

RC 027

**Analysis of Data From Boatright et al.
(2016) as it Pertains to the Stock
Composition of Salmon Present in the
Open Area of the Outer Port Heiden
Section, 2014-2015**

By
Bristol Bay Economic Development Corporation
February, 2016

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**Estimating the Stock Composition of
Sockeye Salmon in the
Outer Port Heiden and Ilnik Sections of
Alaska's
North Peninsula Fishery, 2014-15**

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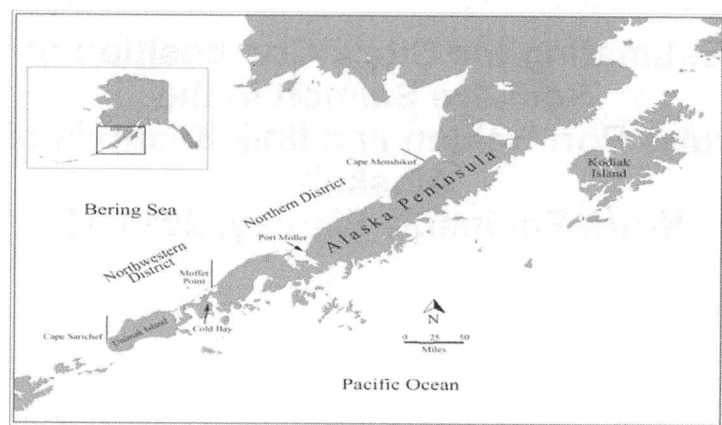
Prepared for Bristol Bay Science and Research Institute
January 2016

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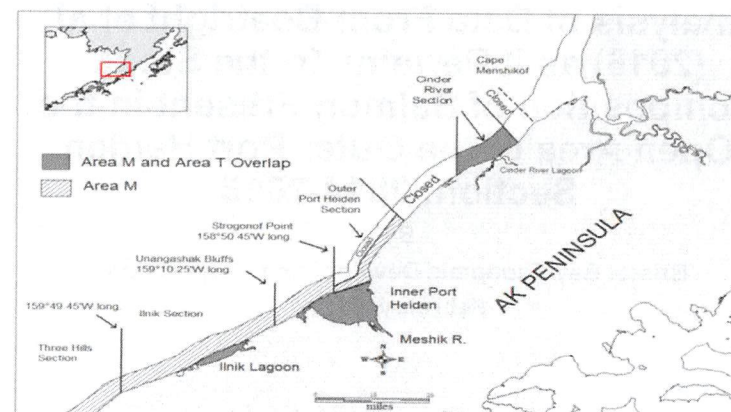
PRIMARY GOAL

- to determine if there are differences in stock composition between sockeye salmon captured in the open and closed sections of the Outer Port Heiden and Ilnik management sections.
- Fishing vessel mechanical problems, and closures resulted in inadequate number of samples across the season for both 2014 and 2015 in the Ilnik Section
- Only the Outer Port Heiden Section differences will be discussed.

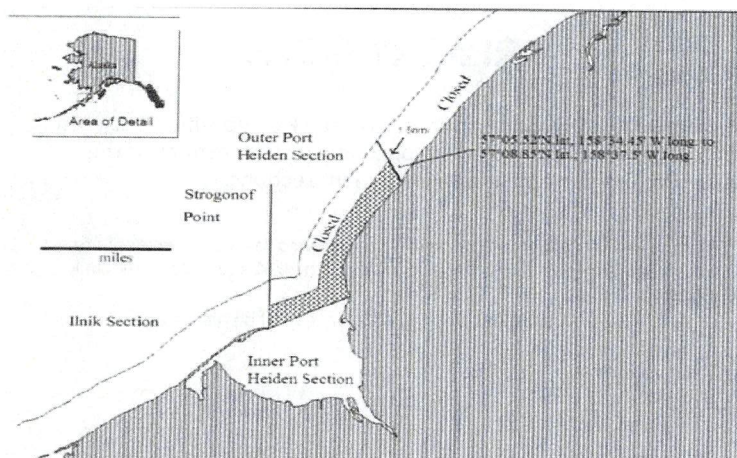
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WASSIP Reporting Groups

- Norton Sound
- Kuskokwim (3)
- Togiak
- Igushik
- Wood
- Nushagak
- Kvichak
- Alagnak
- Naknek
- Egegik
- Ugashik
- Cinder
- Meshik
- Ilnik
- Sandy
- Bear
- Nelson
- NW District
- South Peninsula
- Black Lake
- Chignik Lake
- East of WASSIP

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REPORTING GROUPS

- **North Peninsula Grouping**
- **Bristol Bay Reporting Grouping**
- **WASSIP Reporting Groups**

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North Peninsula Reporting Groupings

- **North of Bristol Bay:**
Norton Sound, Kuskokwim River, Kanektok, Goodnews
- **Bristol Bay:**
Togiak, Igushik-Snake, Wood, Nushagak, Kvichak, Alagnak, Naknek, Egegik, Ugashik
- **North Peninsula - Northern District:**
Cinder, Meshik, Ilnik, Sandy, Bear, Nelson
- **North Peninsula - Northwestern District:**
NW District - Black Hills
- **South Peninsula:**
South Peninsula, Black Lake, Chignik Lake
- **East of WASSIP:**
East of WASSIP

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Bristol Bay Reporting Groupings

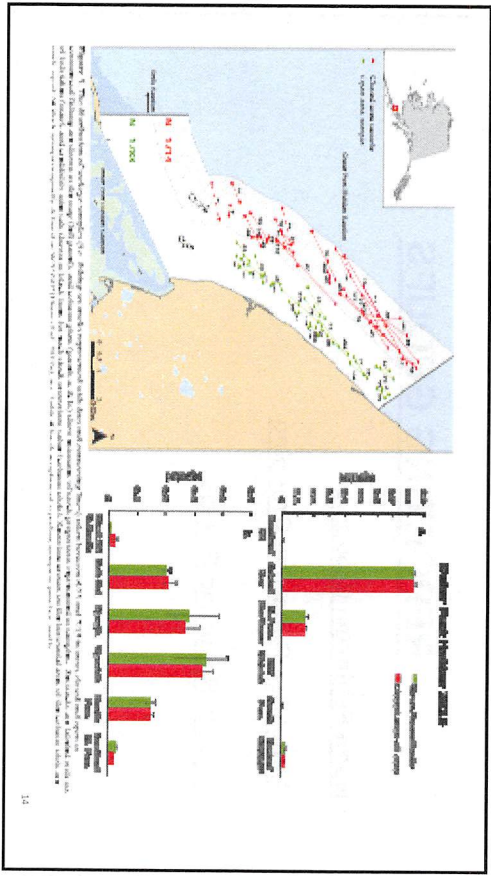
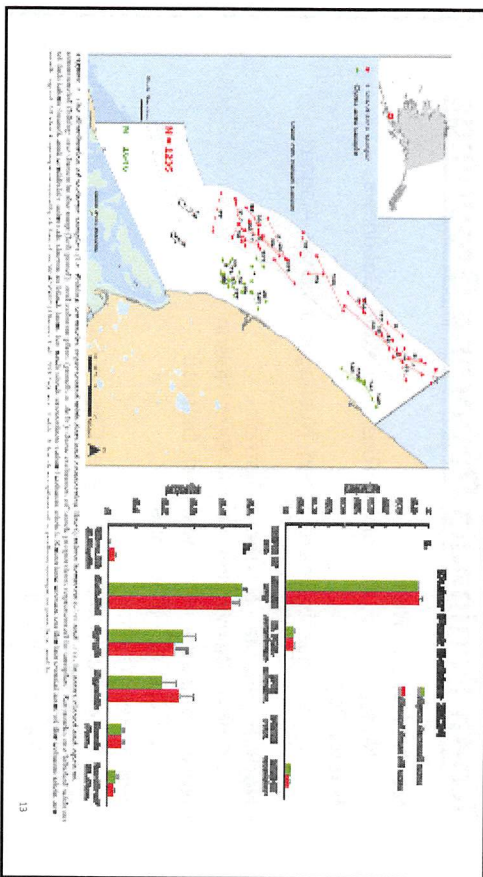
- **West BB and North:**
Norton Sound, Kuskokwim River, Kanektok, Goodnews, Togiak, Igushik-Snake, Wood, Nushagak
- **Naknek-Kvichak:**
Kvichak, Alagnak, Naknek
- **Egegik:**
Egegik
- **Ugashik:**
Ugashik
- **North Peninsula:**
Cinder, Meshik, Ilnik, Sandy, Bear, Nelson, NW District - Black Hills
- **South of N. Penn:**
South Peninsula, Black Lake, Chignik Lake, East of WASSIP

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WASSIP Reporting Groups

- | | |
|----------------|-------------------|
| • Norton Sound | • Cinder |
| • Kuskokwim | • Meshik |
| • Togiak | • Ilnik |
| • Igushik | • Sandy |
| • Wood | • Bear |
| • Nushagak | • Nelson |
| • Kvichak | • NW District |
| • Alagnak | • South Peninsula |
| • Naknek | • Black Lake |
| • Egegik | • Chignik Lake |
| • Ugashik | • East of WASSIP |

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CONCLUSION

- NO SIGNIFICANT DIFFERENCES BETWEEN THE STOCK COMPOSITION OF THE OPEN AND CLOSED AREAS OF THE OUTER PORT HEIDEN SECTION FOR 2014 AND 2015.

Other Conclusions

- In general, stock proportions varied by date of sampling, and year.
- North Peninsula Northern District stocks were observed in higher proportions in early strata sampled in the Outer Port Heiden management section (23% vs 7%),
- Higher contributions of North Peninsula Northern District stocks were observed in 2015 compared to 2014 in the Outer Port Heiden management section (15% vs 5%).

Other Conclusions

- On average, Bristol Bay stocks contributed 93% to estimates from the Outer Port Heiden management section in 2014; 83% to estimates from the Outer Port Heiden management section in 2015.
- No consistent differences in stock composition were observed by tidal cycle or by fine-scale sampling area (north vs south).

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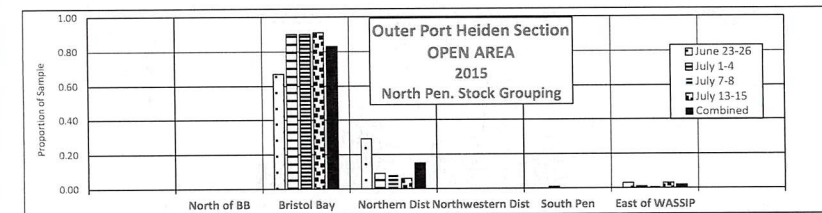
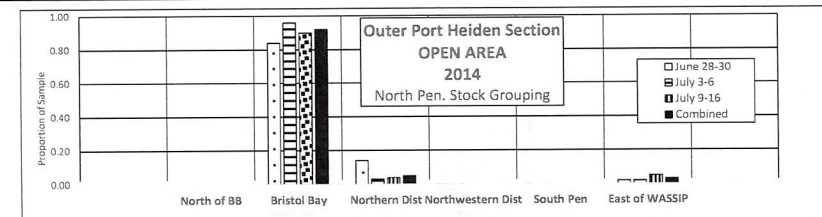
What is the stock composition of the salmon present in the OPEN AREA of the Outer Port Heiden Section in 2014 and 2015?

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North Peninsula Stock Grouping

- **North of Bristol Bay:**
Norton Sound, Kuskokwim River, Kanektok, Goodnews
- **Bristol Bay:**
Togiak, Igushik-Snake, Wood, Nushagak, Kvichak, Alagnak, Naknek, Egegik, Ugashik
- **North Peninsula - Northern District:**
Cinder, Meshik, Ilnik, Sandy, Bear, Nelson
- **North Peninsula - Northwestern District:**
NW District - Black Hills
- **South Peninsula:**
South Peninsula, Black Lake, Chignik Lake
- **East of WASSIP:**
East of WASSIP

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OUTER PORT HEIDEN SECTION OPEN AREA NORTH PENINSULA STOCK GROUPINGS

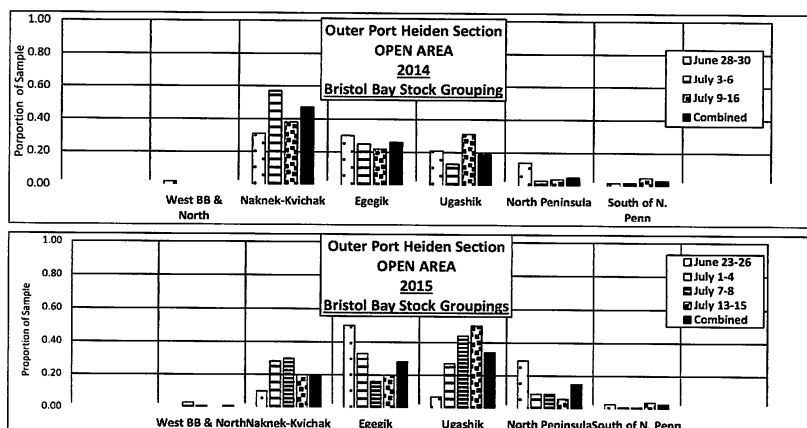
Stock Groupings	2014				2015				
	June 28-30	July 3-6	July 9-16	Combined	June 23-26	July 1-4	July 7-8	July 13-15	Combined
North of BB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bristol Bay	0.84	0.96	0.90	0.92	0.67	0.90	0.90	0.91	0.83
Northern Dist	0.14	0.03	0.04	0.05	0.29	0.09	0.09	0.06	0.15
Northwestern Dist	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South Pen	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
East of WASSIP	0.02	0.02	0.05	0.03	0.03	0.01	0.01	0.03	0.02
n	216	832	598	1,646	616	419	266	482	1,783
OPH Harvest	137,431	44,194	153,826	335,451	52,409	247,460	371,635	94,838	766,342

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Bristol Bay Reporting Grouping

- **West BB and North:**
Norton Sound, Kuskokwim River, Kanektok, Goodnews, Togiak, Igushik-Snake, Wood, Nushagak
- **Naknek-Kvichak:**
Kvichak, Alagnak, Naknek
- **Egegik:**
Egegik
- **Ugashik:**
Ugashik
- **North Peninsula:**
Cinder, Meshik, Ilnik, Sandy, Bear, Nelson, NW District - Black Hills
- **South of N. Penn:**
South Peninsula, Black Lake, Chignik Lake, East of WASSIP

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OUTER PORT HEIDEN SECTION OPEN AREA BRISTOL BAY STOCK GROUPINGS

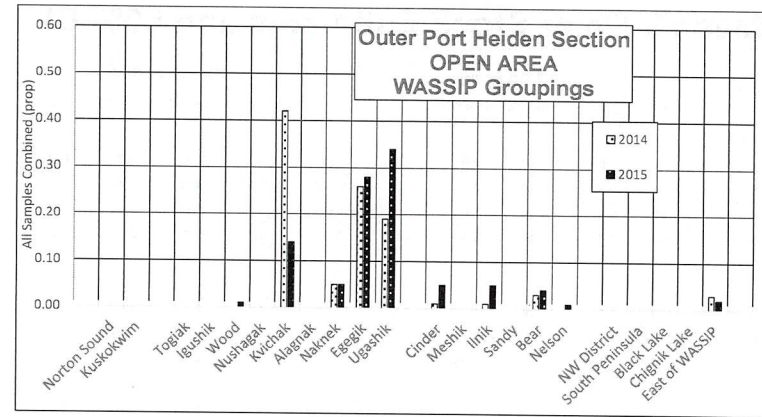
Stock Groupings	2014				2015				
	June 28-30	July 3-6	July 9-16	Combined	June 23-26	July 1-4	July 7-8	July 13-15	Combined
West BB & North	0.02	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.01
Naknek-Kvichak	0.31	0.57	0.38	0.47	0.10	0.28	0.30	0.20	0.20
Egegik	0.30	0.25	0.22	0.26	0.50	0.33	0.16	0.20	0.28
Ugashik	0.21	0.13	0.31	0.19	0.07	0.27	0.44	0.50	0.34
North Peninsula	0.14	0.03	0.04	0.05	0.29	0.09	0.09	0.06	0.15
South of N. Penn	0.02	0.02	0.05	0.03	0.03	0.01	0.01	0.04	0.03
n	216	832	598	1,646	616	419	266	482	1,783
OPH Harvest	137,431	44,194	153,826	335,451	52,409	247,460	371,635	94,838	766,342

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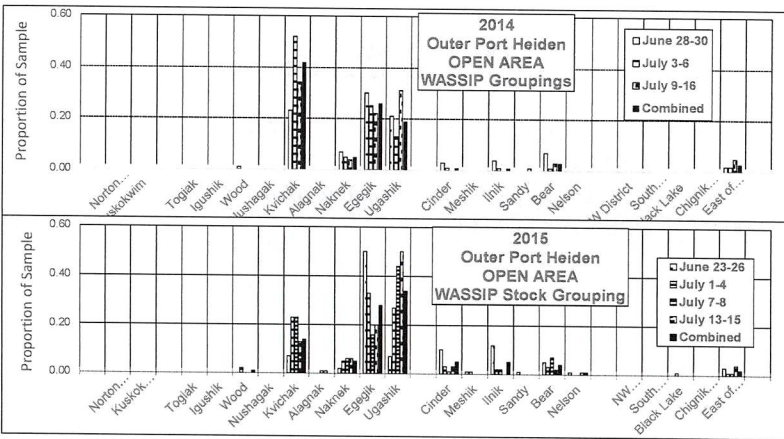
WASSIP Reporting Grouping

- Norton Sound
- Kuskokwim
- Togiak
- Igushik
- Wood
- Nushagak
- Kvichak
- Alagnak
- Naknek
- Egegik
- Ugashik
- Cinder
- Meshik
- Ilnik
- Sandy
- Bear
- Nelson
- NW District
- South Peninsula
- Black Lake
- Chignik Lake
- East of WASSIP

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WASSIP Reporting Groups

Stock Groupings	2014				2015			
	June 28-30	July 3-6	July 9-16	Combined	June 23-26	July 1-4	July 7-8	July 13-15
Norton Sound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kuskokwim	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Togiak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Igushik	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Nushagak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kvichak	0.23	0.52	0.34	0.42	0.07	0.23	0.23	0.13
Alagnak	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Naknek	0.07	0.05	0.04	0.05	0.02	0.05	0.06	0.06
Egegik	0.30	0.25	0.22	0.26	0.50	0.33	0.16	0.20
Ugashik	0.21	0.13	0.31	0.19	0.07	0.27	0.44	0.50
Cinder	0.03	0.01	0.00	0.01	0.10	0.03	0.01	0.03
Meshik	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Ilnik	0.04	0.01	0.00	0.01	0.12	0.02	0.02	0.00
Sandy	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Bear	0.07	0.01	0.03	0.03	0.05	0.03	0.07	0.02
Nelson	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
NW District	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South Peninsula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Black Lake	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Chignik Lake	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
East of WASSIP	0.02	0.02	0.05	0.03	0.03	0.01	0.01	0.04
n	216	832	598	1,646	616	419	266	482
OPH Harvest	137,431	44,194	153,826	335,451	52,409	247,460	371,635	94,838

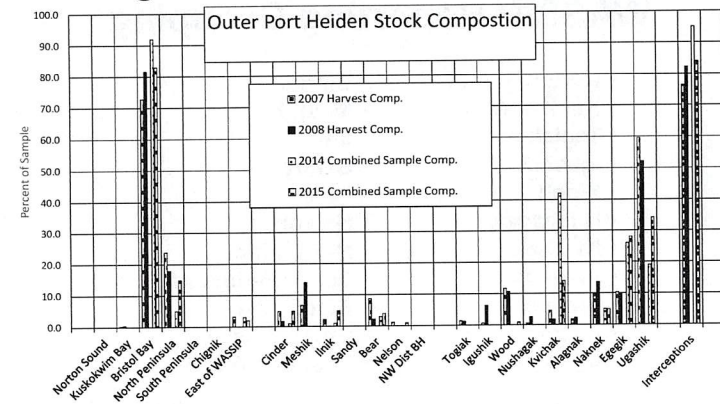
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Meshik River Stock Estimates and 90% CI

		OPEN AREA					CLOSED AREA			
	n	Mean	Lower CI	Upper CI	SD	n	Mean	Lower CI	Upper CI	SD
2014		-					-			
June 28-30	216	0.00	0.00	0.01	0.00	257	0.00	0.00	0.02	0.01
July 3-6	832	0.00	0.00	0.01	0.00	397	0.00	0.00	0.02	0.01
July 9-16	598	0.00	0.00	0.01	0.00	581	0.01	0.00	0.03	0.01
Combined	1,646	0.00	0.00	0.00	0.00	1,235	0.00	0.00	0.01	0.00
		-					-			
2015		-					-			
June 23-26	616	0.01	0.00	0.02	0.01	328	0.02	0.00	0.06	0.02
July 1-4	419	0.01	0.00	0.02	0.01	424	0.00	0.00	0.01	0.00
July 7-8	266	0.00	0.00	0.02	0.01	446	0.00	0.00	0.02	0.01
July 13-15	482	0.00	0.00	0.02	0.01	516	0.02	0.01	0.04	0.01
Combined	1,783	0.00	0.00	0.01	0.00	1,714	0.01	0.00	0.02	0.01

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Boatright et al. 2016 compared to WASSIP



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CONCLUSIONS

- Bristol Bay stocks accounted for 92%, in 2014, and 83%, in 2015, of the Combined Samples in the **OPEN AREA** of the Outer Port Heiden Section.
- Naknek-Kvichak, Egegik, and Ugashik stocks accounted for 100% of the Bristol Bay **OPEN AREA** samples in 2014 and 99% in 2015.
- Kvichak River stock dominated the in 2014 Combined **OPEN AREA** Sample, at 42%.
- Ugashik River stock dominated the 2015 Combined **OPEN AREA** Sample, at 34%.

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CONCLUSIONS

- Meshik River Stock accounted for 0% in the 2014 and the 2015 Combined **Open Area** Samples.
- Meshik River Stock accounted for 0% in the 2014 and 1% in the 2015 Combined **Closed Area** Samples.

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Background Information

- The Outer Port Heiden Section was open to commercial fishing in 2007 by the Alaska BOF.
- The 2007 Proposal 210 was altered by the BOF to open the Outer Port Heiden to commercial fishing.
- The original 2007 Proposal 210, by Roland Briggs, did not seek to open the Outer Port Heiden Section to commercial fishing but wanted to restrict all commercial fishing in the Northern District of the Alaska Peninsula Area to within 1 mile of shore.

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Background Information

- We believe at that time, sufficient notice was not given to the public for the BOF to consider opening the Outer Port Heiden Section to commercial fishing in 2007.
- At that time, ADF&G staff led the BOF to believe that Bristol Bay stocks were at least 3 miles offshore and that the harvest from the Outer Port Heiden Section would be primarily local stocks, particularly originating from the Meshik River.
- We now know that ADF&G was wrong in their assessment based on both WASSIP and Boatright et al. 2016.

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Background Information

- BBEDC is puzzled as to why ADF&G did not cite the Swanton and Murphy (1992) report, at the 2007 BOF meeting, which states,
 - *Estimated 1990 stock composition of the Harbor Point to Cape Seniavin area catch, inclusive of all age classes, was 48% Nelson River, 42% Bristol Bay, and 10% Bear River. Estimated stock composition of the Cape Seniavin to Strogonof Point area catch was 78% Bristol Bay, 11% Bear River, and 11% Nelson River.*
- WASSIP estimated that the vast majority of the salmon harvested from the Outer Port Heiden Section originated in Bristol Bay, particularly from the Ugashik River.
- Bristol Bay stocks accounted for an estimated 73% of the 2007 harvest and 82% of the 2008 Outer Port Heiden harvest.

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Background Information

- Northern District stocks contributed 24% in 2007 and 16% in 2008 to the Outer Port Heiden harvest.
- Meshik River-origin salmon contributed 7% in 2007 and 14% in 2008 to the Outer Port Heiden harvest.
- Boatright et al. (2016), estimated that 92% in 2014 and 83% of the fish available for harvest in the OPEN AREA of the Outer Port Heiden Section originated from Bristol Bay.
- Contribution estimates of Northern District stocks were 5% and 15% for 2014 and 2015, respectively.
- Estimated contribution of Meshik River-origin salmon was 0% for both years.

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Northern District Salmon Management Plan 5 AAC 09.369

- (b) The department shall manage the Northern District salmon fisheries on the basis of salmon abundance as determined by escapement information and catch-per-unit-effort information. The department shall manage each section of the Northern District as specified in this management plan and [5 AAC 09.320](#).
- (l) The Outer Port Heiden Section is open from June 20 through July 31 to commercial salmon fishing in those waters west of a line from 57_05.52' N. lat., 158_34.45' W. long. to 57_08.85' N. lat., 158_37.50' W. long. based on the abundance of Meshik River sockeye salmon.

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Something to Consider

- Does the stock composition of the Outer Port Heiden sockeye salmon harvest (WASSIP) and the Boatright et al. (2016) study warrant a fishery in the Outer Port Heiden Section to control Meshik River escapement? **NO.**
- In our opinion the Northern District Management Plan for the Outer Port Heiden Section is fatally flawed because it is supposedly managed on a stock (Meshik River-origin salmon) that was a minor contributor to the OPH harvest in 2007 and 2008 and was not present in the 2014 and 2015 assessment of stocks available for harvest in the Open and Closed Areas of the Outer Port Heiden Section.

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Therefore, we respectfully request that the Alaska Board of Fisheries adopt Proposal 155, without amendment, to close the Outer Port Heiden Section to commercial fishing.

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