,500

We also calculated the ex-vessel revenues earned by Cordova residents over the last ten years (2007-2016), which totaled approximately $205 million or approximately 41.8% of total Area E gillnet fishery earnings for that time period.

5.5. SUMMARY

Table 11 summarizes information from the previous sections and shows estimated annual ex-vessel revenues and totals by geographic location.

Table 11 Annual ex-vessel revenues by area (millions 2016$)

Year	All	Alaska Residents	VCCA Residents	Cordova Residents
2007	$ 42.8	$ 33.6	$ 20.3	$ 19.7
2008	$ 39.0	$ 30.8	$ 17.7	$ 17.3
2009	$ 38.5	$ 30.4	$ 16.8	$ 16.4
2010	$ 57.0	$ 45.3	$ 22.7	$ 22.3
2011	$ 57.6	$ 45.6	$ 24.9	$ 24.4
2012	$ 67.0	$ 52.8	$ 28.2	$ 27.6
2013	$ 56.4	$ 45.2	$ 24.1	$ 23.8
2014	$ 56.4	$ 46.0	$ 24.5	$ 24.3
2015	$ 40.7	$ 32.5	$ 15.7	$ 15.5
2016	$ 36.3	$ 28.9	$ 14.2	$ 14.0
Total	$ 491.8	$ 391.1	$ 209.1	$ 205.4
% of Total	—	79.5%	42.5%	41.8%

6. MULTIPLIER EFFECTS

The direct economic contributions of a given fishery are the value, income and employment the fishery creates—alternately, without the fishery, this value, income and employment would not exist. The economic value of the Area E gillnet fishery, like any fishery, extends beyond the direct economic impacts (i.e., ex-vessel revenues received by fishermen) — as they in turn generate additional economic activity and support other industries in the region/state through a) indirect impacts - the purchase of supplies and services to support their fishing activities (e.g., purchase of a new net or payment for boat maintenance); and b) induced impacts - personal spending by these fishermen as well as any employees (e.g., purchase of groceries). The sum of the direct, indirect and induced impacts is the total economic impact.

Input-output (I-O) modeling is a method commonly used to model the interrelationships of economic sectors and describe the multiplier effect of changes in one sector across a broader economy. This method is frequently used to assess the potential economic impact of a new program or investment in a particular industry, but it can also be used to understand how changes within an existing industry (e.g., decreased revenue and/or jobs) might impact the broader economy. Results of I-O analyses are typically expressed as multipliers that represent the additional economic impact above the direct contributions of the industry being considered.

One of the most commonly recognized models used is IMPLAN, however, as summarized in Seung and Waters (2006), there are a variety of reasons why this model may not be ideal for assessing changes in Alaska fisheries.[7] A number of individuals and groups have created modified IMPLAN models more suited to assessing Alaska fisheries—for more details on the fundamentals of input-output modeling, as well as how modified models have been made for the fishery context, please refer to Knapp et al. 2013[8]; Leonard and Watson 2011[9]; TCW Economics 2010[10]; or Seung & Waters 2006[11].

Creating a modified I-O model specific to the Area E gillnet fishery was not feasible for the purposes of this study, so we relied on multipliers derived from existing studies focused on estimating total economic impacts associated with various Alaska fisheries (see Note that the city, region and state estimates of total economic impact do not include ANY benefits associated with permit holders registered outside these areas and as such should be viewed a low-bound estimates. For example, a permit holder from Anchorage who spends the fishing season in Cordova (and makes purchases there) is not accounted for in the calculation of estimated total impact on Cordova. This additional spending (and associated impacts) is discussed further at the end of this section.

Table 12).

Note that the city, region and state estimates of total economic impact do not include ANY benefits associated with permit holders registered outside these areas and as such should be viewed a low-bound estimates. For example, a permit holder from Anchorage who spends the fishing season in Cordova (and

[7] Seung, C., and E. Waters. 2006. "A Review of Regional Economic Models for Fisheries Management in the U.S." Marine Resource Economics 21(1):101–24.
[8] Knapp, G., M. Guettabi, and S. Goldsmith, "The Economic Importance of the Bristol Bay Salmon Industry" (Anchorage, Alaska: Institute of Social and Economic Research, University of Alaska Anchorage, 2013), available at http://www.bbrsda.com/wp-content/uploads/2013/05/ Economic-Importance-of-Bristol-Bay-Full-Report.pdf.
[9] Leonard, J., and P. Watson. 2011. Description of the input-output model for Pacific Coast fisheries. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-111, 64 p.
[10] TCW Economics. 2010. Economic Contributions and Impacts of Salmonid Resources in Southeast Alaska. Prepared for Trout Unlimited Alaska Program.
[11] Seung, C., and E. Waters. 2006.

makes purchases there) is not accounted for in the calculation of estimated total impact on Cordova. This additional spending (and associated impacts) is discussed further at the end of this section.

Table 12 Summary of relevant Alaska fishery I-O multipliers

Study Year	Final Output Multiplier	Region	Fishery	Industry	Source
2013	1.58	Cordova	All	Harvest & Processing	McDowell Group
2017	1.57	Southeast Alaska	All	Harvest & Processing	McDowell Group
2010	2.08	Southeast Alaska	All	Harvest & Processing	TCW Economics
2017	2.34	Alaska	Salmon	Harvest & Processing	McDowell Group
2013	2.27	Alaska	Salmon	Harvest & Processing	ISER
2013	3.05	All US	Salmon	Harvest & Processing	ISER

A few notes on these studies:

- The 2013 McDowell Group study multiplier appears to be the impact of all Southeast Alaska fisheries on Cordova only and includes harvest and processing.[12]
- The 2017 McDowell Group study multiplier for Southeast Alaska represents the impact of all Southeast Alaska fisheries on this region and includes harvesting and processing.[13]
- The TCW Economics multiplier is the estimated impact of Southeast Alaska salmon fisheries for harvesting and processing on the Southeast region.[14]
- The 2017 McDowell Group study multiplier for Alaska represents the impact of commercial salmon fisheries on Alaska and includes harvesting and processing.
- The ISER multiplier for Alaska represents the estimated impact of harvesting and primary processing of Bristol Bay salmon on the State of Alaska.[15]
- The ISER multiplier for the United States represents the estimated impact of fishing and primary processing of Bristol Bay salmon on the United States.

None of these studies perfectly match the focus of this study, however, they do allow us to present a reasonable range of the broader economic impacts (in terms of final output) associated with the Area E gillnet fishery.

Table 13 shows the estimated total economic impact of the Area E gillnet fishery in 2016:

- Area E gillnet fishery ex-vessel revenues from Cordova permit holders contributed an estimated $22.2 million in total economic impact for Cordova.
- Area E gillnet fishery ex-vessel revenues from VCCA permit holders contributed an estimated $22.2–$29.5 million in total economic impact for the Southeast Region of Alaska.

[12] McDowell Group. 2015. The Economic Impact of the Seafood Industry in Southcentral Alaska. Prepared for the Alaska Salmon Alliance.
[13] McDowell Group. 2017. The Economic Value of Alaska's Seafood Industry. Prepared for the Alaska Seafood Marketing Institute.
[14] Accessed May 2017 at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd530437.pdf.
[15] Knapp et al. 2013.

- Area E gillnet fishery ex-vessel revenues from Alaska permit holders contributed an estimated $65.6–$67.7 million in total economic impact for Alaska.
- Total Area E gillnet fishery ex-vessel revenues contributed an estimated $110.8 million to the overall economy of the United States.

Table 13 Estimated total economic impact (2016)[16]

		Millions 2016$			
Region of Impact	Multiplier	Cordova	Valdez-Cordova CA	Alaska	Total
Ex-Vessel Revenues (2016)	—	$14.0	$14.2	$28.9	$36.3
Cordova	1.58	$22.2			
Southeast Alaska	1.57		$22.2		
	2.08		$29.5		
Alaska	2.27			$65.6	
	2.34			$67.7	
United States	3.05				$110.8

Similarly, Table 14 shows the estimated total economic impact of the Area E gillnet fishery over the last ten years:

- Area E gillnet fishery ex-vessel revenues from Cordova permit holders contributed an estimated $324.5 million in total economic impact for Cordova.
- Area E gillnet fishery ex-vessel revenues from VCCA permit holders contributed an estimated $328.3–$434.9 million in total economic impact for the Southeast Region of Alaska.
- Area E gillnet fishery ex-vessel revenues from Alaska permit holders contributed an estimated $887.8–$915.2 million in total economic impact for Alaska.
- Total Area E gillnet fishery revenues contributed an estimated $1.5 billion to the overall economy of the United States.

[16] Source of multipliers listed from top to bottom: 1.58 (McDowell Group 2015); 1.75 (McDowell Group 2017); 2.08 (TCW Economics 2010); 2.27 (ISER 2013); 2.34 (McDowell Group 2017); 3.05 (ISER 2013).

Table 14 Estimated total economic impact (2007-2016)

		Millions 2016$			
Region of Impact	Multiplier	Cordova	Cordova CA	Alaska	Total
Ex-Vessel Revenues (2007-2016)	—	$205.4	$209.1	$391.1	$491.8
Cordova	1.58	$324.5			
Southeast Alaska	1.57		$328.3		
	2.08		$434.9		
Alaska	2.27			$887.8	
	2.34			$915.2	
United States	3.05				$1,500.0

6.1. ADDITIONAL BENEFITS TO CORDOVA

As mentioned previously, CFEC data break out ex-vessel revenue by location based on the registered addresses of permit holders—which does not account for that fact that many permit holders who do not live in Cordova do spend time (and money) there during the fishing season.

We used anecdotal evidence to approximate the additional benefits of the Area E gillnet fishery to Cordova though additional spending by non-Cordova permit holders during the fishing season. In order to do this, two key pieces of information were needed — the average annual spending per permit holder and the average number of non-Cordova residents that homeport in Cordova for the fishing season.

Due to time constraints, we relied on a focus group of individuals working in (or in industries related to) the Area E gillnet fisheries. Furthermore, the focus group was comprised of both Cordova residents and non-residents. Based on the information provided by the focus group, we estimated that the average non-Cordova drift gillnet permit holder who home ports in Cordova spends $31,550 in Cordova annually. This estimate includes: $1,300 – moorage; $500 – storage; $10,000 – fuel; $4,000 – meals; $4,000 – repairs and maintenance (barring major repairs); $7,000 – supplies (assuming one net purchase); $3,750 – housing; and $1,000 – utilities.

In 2016, there were 537 gillnet and 29 set permanent permits issued. Set gillnet permit holders were removed from the analysis as their expenses are quite different, and they typically do not fish in the Copper River District[17]. Of the 537 drift gillnet permits, 229 are held by individuals registered in Cordova—leaving 308 non-residents. Tony Schinella, Harbormaster in Cordova, estimated that a conservative estimate would be that 200 of these would, on average, homeport in Cordova for the season.[18]

Using these estimates, Area E non-resident permit holders would have spent approximately $6.3 million in Cordova during the 2016 fishing season.

Table 15 summarizes the ex-vessel revenues of local residents and estimated spending by non-residents for 2016. This result provides an estimate of total direct spending related to the Area E gillnet fishery, which is

[17] Christa Hoover. Personal communication. 30 October 2017.
[18] Tony Schinella. Personal communication through Christa Hoover. 30 October 2017.

then combined with the multiplier to create an estimate of total overall impact—an estimated $32.1 million in 2016.

Table 15 2016 estimated total economic impact – Cordova only

		Millions 2016$			
Region of Impact	Multiplier	Ex-Vessel Revenues	Non-Resident Spending	Total Direct	Total w/ Multiplier Effect
Cordova	1.58	$14.0	$6.3	$20.3	$32.1

Similarly, additional impacts derived from non-resident spending could (and should) also be estimated for the Valdez-Cordova Census Area and Alaska, but we do not attempt to calculate these here are time constraints prevented the collection of necessary data.

7. CONCLUSIONS

Key findings from this study are as follows:

- In 2016, the estimated value Area E drift and set gillnet permits totals almost $90 million dollars. Alaska residents hold 77.0% of these permits and 41.2% are held by residents of Cordova.
- A recent study by Wood (2017) of Bristol Bay gillnet fishery permit values found that "total earnings have a positive and significant relationship with permit prices, and total costs have a negative and significant relationship in both the short- and long-run"[19] — suggesting that permit holders individual finances and economic behavior may not only be affected by their annual earnings in the fishery, but also by how the fishery does as a whole.
- Over the last ten years, ex-vessel revenues from the Area E gillnet fishery totaled almost half a billion dollars, with average annual revenues of just under $50 million. Alaska and Cordova residents earned 79.5% ($391.1 million) and 41.8% ($205.4 million) of these ex-vessel revenues.
- In 2016, the Area E gillnet fishery accounted for an estimated $20.3 million in direct economic benefits (i.e., ex-vessel revenues of residents and spending by non-residents who season there) and $32.1 million (including harvesting and processing) in total economic impact for Cordova.
- In 2016, the Area E gillnet fishery accounted for an estimated $36.3 million in direct economic benefits (i.e., ex-vessel revenues) and $65.6–$67.7 million (including harvesting and processing) in total economic impact for Alaska.
- From 2007-2016, the Area E gillnet fishery accounted for an estimated $491.8 million in direct economic benefits (i.e., ex-vessel revenues) and $887.8–$915.2 million (harvesting and processing) in total economic impact for Alaska.

[19] Wood, MD. 2017.

7.1. LIMITATIONS

The following limitations of the study should be noted:

- This analysis relies on the best available data from existing, publically available sources and targeted focus groups.
- This analysis does not include economic impacts associated with the Prince William Sound sport, personal use or subsistence salmon fisheries.
- This analysis does not include estimates of multiplier benefits associated with employment or personal income.
- Residency is based on the address a permit holder registers with the CFEC.



The Economic Value of Alaska's Seafood Industry










Prepared for:

Alaska Seafood Marketing Institute

Prepared by:

McDowe
GROU

September 20

The Alaska Seafood Marketing Institute (ASMI) is a public-private partnership between the State of Alaska and the Alaska seafood industry established to foster economic development of Alaska's most valuable renewable natural resource.

Alaska Seafood Marketing Institute

ASMI's mission is to increase the economic value of the Alaska seafood resource, benefitting thousands of Alaskans in communities across the state. ASMI activities include Alaska seafood branding campaigns, collaborative marketing programs, technical support, education, advocacy, and research.

ASMI is funded by an industry-directed 0.5% marketing tax based on the ex-vessel value of Alaska seafood, USDA funding supporting American export industries, and matching funds from the State of Alaska. ASMI employs 19 full-time staff and a number of contractors to fulfill its mission.

Table of Contents

Introduction

This report updates and builds on prior studies published in 2013 and 2015. ASMI contracted with McDowell Group to update the economic impact of Alaska's commercial seafood industry. The analysis quantifies the regional, statewide, and national economic impacts of Alaska's seafood industry. This report summarizes overall industry participation, value, and exports. It also highlights the significant impact the industry has on tax revenues, investment and charitable giving by the industry, and the value of industry assets.

As the brand manager for Alaska seafood, ASMI recognizes the need to inform the general public and consumers about the important economic benefits of the industry. Alaska's seafood industry covers vast areas of the state but is not always well represented in traditional employment data sources.

Due to biological and environmental factors, harvest of wild seafood is inherently volatile. For example, total odd-year harvests of Alaska pink salmon can be double or triple even-years. In order to reduce this volatility, most figures have been averaged or otherwise combined from the two most recent years (2015-2016) where appropriate.

This report considers only the commercial seafood industry and does not address economic impacts stemming from recreational, charter, or subsistence uses of Alaska's seafood resources.

Data Sources & Methods

McDowell Group worked with the Alaska Fisheries Information Network (AKFIN), Alaska Department of Fish & Game, and Alaska Department of Labor & Workforce Development to compile customized data sets for this project. The assistance of these agencies was crucial in providing a wide array of primary data sets which McDowell Group used to model direct and secondary impacts. Customized economic models were developed using IMPLAN, industry interviews, and other public data sources. All photos are courtesy of ASMI, except where noted.

Glossary

Direct Impacts: The impacts occuring in the seafood industry itself, including commercial fishing, seafood processing, and direct support sectors.

Direct Support Sectors: Critical support positions are counted as direct impacts in this analysis, such as fishery managers, hatchery workers, and safety personnel.

Secondary Impacts: Additional economic impacts resulting from business and household spending related to the Alaska seafood industry (i.e. multiplier effects).

FTE (full-time equivalent): Many seafood industry workers are employed in seasonal jobs or earn a year's worth of income in less than a year. FTE employment figures in this report represent an annualized estimate of jobs created in each study area, allowing comparison to other industries.

Labor Income: Wages, salaries, bonuses, and benefit payments to seafood industry participants.

Economic Output: The value added to Alaska's seafood in total, and at various stages of the production and supply chain.

Ex-Vessel (EV) Value: The dollar amount received by fishermen for their catch when delivered to a processor. This includes both initial payments and any bonuses or year-end adjustments paid by processors.

First Wholesale (FW) Value: The value of seafood products when sold to buyers outside a processor's affiliate network. This is the value of the raw fish delivered to the processor (ex-vessel value) plus the value added by the first processor.

Worker Counts: The total number of people directl earning income in the industry. Processing worke counts reflect people who earned the majority of the earnings as processing workers, while commercia fishing worker counts include all adult participants.

Executive Summary

The Seafood Industry: A Cornerstone of Alaska's Economy

Approximately 56,800 workers are directly employed by Alaska's seafood industry, including 26,500 Alaska residents. Seafood directly created an estimated 26,800 full-time equivalent (FTE) jobs in Alaska during 2015/2016, and a total of 36,800 FTE jobs in Alaska including multipliers, or about 8 percent of total statewide employment.

Alaska fisheries employed an average of 29,200 commercial fishermen in 2015/2016, including 16,500 Alaska residents. Alaska's commercial fleet includes approximately 9,400 vessels, which would span just over 70 miles if lined up from bow to stern. Lower resource value has contributed to a downward trend in fishing employment since 2013.

Alaska's 2016 seafood harvest of 5.6 billion pounds had a total ex-vessel value of $1.7 billion. Processors produced 2.7 billion pounds of Alaska seafood products in 2016, worth a first wholesale value of $4.2 billion.

The processing sector employed an average of 24,500 workers in 2015/2016, including an estimated 7,200 Alaska residents. The industry includes 169 shore-based plants, 73 catcher-processors, and more than a dozen floating processors in 2016.

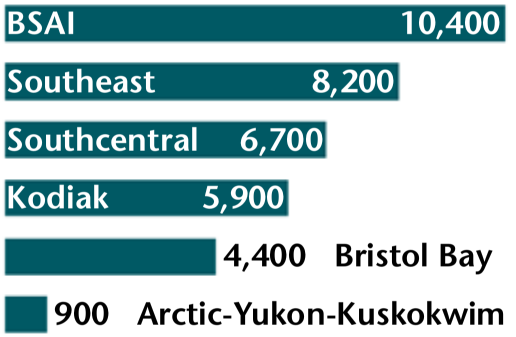
Seafood Industry Impact on Alaska's Economy, 2015/2016 Avg.

Direct Impacts	Number of Workers	Labor Income ($Millions)
Commercial Fishing	29,200	$824
Processing	24,500	$467
Management/ Hatcheries/Others	3,200	$228
Total	**56,800**	**$1,518**

Note: Figures may not sum due to rounding.

Total Impacts	
FTE (Full-Time Equivalent) Jobs	**36,800**
Labor Income	**$2.0 Billion**
Economic Output	**$5.2 Billion**

Total FTE Jobs by Region



The Significant National Economic Impact of Alaska's Seafood Industry

- Nationally, the Alaska seafood industry creates an estimated 99,000 FTE jobs, $5.2 billion in annual labor income, $12.8 billion in economic output.
- The national economic impacts of Alaska's seafood industry includes $5.4 billion in direct output associated with fishing, processing, distribution, and retail. It also includes $7.3 billion in multiplier effects generated as industry income circulates throughout the U.S. economy.
- The Alaska seafood industry employed a total of 29,600 residents from other U.S. states who came north to work in Alaska during 2016.
- Alaska exports more than one million metric tons of seafood each year, bringing over $3 billion of new money into the U.S. economy.

Feeding the World and Alaska's Economy with Sustainable Fisheries

- Alaska's abundant commercial fisheries have produced over 169 billion pounds since statehood in 1959. The largest harvest ever occurred in 2015 (6.1 billion pounds). A commitment to sustainable management has allowed the state's fisheries to produce large, diversified harvests for many decades.
- The scale of Alaska's commercial fisheries are truly extraordinary. The industry catches and processes enough seafood each year to feed everybody in the world at least one serving of Alaska seafood, or one serving for every American for more than a month (12.9 billion servings in 2015).
- Alaska seafood was sold in 105 countries around the world in 2016. Export markets typically account for approximately two-thirds of sales value, while the U.S. market buys the remaining one-third.
- Seafood directly employs more workers than any other industry in Alaska, and is the third-largest overall job creator in the state next to the oil/gas and visitor industries (including multiplier effects).
- Seafood is the economic foundation of many rural communities. Over 21,200 rural Alaska residents were directly employed by the industry in 2015, accounting for 15% of all rural working age adults.

Seafood Industry Overview

Commercial Fishing Sector

Alaska has the most prolific commercial fishing industry in the United States, producing more harvest volume than all other states combined. Commercial fishing in Alaska creates substantial benefits for Alaska's economy and provides consumers around the world with a wild, sustainable product.

Alaska's commercial fishing industry is very diverse. Crews range from one or two fishermen working from skiffs and small boats to large catcher-processors in excess of 300 feet with 100 workers or more.

Fishermen involvement in the industry also spans a wide spectrum. Many skippers and crew participate in multiple fisheries as a full-time career, while others fish to supplement income from other jobs, earn money during a summer school break, or work as crew members for friends and family to be part of a uniquely Alaskan cultural tradition.

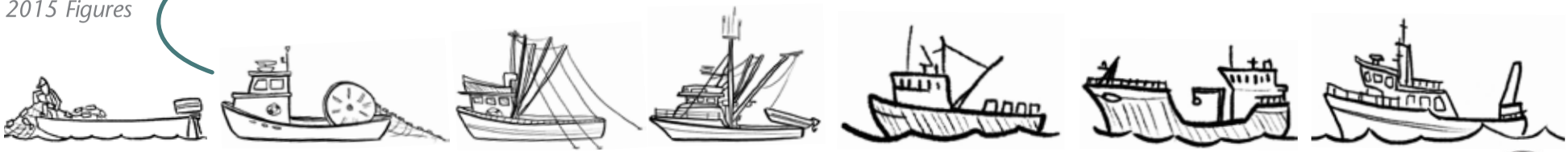
Regardless of vessel size or involvement, each fishing operation represents a business generating new income from a renewable resource. These businesses spend money throughout the economy, and provide the raw materials on which the rest of the seafood economy is based.

Key Figures	2016
Skippers & Crew	27,738
Skippers	9,125
Crew	18,613
Alaska Residents	15,592
Fishing & Related Vessels	9,423
Total Length of All Vessels	70.6 mi.
Ex-Vessel Value ($Millions)*	$1,671
Percent to AK Residents*	38%
Harvest Volume (Millions lbs.)*	5,643

*Figures are preliminary.

If all the vessels used in the Alaska seafood industry were lined up bow to stern they would stretch on for nearly 71 miles!

2015 Figures



	Skiffs & Small Craft	23' - 32'	33'- 49'	50' - 58'	59' - 99'	100' - 199'	+200'
Count	3,049	2,688	1,965	668	142	188	22
Avg. $EV	$18,500	$61,800	$91,850	$407,200	$1,130,000	$3,230,000	$14,620,00
Total $EV	$56 M	$166 M	$180 M	$272 M	$160 M	$607 M	$322 M

Note: Vessel figures by size only include those which made landings in 2015, and therefore do not include other support or processing vessels. Skiffs and small craft may be understated in the data above, as s net boats are not required to be registered with the State and vessel identification numbers are not always recorded on setnet fish tickets.

Seafood Processing Sector

Seafood processing is the largest manufacturing sector in Alaska, accounting for 72% of the state's manufacturing employment. Nearly all of Alaska's seafood products go through the hands of seafood processors, which add value by turning raw fish and shellfish into a myriad of products for markets around the world.

The seasonality of many Alaska fisheries, especially salmon, result in a reliance on nonresident workers to fully staff production jobs at remote sites across the state. Though nonresidents comprise approximately 70% of the workforce, residents earn a higher share of the sector's income as they are more likely to be employed in management and maintenance positions and work in areas with longer operating seasons. Approximately 1-in-10 resident workers earned over $50,000 in 2016.

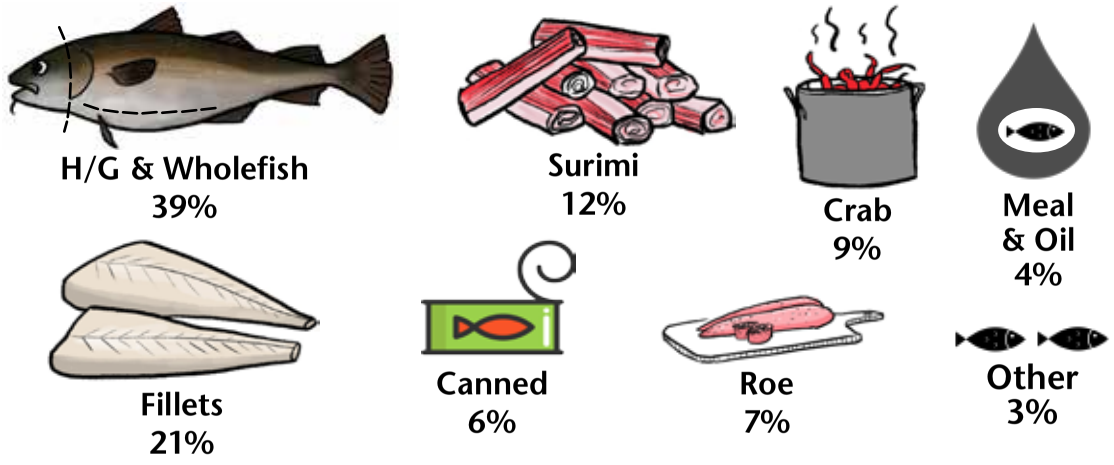
The sector includes 169 shore-based plants, 73 catcher-processors, and more than a dozen floating processors.

Workforce	2016
Peak Monthly Employment	20,224
Avg. Monthly Employment	9,750
Workers in Alaska (2015)	24,863
Alaska Resident Estimate	7,409
Total Workforce Earnings	$438 Million
Alaska Resident Estimate	$154 Million

Value Added	2016
Ex-Vessel Value	$1,671 Million
First Wholesale Value	$4,186 Million
Value Added by Processors	$2,515 Million

FW Value by Type	2016
Shoreside Plants	$2,577 Million
Catcher-Processors	$1,289 Milli
Floating Processors	$323 Milli

First Wholesale Value by Product Type, 2015/2016



First Wholesale Value by Species, 2015/2016

33% *Pollock*

33% *Salmon*

11% *Cod*

5% *Halibut & Black Cod*

9% *Crab*

8% *A80 Species**

1 *Oth*

*Includes flatfish (sole/flounder), rockfish, and Atka Mac

Commercial Fisheries Management

Alaska's fisheries are known worldwide as a model for sustainable management. The efforts of the region's biologists, managers, and policy makers ensure healthy stocks and productive fisheries for Alaska's harvesters and the businesses that rely on their catches. A key aspect of Alaska's successful model is the separation of entities that set policy (**Alaska Board of Fisheries** and **North Pacific Fishery Management Council**) and those that enforce and study allocations and harvest limits.

Alaska's commercial fisheries are managed by the **Alaska Department of Fish and Game** (ADF&G) and the **National Marine Fisheries Service** (NMFS), a division of NOAA. With some exceptions, fisheries managed by ADF&G occur within three miles of Alaska's coast while NMFS manages offshore fisheries. Both agencies work in coordination to conserve and develop Alaska's fishery resources.

Some Alaska fisheries have an international component. Pacific halibut fisheries are jointly managed with Canada via the **International Pacific Halibut Commission**. Transboundary salmon harvests in Southeast Alaska and the Yukon River are subject to the **Pacific Salmon Treaty**.

The State of Alaska has several agencies that further support the seafood industry in Alaska:

- The **Commercial Fisheries Entry Commission** implements Alaska's limited entry law by issuing the fishing permits for state fisheries whereas NMFS issues permits for the federal fisheries.
- The **Department of Environmental Conservation** issues discharge permits for seafood processing facilities.
- The **Department of Commerce, Community, and Economic Development** is charged with promoting economic development in Alaska, including the seafood industry.
- The **Alaska Seafood Marketing Institute** is a public-private partnership between the state and the seafood industry with the mission to increase the economic value of Alaska seafood.
- The State also provides training opportunities and extension services through the **University of Alaska** system, **Alaska Sea Grant**, and **Alaska's Institute of Technology (AVTEC)**.

Economic Impacts of Alaska Seafoo

Photo credits: NMFS (top-left), Vigor Alaska (bottom-left), & Alaska Airlines (bottom-right).

Economic Impacts By Species

Estimated Contributions to the National Economy (2015-2016 Averages)

Salmon	
Direct Total	
FTE Jobs	16,400
Labor Income $M	$735
Value Added $M	$1,803
Secondary Total	
FTE Jobs	16,600
Labor Income $M	$977
Value Added $M	$2,422
Total Contribution	
FTE Jobs	32,900
Labor Income $M	$1,712
Value Added $M	$4,225

Halibut & Black Cod	
Direct Total	
FTE Jobs	3,800
Labor Income $M	$157
Value Added $M	$381
Secondary Total	
FTE Jobs	3,500
Labor Income $M	$206
Value Added $M	$512
Total Contribution	
FTE Jobs	7,300
Labor Income $M	$363
Value Added $M	$893

Crab	
Direct Total	
FTE Jobs	5,900
Labor Income $M	$244
Value Added $M	$591
Secondary Total	
FTE Jobs	5,400
Labor Income $M	$320
Value Added $M	$795
Total Contribution	
FTE Jobs	11,300
Labor Income $M	$564
Value Added $M	$1,386

Alaska Pollock	
Direct Total	
FTE Jobs	13,800
Labor Income $M	$655
Value Added $M	$1,616
Secondary Total	
FTE Jobs	14,900
Labor Income $M	$875
Value Added $M	$2,171
Total Contribution	
FTE Jobs	28,700
Labor Income $M	$1,530
Value Added $M	$3,787

Pacific Cod	
Direct Total	
FTE Jobs	5,700
Labor Income $M	$256
Value Added $M	$627
Secondary Total	
FTE Jobs	5,800
Labor Income $M	$340
Value Added $M	$843
Total Contribution	
FTE Jobs	10,900
Labor Income $M	$580
Value Added $M	$1,470

Other Groundfish	
Direct Total	
FTE Jobs	2,700
Labor Income $M	$136
Value Added $M	$339
Secondary Total	
FTE Jobs	3,100
Labor Income $M	$184
Value Added $M	$456
Total Contribution	
FTE Jobs	5,800
Labor Income $M	$320
Value Added $M	$796

- Salmon is still king in Alaska. By all measures, salmon are responsible for the greatest economic impact (jobs, income, and total value) among all species in the Alaska seafood industry. Salmon's total contribution to the national economy included approximately 32,900 FTE jobs and $1.7 billion in annual labor income in 2015/2016.
- As the largest single species U.S. fishery, by volume, Alaska pollock is a close second. Much of pollock's value is added through processing, which occurs both shoreside and at-sea. Pollock's national economic impact includes an estimated 28,700 FTE jobs and $1.5 billion in labor income.
- Halibut, black cod, and crab are high-value species. Despite only account for 2 percent of harvest volume, th three species account for 19 percent the labor income and economic out (including multiplier effects) produc by the Alaska seafood industry.

Alaska Statewide Impacts

Seafood Industry Impact on Alaska's Economy, 2015/2016 Avg.

	Number of Workers	FTE Jobs	Labor Income ($Millions)	Output ($Millions)
Commercial Fishing	29,200	13,700	$824	$1,738
Processing	24,500	10,800	$467	$2,446
Mgmt./Other	3,200	2,300	$228	-
Direct Total	**56,900**	**26,800**	**$1,518**	**$4,184**
Secondary Total	-	**10,000**	**$441**	**$979**
Total Impacts	-	**36,800**	**$1,959**	**$5,163**

- In total, seafood contributed 31,900 FTE jobs and $1.8 billion of labor income annually to the state's economy during 2015 and 2016. It is estimated that the commercial seafood industry accounted for 7.2 percent of statewide employment during this period.
- The seafood industry directly employs nearly 60,000 workers in Alaska each year. Through business and household spending, it is estimated the industry created an additional 8,800 jobs and $385 million of secondary labor income, on average, in 2015 and 2016.
- Seafood contributed an annual average of $5.0 billion in economic output to the Alaska economy in 2015 and 2016.
- The seafood industry directly employs more workers than any other private sector industry. Including multiplier effects, it is the third-largest basic sector job creator in Alaska after the oil-and-gas and visitor industries.
- The seafood industry directly employed an estimated 26,000 Alaska residents per year in 2015/2016.
- The economic benefits of the seafood industry are broadly distributed across Alaska, from Kotzebue to Ketchikan.

Top Ports: by First Wholesale Value*

1) Dutch Harbor	$474 Million
2) Naknek	$292 Million
3) Kodiak	$262 Million
4) Cordova	$134 Million
5) Sitka	$121 Million

*2015/2016 Avg.

Total Jobs & Income Created by Basic Sector Industries in Alaska

Oil & Gas

103,900 jobs
$6.0 Billion

Seafood

36,800 jobs
$2.0 Billion

Visitor

39,700 jobs
$1.4 Billion

Mining

8,600 jobs
$675 Million

Basic sectors bring new income into the economy. T
industries above drive Alaska's economy, collectiv
accounting for approximately 40% of total employme
in Alaska.

Note: Figures shown above include multiplier ef
Source: McDowell Group economic impact studies (2016-2017).

Bristol Bay setnetters Ryan Hanley, Neil Gotschall, and Lauren Stanford. Photo credit: Neil Gotschall.

2016 Figures

Harvesting

6,548 *Resident Owned Fishing Vessels*

15,592 *Resident Fishermen*

$1,671 *Million Harvest Value*

5,643 *Million Pounds of Seafood Harvested*

Processing

169 *Shore-based Processing Facilities*

24,863 *Processing Workers (2015)*

$4,186 *Million Wholesale Value*

2,667 *Million Pounds of Seafood Produced*

Economic Trends in Seafood Industry

	2010	2011	2012	2013	2014	2015	2016
Resident Commercial Fishermen	17,147	17,682	17,817	17,809	17,701	17,339	15,486
Gross Earnings ($Millions)**	$721	$876	$806	$834	$741	$677	$63
Average Processing Employment*	9,162	10,130	10,198	10,477	10,596	10,147	9,7
Peak Processing Employment*	18,871	20,328	19,472	20,367	20,788	20,534	20,2
Wages/Salaries ($Millions)*	$316	$349	$364	$392	$399	$439	$4
Harvest Value ($Millions)**	$1,713	$2,186	$2,147	$2,050	$1,957	$1,805	$1,6
First Wholesale Value ($Millions)**	$3,856	$4,609	$4,508	$4,559	$4,304	$4,277	$4,1

*Figures may not include processing activity from catcher/processor vessels. **2016 is preliminary.

Value & Volume of Key Species, 2015/2016 Avg.

Pollock

$448 EV Value $Millions

$1.41 FW Value $Billions

3.31 Harvest #Billions

$0.43 FW Value per Round lb.

Salmon

$418 EV Value $Millions

$1.36 FW Value $Billions

792 Harvest #Millions

$1.72 FW Value per Round lb.

Crab

$249 EV Value $Millions

$370 FW Value $Millions

83 Harvest #Millions

$4.46 FW Value per Round lb.

Cod

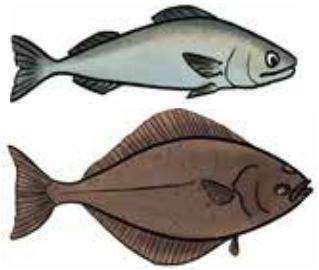
$178 EV Value $Millions

$473 FW Value $Millions

702 Harvest #Millions

$0.67 FW Value per Round lb.

Halibut & Black Cod



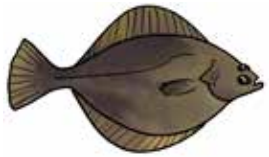
$204 EV Value $Millions

$231 FW Value $Millions

46 Harvest #Millions

$5.02 FW Value per Round lb.

A80 Species (Flatfish, Rockfish, & Atka Mackerel)



$131 EV Value $Millions

$328 FW Value $Millions

780 Harvest #Millions

$0.42 FW Value per Round lb.

Percent of Ex-Vessel Value & Volume, 2015/2016

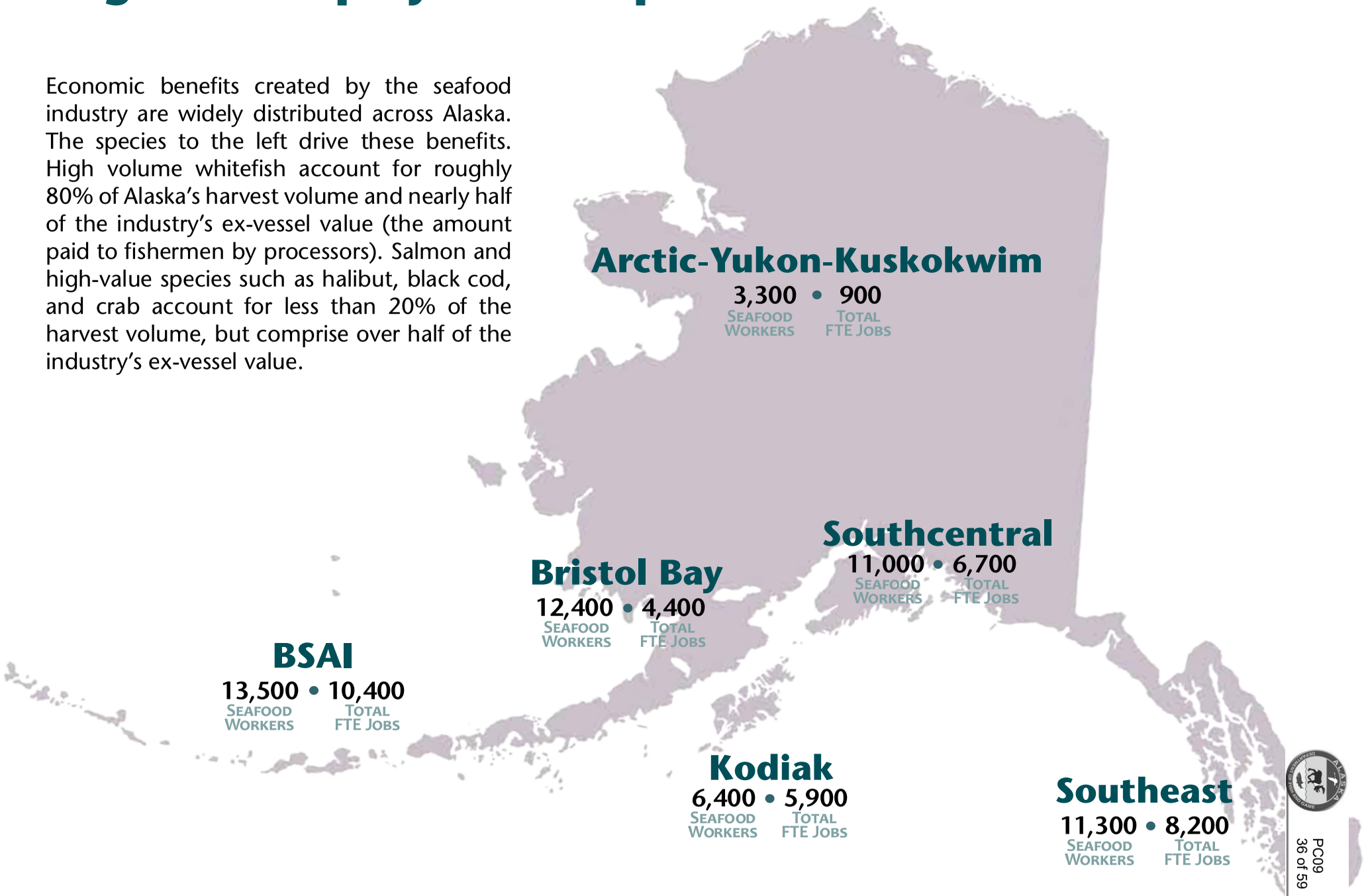
Species	Value	Volume
Pollock	27%	57%
Salmon	25%	14%
Crab	15%	1%
Cod	11%	12%
Halibut & Black Cod	12%	1%
A80 Species	8%	13%
Other Species	2%	2%

Ex-Vessel Value & Volume by Fishery Region, 2015/2016

Southeast	Southcentral	Kodiak	BSAI	Bristol Bay	AYK
20% Value	17% Value	6% Value	35% Value	17% Value	1% Value
4% Volume	4% Volume	9% Volume	77% Volume	4% Volume	<1% Volume

Regional Employment Impacts

Economic benefits created by the seafood industry are widely distributed across Alaska. The species to the left drive these benefits. High volume whitefish account for roughly 80% of Alaska's harvest volume and nearly half of the industry's ex-vessel value (the amount paid to fishermen by processors). Salmon and high-value species such as halibut, black cod, and crab account for less than 20% of the harvest volume, but comprise over half of the industry's ex-vessel value.



Note: The number of seafood workers shown above represents the estimated number of direct seafood workers employed in each region on average during 2015/2016, while the total FTE jobs represents the number of full-time equivalent jobs supported by seafood in each region including multiplier effects.