

Bristol Bay Fisheries Collaborative Annual Report, 2017

Final Report

Prepared by:



Bristol Bay Science and Research Institute
Box 1464
Dillingham, Alaska 99576

and



Alaska Department of Fish and Game
333 Raspberry Road, Anchorage, AK 99518

December 10, 2017

Bristol Bay Fisheries Collaborative Annual Report, 2017

Final Report

Prepared for:

Board of Directors, Bristol Bay Science and Research Institute,
Sam Cotten, Commissioner of Alaska Department of Fish and Game,

and

Bristol Bay Regional Seafood Development Association,

Twelve Bristol Bay Salmon Processors,

Bristol Bay Native Corporation,

Alaska Marine Lines and Alaska President Lines,

Bristol Bay and Lake and Peninsula Boroughs,

City of Egegik

Native Villages of Ugashik, Levelock, Curyung,

Delta Western Petroleum, Norther Air Cargo, Penair, and

Kvichak Setnetters Association.

Prepared by:

Michael R. Link¹, Jack Erickson², Jeff R. Regnart¹, and Scott Kelley²

December 10, 2017

¹ Bristol Bay Science and Research Institute, Dillingham, AK

² Alaska Department of Fish and Game, Anchorage, AK

TABLE OF CONTENTS

Executive Summary	ii
Introduction	3
Working Group Meetings	3
Overview, Goals, and Scope of the Core Program.....	4
Keeping Overhead to a Minimum.....	5
Is this permanent?	5
Goals of Core Program	5
BBFC-Supported Components of the Core Program	7
BBFC-Supported Projects done in 2017	9
Approach to Fund Raising, 2017	9
Fund-raising Results, 2017.....	10
BBFC Project Results in 2017	12
Port Moller Test Fishery	12
In-river Test Fisheries on the Egegik, Kvichak, and Ugashik rivers	13
District Catch Sampling	17
Alagnak River Counting Tower.....	17
Nushagak Sonar	18
Aerial Surveys of the Naknek, Kvichak, and Alagnak watersheds	19
Summary of Expenditures in 2017	20
Dealing with the Overage of Funds Raised in 2017	20
Scope and Cost of the Core Program, 2018	22
Funding Needs, 2018.....	22
Required Timing of Commitments, 2018	24
Conclusions	24
Literature Cited	25
APPENDIX A. Memorandum of Agreement between ADF&G and BBSRI to form the Bristol Bay Fisheries Collaborative, 2016, including the terms of reference for the Working Group.....	26

Executive Summary

In recent years, the State of Alaska's fiscal challenges have eroded its ability to maintain its fishery management systems. The Bristol Bay Fisheries Collaborative (BBFC) is a grass-roots initiative developed in 2016 by stakeholders to help stem the erosion of financial support for the Bay's fishery management. In October 2016, the Bristol Bay Science and Research Institute (BBSRI) and the Alaska Department of Fish and Game (ADF&G) entered into a Memorandum of Agreement (MOA) that established a formal structure for collaborative working relationship between the two organizations. The BBFC MOA requires the formation of a working group (WG) that is charged with providing an annual report each year. This is the first such report since the MOA was signed. The annual report summarizes WG activities, BBFC project results, and an accounting of funds raised.

Within eight months of signing the MOA, \$687,539 was pledged to fund salmon monitoring projects in whole or in part for the 2017 season. Expenditures on BBFC-supported projects in 2017 were less than forecast (\$481,824) largely because other sources of funding were used to offset those needed by BBFC. Lower-than-forecast expenditures resulted in more funds pledged than were needed (\$205,715). Those funds raised that were above project expenditures will likely be applied against the 2018 fund raising goal for BBFC.

The inaugural year of BBFC was a success. The goal of BBFC to resurrect management capacity lost due to budget cuts in recent years was met. Fish stocks were better utilized, important long-term datasets were maintained, all in a more coordinated manner than would have occurred without BBFC. ADF&G's Bristol Bay budget was not cut for its fiscal year starting on July 1, 2017. Cost recovery test fishing was not implemented in 2017. None of the funds raised were spent to administer BBFC. The size and impacts of budget cuts on ADF&G's ability to manage the fishery are better understood among many stakeholders.

A draft of this report was released on November 6, 2017. The BBFC Working Group met on December 7, 2017 in Anchorage to review and finalize the scope of the 2018 program and incorporate the results from the meeting into the final report. The entire Core Program for Bristol Bay, as defined by the WG, requires approximately \$2,775,000 annually (not including the regional personnel who spend part of their work year on Bay matters). Of this total, BBFC would seek to raise \$815,000 (29%) for salmon-related components, with the remainder, \$1,912,000 coming from the current State budget (if it is not changed during the legislative session early in 2018). The Togiak herring assessment project is kept separate from those for salmon, and it would require an additional \$61,000.

The 2018 fund-raising goal of \$815,000 for salmon will be reduced by \$128,000 if funds raised in 2017 that were more than actual expenditures are applied to the 2018 program cost. It appears that this will be the case and therefore, the fund-raising goal for salmon in 2018 is likely \$687,000 (\$815,000 minus \$128,000).

Introduction

Fishery management in Bristol Bay exemplifies the world-class approaches the State of Alaska has developed over the five decades since it took control of managing its fisheries. In recent years, the State of Alaska's fiscal challenges have eroded its ability to maintain its management systems. The Bristol Bay Fisheries Collaborative (BBFC) is a grass-roots initiative developed in 2016 by stakeholders to help stem the erosion of financial support for the Bay's fishery management.

In October 2016, the Bristol Bay Science and Research Institute (BBSRI) and the Alaska Department of Fish and Game (ADF&G) entered into a Memorandum of Agreement (MOA) on that developed a formal structure for collaborative working relationship between the two organizations. The MOA requires the formation of a working group (WG) that is charged with providing an annual report each year. This is the first such report since the MOA was signed.

The four-person technical WG of the BBFC is charged with identifying projects and staffing levels that will help sustain a world-class fishery management system in Bristol Bay. The scope of projects and staffing identified by the WG constitutes the Core Program of the BBFC. The WG has two technical experts from each of ADF&G and BBSRI.

As set out in the MOA, the WG is to provide an annual report to its benefactors and the public that summarizes WG activities, BBFC project results, and an accounting of funds raised. In addition, the annual report provides an opportunity to review changes to the scope of the Core Program. This report fulfils a requirement of the MOA and informs the public of the BBFC activities since its inception 12 months ago. The report will be first distributed as a draft for comment in November 2017 and finalized after a meeting of BBFC's WG in December 2017.

Over the last year we received many questions and comments from stakeholders and media outlets. BBSRI, who led the effort to raise funds for BBFC, addresses some of these questions on their website (www.bbsri.org/bbfc). As the first annual report for BBFC, we elaborate in places to address questions and comments received over the last 12 months. We expect that future BBFC annual reports will contain less background material than this one.

Working Group Meetings

The Working Group of BBFC met three times since the MOA was signed in October 2016. On November 9, 2016, the Working Group met in Anchorage to address the following.

- Establish rapport within WG to pursue the mission of BBFC.
- Agree to basic procedures/ protocols for the WG.
- Discuss performance metrics to define success of the BBFC.
- Identify the scope of the Core Program (CP) for 2017.

- Establish critical dates for go-no-go decisions on Core Program projects.
- Review the financial shortfall to implement a Core Program and establish the funding-raising goal for BBSRI to pursue.

On February 8, 2017, the WG met to conduct operational planning for the 2017 season given likely funding scenarios from BBFC. The meeting addressed the following.

- Which Core Program projects would proceed if fund raising fell short.
- How cost recovery fishing might be used to provide some financial support.
- What information was needed in a contribution agreement between BBSRI, who would conduct fund raising, and ADF&G.
- Scope of Togiak herring assessments.
- Which BBFC-supported projects ADF&G could do under expected late funding commitments, and, which project BBSRI might assist in conducting in 2017.

The WG also reviewed the goal and scope of a BBFC-mandated annual meeting the following week between ADF&G Commissioner Sam Cotten and BBSRI's Board of Directors.

On December 7, 2017, the WG met to review the outcomes from the 2017 season and review and approve the scope of the Core Program in 2018. The meeting was open to the public and, in addition to the 4 WG members, 12 others participated. The goals of the December 7 meeting were the following.

- Review the 2017 results of BBFC and the scope for 2018
- Provide an opportunity for contributors and others to ask questions of the Working Group and provide input
- Review and finalize administrative processes, including billing, to deliver the Core Program in 2018.

The WG personnel met informally over the year to refine budget details for BBFC projects and to ensure that the Togiak herring work was proceeding. The latter was funded by ADF&G in 2017.

Overview, Goals, and Scope of the Core Program

The overarching goal of BBFC was to reintroduce monitoring projects and management capacity to reestablish the State's ability to manage Bay fisheries that was present prior to recent budget cuts to ADF&G. Across-the-board cuts by the State occurred over four years as it grappled with a major decline in revenue. We refer to the suite of projects promoted by BBFC as its Core Program.

BBFC is not a research consortium, nor are any of the projects it promotes new to Bristol Bay. The suite of projects reestablished by BBFC's Core Program represent the evolution of the

management system from statehood to the present. Its scope is less than what was done in the mid-1980s, and very similar to what Clark (2005), in a Bristol Bay program review, described as the “Basic Program”.

BBFC is an attempt to address needs of management in a coordinated and less *ad hoc* manner than had been developing in recent years. As budgets and the Bay program were cut over successive years, ADF&G relied more and more on cost-recovery test fishing to generate revenue, and industry was asked more often to support projects that had been cut (e.g., Togiak and Igushik towers in 2016). Many stakeholders saw cost-recovery fishing in the Bay, at least in its current format, as an inefficient and expensive means to raise money for management. So much so that, in 2016 fishermen and several processors stepped up to give money to ADF&G to eliminate cost-recovery fishing that season.

Some stakeholders saw *ad hoc* fund raising as inefficient and potentially damaging because their support had the potential to embolden further budget cutting. Furthermore, solicitations for funding for projects that had been cut was done in isolation, and the relative merit and value among projects was not clear, making donors weary of many requests. Working together, BBSRI and ADF&G developed BBFC to provide a rigorous approach for stakeholders to provide funding with less fear of further cuts and/or some projects receiving support instead of more valuable projects.

Keeping Overhead to a Minimum

Given an overarching goal of *resurrecting* ADF&G’s capacity to manage the fishery with projects that had been done in the past, stakeholders and ADF&G looked to create a simple process that would incur little indirect costs to administer. The goal was to apply funds raised directly to projects fishery managers use to better manage the fishery. Toward this end, BBSRI does not charge for indirect costs associated with orchestrating BBFC, including financial administration, fund raising activities, and participation in the WG. Small fees are charged to recoup a portion of true overhead costs on BBFC project expenditures. ADF&G charges no administrative overhead on non-labor project costs and reduced its indirect cost on labor to 10% for BBFC projects that had been eliminated due to budget cuts. For the two BBFC projects BBSRI operated in 2017, it charged a 5% overhead rate on project expenses, including labor.

Is this permanent?

Organizations that provide funding via BBFC, including BBSRI, believe that Bristol Bay fisheries warrant financial support by the State of Alaska generally commensurate with the scope of the Core Program. All who support BBFC see it as a relatively short-term bridge to the State rebuilding its commitment via its operating budget (see more at www.bbsri.org/bbfc).

Goals of Core Program

Four goals of a Core Program and the scope to achieve them are outlined below. Many of the projects described below as part of the Core Program are still within ADF&G’s annual

General Fund (GF) budget; those components that are not in the GF budget are characterized as BBFC-supported projects in the following section of this report.

1. ***A team of professionals to collect and interpret information on the status of the fish stocks and regulate fishing effort*** (45%). The cornerstone of ADF&G's management is the team of professionals who have the appropriate knowledge and experience to prosecute the fishery.
 - a. Three full-time Area Management Biologists (FBIII) and one assistant (FBI), two research biologists (FB II and III). There is a large cadre of seasonal staff and we associate those with implementation of monitoring and research projects (goals #2 and #3 below). In the budgets in this report we have excluded the cost several components of the overall Bristol Bay management by ADF&G: 33-50% of two regional management coordinators (FBIV), a regional supervisor, as well as several admin staff, office space, and IT functionality.

2. ***Protect weak stocks while exploiting productive stocks to the extent possible*** (36%). A Core Program provides managers and industry with tools to prosecute the fishery in a manner that distributes effort and harvests across time within and among seasons to the greatest extent possible. This is done with field projects, historical datasets, and analytical tools that help managers to predict the remaining run so that escapement goals can be met, and harvests can be distributed through time. This goal represents effort greater than simply providing a "sustained yield"; it includes effort to maintain the economic health of the fishery.
 - a. ***Port Moller Test Fishery*** – Provides indices of abundance and genetic based stock composition from a sampling project 6-9 days travel from the inshore fishing districts. This allows managers additional time to protect weak stocks and exploit abundant stocks before fish have passed the fishing districts. The information is also used by fishermen and processors to determine how to position harvesting and tendering capacity, including haul-out tenders.
 - b. ***District test fishing, in-river test fishing, and aerial surveys*** – Managers recruit commercial fishermen to conduct test fishing within districts and department employees operate in-river test fishing projects just upstream the fishing districts on the Ugashik, Egegik, and Kvichak rivers. Managers regularly fly the districts and river systems to gauge run strength prior to enumeration at upstream enumeration sites. Aerial surveys are used to determine the overall herring biomass, as well as the threshold biomass to open the season.
 - c. ***Salmon escapement enumeration*** – The Core Program includes towers on the Togiak, Igushik, Wood, Kvichak, Alagnak, Naknek, Egegik and Ugashik rivers, and the Portage Sonar project on the Nushagak River.

3. ***Maintain all existing stock-specific brood tables*** (8%) – Much of the data for this comes from projects listed in #2 above. This category represents the additions and marginal costs to maintain brood tables. These datasets, many of them covering five decades, enable us to track the health and productive capacity of all major salmon and herring

stocks in the Bay. The data also provide the information to evaluate escapement goals, a fundamental cornerstone of fisheries management in the Bay. Finally, these data provide inputs to annual preseason forecasts, which assist fishery management and industry planning. In addition to escapement monitoring projects, the following are required to maintain brood tables:

- a. **AWL sampling**– Biological sampling at all enumeration projects and in the commercial salmon and herring catches.
 - b. **Catch apportionment to Stock** – Age composition and genetic-based assignment of district salmon catches to river of origin.
4. **Provide modest support for program evaluation and investment in tools to lower program costs, and expand and/or improve the value of fishing opportunities** (5%). The Core Program should invest in regular review of the performance, cost effectiveness, and overall value of the specific monitoring projects. With millions of dollars expended on the management program annually, periodic and rigorous reviews of the efficacy and benefits from individual components makes “business sense” to all who fund the program. The program should provide some resources to evaluate new tools and new opportunities to obtain greater benefits from the fishery. This goal includes such tasks as the evaluation of escapement goals based on the latest brood table data. We do not propose specific projects as this will change year-to-year and see it as a responsibility of the WG to assign to worthwhile efforts. For illustration only, examples of tasks might include the following.
- a. *Contribute to research initiatives to improve existing monitoring projects.*
 - b. *Professional development of fishery managers and research staff* – A core program includes on-the-job training and succession planning for the area management and research staff.
 - c. *Evaluate the benefit/cost ratios of alternative enumeration and survey methods.*
 - d. *Investments in more cost-effective genetic or other methods to estimate stock composition.*
 - e. *Identify monitoring requirements to expand fishing opportunities in a manner compliant with the Alaska’s Sustainable Salmon Fisheries Policy.*
 - f. *Evaluate the effectiveness of various options to protect weak stocks amid productive stocks.*

BBFC-Supported Components of the Core Program

As part of a proposal in September 2016, ADF&G and BBSRI personnel developed a draft of the Core Program based on our knowledge of the fishery, and with input from others in ADF&G and stakeholders. The BBFC WG subsequently met to refine this list based on new information and some changes to the State’s General Fund that were made in the spring of 2017. During these meetings the WG learned that the vessel and its crew for the Port Moller Test Fishery was no longer in the ADF&G budget, and the genetics-based catch apportionment used for brood tables had not been cut from the operating budget. In addition, the Alaska Legislature

reassigned some funds within ADF&G to put the Igushik and Togiak counting towers back into the operating budget for FYE2018 (i.e., General Fund budget beginning July 1, 2017). With these changes, Core Program components that would require support via BBFC included the following.

- **Management support** – An assistant management biologist (FBI) and some additional office and maintenance staff resources. This position was cut in June 2016.
- **Port Moller Test Fishery (PMTF)** – Operate the test vessel, collect samples, and provide daily updates and analyses to fishery managers and industry. About 50% of this project has been funded by industry for many years. ADF&G's contribution (the vessel) was cut from their budget in 2016.
- **In-river Test Fisheries on the Ugashik, Egegik, and Kvichak rivers** – These gillnet-based test fisheries provide managers more timely information on fish leaving the districts than the upstream counting towers. These projects are critical to in-season management.
- **Alagnak River Counting Tower** – Operate this counting tower from late June to late July to enumerate salmon for in-season management and to maintain the brood table for one of the State's largest sockeye salmon stocks.
- **Nushagak Sonar**
 - **Unfunded Portion, June-July** - Provide approximately 1/3 of the cost of the existing program from early June through mid-July to enumerate Chinook, sockeye, and chum salmon.
 - **Extension of Nushagak sonar, July-August** – Operate Portage sonar to enumerate coho and pink salmon runs (i.e., from mid-July to mid-August).
- **Aerial Surveys of the Naknek, Kvichak, and Alagnak watersheds** – ADF&G flies spawning ground surveys to apportion salmon escapement among the sub-drainages of these three river systems. Surveys are conducted mid-August to maintain an important long-term dataset used to help interpret brood tables and make preseason forecasts.
- **Program review and R&D.** Provide modest support to conduct reviews and invest in program improvements, including professional development of staff. It was envisioned that this funding could come from the annual revenue from the sales of fish from research test fishing and can amount to \$20-\$40k.

The WG identified support for annual herring stock assessment via BBFC because in addition to the herring fishery being important, the salmon industry benefits significantly from a viable and robust Togiak herring fishery. However, because salmon fishermen and some processors may not want to support herring assessments, we parse any funding for herring from BBFC budgets, and seek support for it from a subset of processors, and not from the salmon fleet and others focused on the salmon fishery.

- **Togiak herring** – Conduct aerial surveys of Togiak herring to estimate biomass, biosampling of catch and spawning fish to estimate age-specific biomass, and use this in age-structured models to forecast an annual total allowable catch.

BBFC-Supported Projects done in 2017

Due to the late timing of financial commitments in 2017, it was not possible for ADF&G to undertake two components of the Core Program in time for the 2017 season. In addition, year-end ADF&G funds were found to support the herring assessment, so we did not solicit funds from processors to assess the 2017 herring biomass. The two BBFC components that were not implemented were a Dillingham-based assistant Area Management Biologist and the extension of the Nushagak sonar from mid-July to mid-August to enumerate coho and pink salmon. Therefore, in 2017, BBFC set out to financially support the following projects.

1. Port Moller Test Fishery
2. In-river Test Fisheries on the Ugashik, Egegik, and Kvichak rivers
3. District Catch Sampling
4. Alagnak River Counting Tower
5. Nushagak Sonar - Unfunded Portion of June and July (Chinook, sockeye, chum)
6. Aerial Surveys of the Naknek, Kvichak, and Alagnak watersheds
7. Support for BBSRI to manage the Togiak and Igushik counting towers.

These projects were operated by ADF&G and BBSRI, either individually or collaboratively. ADF&G solely operated the in-river test fisheries, the Nushagak sonar, and the aerial surveys of the Naknek and Kvichak watersheds. ADF&G and BBSRI collaborated on operating the PMTF and the Alagnak River counting tower in 2017. Note that beyond BBFC funding support, ADF&G provides \$79,000 of support to run the genetic analyses and provide stock composition estimates from PMTF.

The Togiak and Igushik counting towers, to originally be part of BBFC, were added in to the State's operating budget in the spring of 2017 and too late for ADF&G to staff up and operate them. BBSRI did the two towers in 2016 and offered to conduct them in 2017. In the future, ADF&G would operate these towers and they would not need any support from BBFC.

In early 2017, we estimated that approximately \$692,000 was needed to fund the BBFC-supported projects in the upcoming season. The amount needed was later modified and refined, as will be explained in the financial expenditures later in this report.

Approach to Fund Raising, 2017

From the start, BBSRI and others envisioned raising funds on an annual basis and providing those funds to ADF&G on the condition that ADF&G upheld its current budget for the Bay. Fund raising for BBFC began with a decision by the Board of Directors of BBSRI in October 2016 committing to match, dollar-for-dollar, contributions to BBFC by stakeholders and the public, up

to \$500,000. With this major commitment, BBSRI staff approached those in the fishing industry who had supported management in the past (“the majors”): processors and the Bristol Bay Regional Seafood Development Association (RSDA). The RSDA represents driftnet fishermen in the Bay.

At the outset of fund raising it was clear that securing sufficient funds for 2017 faced two challenges. First, any decisions by the majors to support BBFC would be conditional on the outcome from the upcoming Legislative Session, which occurs from January through April. There was little appetite among the majors to commit funds to BBFC in early 2017 due to the fear that it would result in the Legislature further cutting ADF&G’s budget. Given the State’s operating budget would not be finalized, even in draft for the Governor’s signature, until May or June, this delay in commitments was going to make it difficult to ramp up the suite of BBFC projects, including staffing, by early June.

A second challenge to fund raising was that several prospective funders preferred to see others who depend on and benefit from the fisheries in the Bay to share in supporting BBFC. Any commitment in 2017 from the majors, and any commitments for future seasons would depend in part on spreading the cost burden across more than just processors and driftnet fishermen. This required a broadening of our fund raising beyond the majors. In April, May, and June, BBSRI approached local boroughs and municipalities, native villages and corporations, setnet fishermen, support industries including air cargo companies, and marine shipping companies.

Fund-raising Results, 2017

Nearly all entities BBSRI approached from April through June agreed to provide financial support to BBFC. Clearly, stakeholders value intensive management of Bay fisheries. In all, 26 organizations committed support to BBFC (Table 1). BBSRI secured commitments totaling \$343,770, which it had agreed to match, bringing the total BBFC preseason commitment to \$687,539 (Table 2), which exceeded the initial fund-raising goal by \$5,539. The split among stakeholder groups (%) worked out to approximately 50:20:20:10 for BBSRI, RSDA, processors, and “others”.

Commitments ranged from \$130,000 from the RSDA to \$20 from an individual fisherman (Table 2). Processor commitments totaled \$130,000 from 12 companies. Contributions by individual processing company were based on the fraction that each company had purchased of the 2016 sockeye salmon harvest (actual percentages among the companies were kept confidential). Contributions from non-major entities totaled \$83,770, with the Bristol Bay Native Corporation being the largest contributor (\$20,000). Penair pledged (2,500 in air travel credit, which was not used in 2017 and is not included in Table 2; but presumably could be used toward BBFC project costs in 2018.

Table 1. A list of organizations that made financial commitments to BBFC in 2017.

<u>Fishermen</u>	<u>Shippers</u>
Bristol Bay Regional Seafood Dev. Association (Driftnetters)	Alaska Marine Lines (AML)
Kvichak Setnetters Assoc.	American President Lines (APL)
Individual setnetters	DeltaWestern
	Northern Air Cargo
	Penair
<u>Processors</u>	<u>Boroughs/Villages</u>
Alaska General Seafoods	Lake and Peninsula Borough
Big Creek Fisheries	Bristol Bay Borough
Copper River Seafoods	City of Egegik
E&E Seafoods	Levelock Village Council
Ekuk Fisheries	Curyung Village Council
Icicle Seafoods	Ugashik Traditional Village
Leader Creek Fisheries	
North Pacific Seafoods	
Ocean Beauty Seafoods	<u>Native Corporation</u>
Peter Pan Seafoods	Bristol Bay Native Corporation
Silver Bay Seafoods	
Trident Seafoods	

Table 2. List of funding commitments to BBFC in 2017 and percentages of the total raised.

<u>Source</u>	Percent of			
	Contribution	Grand Total	BBSRI Match	Total
Bristol Bay RSDA (1,860 Driftnetters)	130,000	19%	130,000	260,000
Processors (12)	130,000	19%	130,000	260,000
Others				
Bristol Bay Native Corporation	20,000	2.9%	20,000	40,000
Shippers (AML, APL, DeltaWestern)	16,500	2.4%	16,500	33,000
Bristol Bay Borough	10,000	1.4%	10,000	20,000
Lake and Peninsula Borough	10,000	1.4%	10,000	20,000
City of Egegik	10,000	1.4%	10,000	20,000
Levelock Village Council	5,000	0.7%	5,000	10,000
Curyung Village Council	5,000	0.7%	5,000	10,000
Ugashik Traditional Village	3,000	0.4%	3,000	6,000
Northern Air Cargo	2,500	0.4%	2,500	5,000
Kvichak Setnetters Association	1,500	0.2%	1,500	3,000
Individual fishermen	270	0.0%	270	540
Subtotal, Others	83,770		83,770	167,540
Total (Processors/RSDA/Others & BBSRI)	343,770	50%	343,770	687,539

BBFC Project Results in 2017

ADF&G compiles a thorough summary of its management, including results of monitoring activities, for the Bristol Bay salmon and herring fisheries in its Bristol Bay Area Management Reports (AMRs), which are available online³. This report is not intended to replicate to any extent the type of information contained within the 2017 AMR (Elison et al. 2017). The purpose of project summaries below is to provide the scope of effort to support the financial expenditures made by those who contributed to BBFC.

Port Moller Test Fishery

The R/V *Pandalus* and its 3-person crew traveled from Homer to arrive in Port Moller on June 9 and met two BBSRI technicians there; test fishing began June 10. Fishing was conducted daily through July 11, with only two days missed due to a mechanical (June 19) and weather (July 6). The crew made 195 sets over the 31 days (8% more than the record set last year). Station 14 was fished more often than we ever have in the past (19 times). Thirty daily catch updates were distributed each afternoon or evening to 494 email addresses and posted on BBSRI's website (www.bbsri.org). The ADF&G Gene Lab released 8 stock composition estimates from tissues samples taken from the Port Moller catch; these estimates were forwarded to the PMTF distribution list and posted online shortly after their release. BBSRI released 3 interpretations of the Port Moller catch information (June 15, 24, and 30).

Run timing at Port Moller in 2017 was estimated to be 3 days late corresponding to forecasted inshore timing of 2.5 days late, which in turn was close to the observed inshore timing of about 2 days late. For the past three years (2015-2017), test catches have remained strong through the end of the season indicating the runs were late with a sizeable portion left to come beyond July 10. Though similar in magnitude to 2015 and 2016, spiked catch and escapement on July 3 and 4 caused the 2017 run to be more contracted than the previous two years. The catch pattern at Port Moller was representative of the inshore run, with some departures due to in-season changes in the fish-per-index and travel-time parameters in addition to random noise in the relationship. Obvious departures from daily inshore forecasts were over predictions on June 28 through July 1, and under predictions on July 2-4 (Figure 1).

³ <http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareabristolbay.salmon#management>

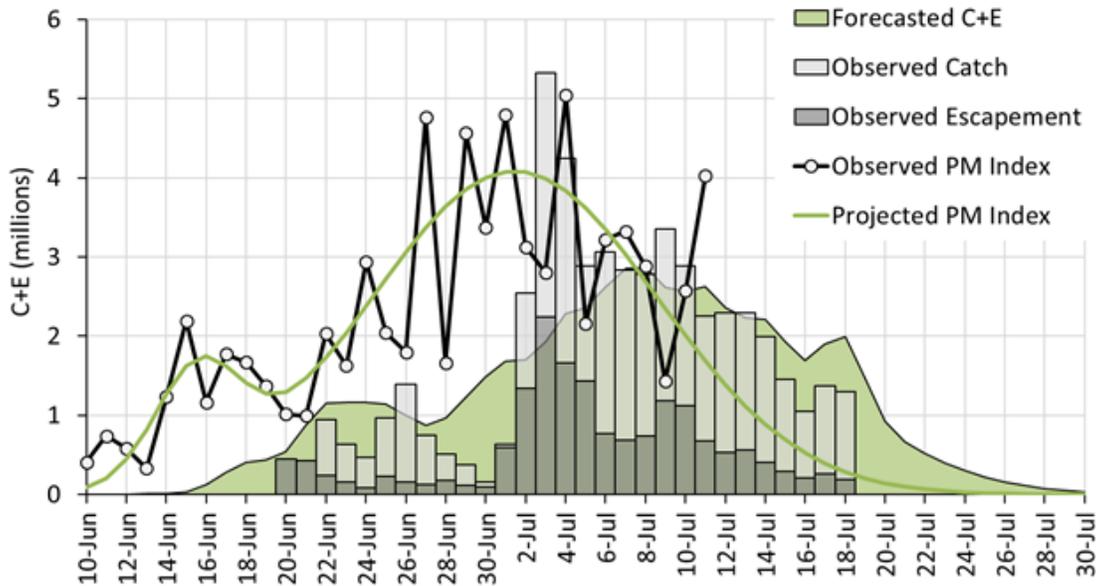


Figure 1. Forecasted and observed inshore catch + escapement (C+E) using Port Moller based on yearend information. The scale for the Daily Port Moller Index is not shown. Travel time between Port Moller and the inshore districts was estimated to be about 7 days.

The first stock composition estimates from PMTF in 2017 (June 14-17) were misleading with respect to forecasting relative run strengths among the districts; the Egegik and Nushagak-Wood Districts were over- and under-represented, respectively. Adding Station 14 to the routine daily sampling schedule on June 20 seemed to improve this discrepancy. However, the Ugashik and Egegik Districts remained over-represented to a lesser extent in subsequent estimates, and the Naknek-Kvichak and Nushagak-Wood Districts under-represented. Given the migration pattern of the stocks (Egegik and Ugashik more inshore; the rest more offshore), these results suggest that still more fish were missed beyond Station 14, the composition of which was skewed towards Naknek-Kvichak and Nushagak-Wood stocks.

This year’s project demonstrated the PMTF’s utility to managers and industry. Because of the late and large run in 2015 and 2016, many stakeholders suspected the same pattern may occur in 2017 and were looking at Port Moller as an indicator as to if or when catch and escapement would increase. The sudden increase in the daily index on June 27, which was sustained through July 4, provided evidence that the run was late and likely to be as high or higher than the pre-season forecast. Port Moller indices through July 11 suggested a strong tail to the run. Methods and additional results from the Port Moller Test Fishery are provided in the annual report (Raborn et al. 2017), which is available online (www.bbsri.org/port-moller-test-fishery).

In-river Test Fisheries on the Egegik, Kvichak, and Ugashik rivers

All three test fisheries are operated in a similar manner and have been for over 50 years. Two-person crews set 25-fathom gillnets from a skiff for soak times of 5 to 15 minutes duration

daily at the same stage of the two tides. Catches and effort is used to compute test indices for each tide that are standardized into units of “fish per 100 fathom hours”, which can be thought of as the estimated number of fish that would have been captured if the net had fished similarly well for one hour. Managers compare daily test indices to current-year observations: 1) the number of fish above the test fishery as observed from aerial surveys, and 2) the number of fish observed at upstream counting towers 2-6 days later. From these relationships, managers can use the information from in-river test fisheries to estimate the number of fish upstream of the fishing district and the downstream of the counting towers (i.e., “Estimated River Fish”, or ERF).

Egegik In-river Test operated near Wolverine Creek, about 2 miles above the commercial district, from June 17 to July 7 when low water levels impaired operations and the project ended for the season about 4-5 days earlier than usual. A total of 152 sets were made and 2,449 fish captured in 2017.

The travel time for fish from the Egegik fishing district to the counting tower is 1-3 days. This travel time and sometimes very large movements of fish into Egegik River on a single tide or day makes the information from the in-river test fishery a critical piece of information for prosecuting the fishery and meeting the escapement goal. In 2017, ERF peaked on July 4 with an estimated 600,000 fish between the district and the counting tower (Figure 2). Figure y gives a sense how few fish were entering the Egegik River in late June despite what was a good overall return, and the rapid change in detected by the test fishery (Figure 3) compared to the recent average entry pattern. The annual management report provides details on how the fishery was prosecuted in response to this challenging entry pattern (Elison et al. 2017).

Egegik, Estimated River Fish, 2017

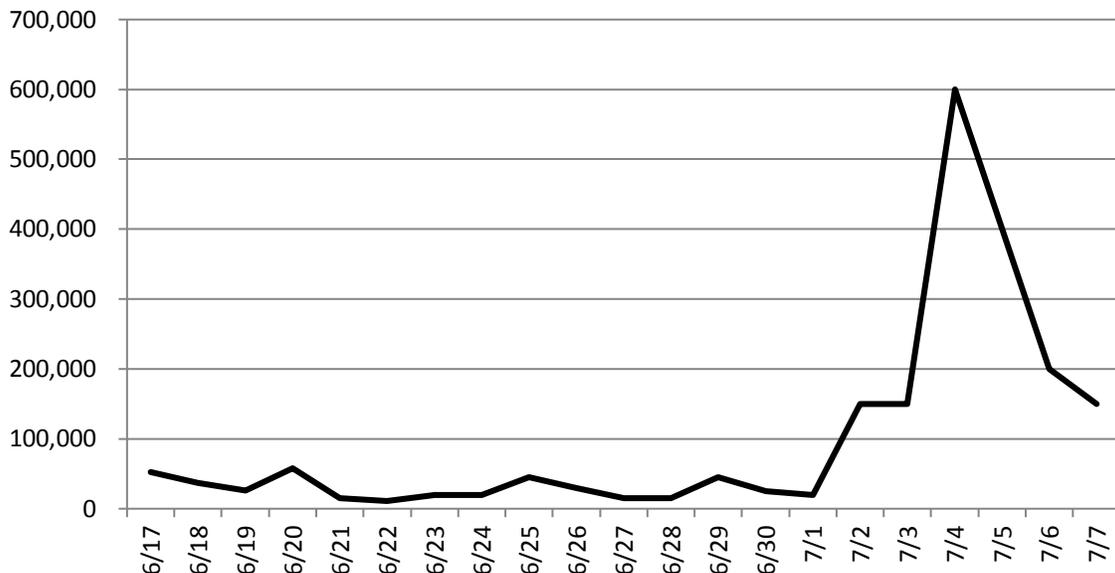


Figure 2. Estimated River Fish in the Egegik River in 2017. Some of highest ever test fishing indices were observed in 2017.

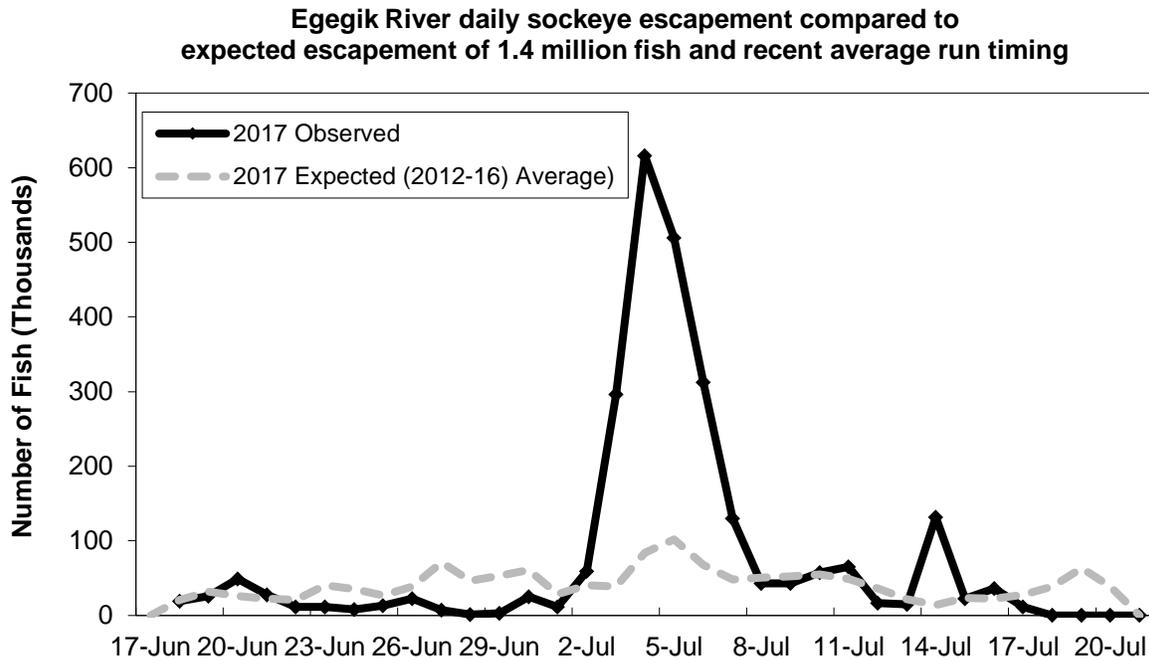


Figure 3. Daily Egegik River escapement at the tower compared to a recent average run timing applied to the recent 5-year escapement timing.

Ugashik In-river Test operated at the usual site about 4 miles upstream from Ugashik Village from June 25 to July 16. A total of 166 sets were made and 1,768 fish captured. The travel time for fish from the Ugashik fishing district to the counting tower is 3-7 days. The time delay from the commercial fishing district to the counting tower makes the information from the in-river test fishery one of the major factors in how fishing was permitted in the Ugashik District in 2017.

As in all years, the insight provided by this project in 2017 was important because it allowed the manager to evaluate the results from the fishing district on a tide-by-tide basis, which allowed the manager to react to fish moving into the river well before the fish reached the counting tower near the outlet of Ugashik Lake 3-7 days later. Estimated River Fish was near zero until July 3, at which point there was a major movement of fish into the river (Figure 4). Fishing time in the district was expanded in a much timelier manner than if the manager had to rely on the tower counts alone. This information provided higher catches and the escapement goal was better met in 2017 than had it not been available.

Ugashik, Estimated River Fish, 2017

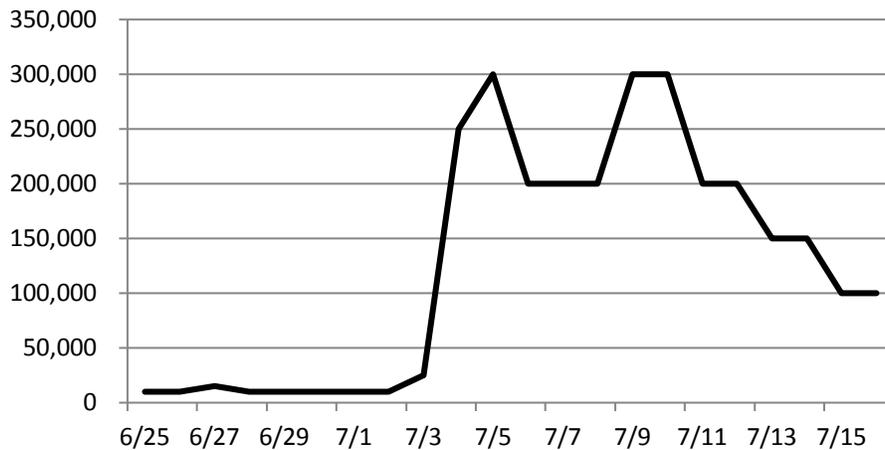


Figure 4. Daily Estimated River Fish in the Ugashik River in 2017 based on the in-river test fishery funded by BBFC.

Kvichak In-river Test operated 0.5 miles below the Village of Levelock from June 23 to July 16. A total of 171 sets were made and 1,648 sockeye salmon were captured. Due to late run timing in 2017, catches in the test fishery were essentially zero until June 28, so the first ERF was made on June 29. Travel time from the test fishery to the counting tower ranges from one to three days. Results from the test fishery were used to help inform decisions to provide opportunity for drift gillnet gear in the Kvichak Section on July 6 and from July 11—16 (Figure 5).

Kvichak Estimated River Fish and Daily Escapements, 2017

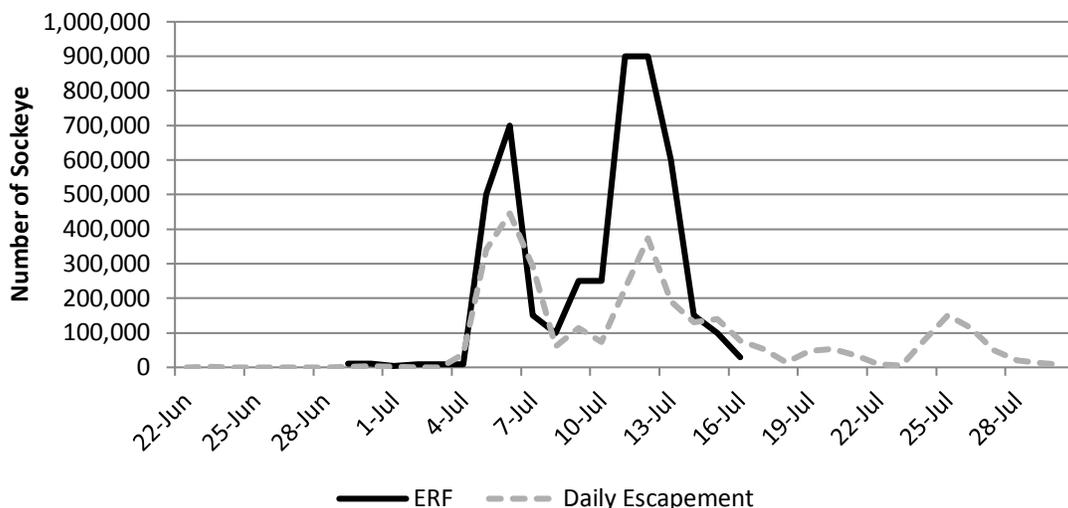


Figure 5. Daily Estimated River Fish (ERF) from the Kvichak In-river Test Fishery and daily escapement counts from the Kvichak Tower, 2017. The BBFC funded test fishery operated from June 23 to July 16 and the GF funded counting tower operated from June 22 to July 30.

District Catch Sampling

In 2017 a total of 28,482 fish were sampled for age (scales), length, and sex from Bristol Bay commercial harvest (Table 3). The catch sampling crew consisted of three catch samplers in King Salmon, two in Dillingham, and one in Togiak. In addition, two scale agers stationed in King Salmon aged all salmon scales collected from the commercial fishery and the escapement monitoring projects in 2017.

Table 3. Summary of the number of fish sampled in the Bristol Bay commercial fishing districts in 2017.

Fishing District	Number of Fish Sampled
Ugashik	2,727
Egegik	5,907
Naknek-Kvichak	6,495
Nushagak	8,894
Togiak	4,459
Total	28,482

Alagnak River Counting Tower

The Alagnak River tower was last operated in 2011. Therefore, effort in 2017 involved reestablishing a camp site, and acquisition of boats and scaffolding for two counting towers. Gear was staged in King Salmon and moved by skiff and aircraft to the Alagnak River in early June by permanent and seasonal ADF&G personnel. The tower sites and methods used in 2017 were the same as used in the past. The 3-person BBSRI tower crew arrived at the site on June 26 and began counts on June 28. An estimated total of 2,048,292 sockeye salmon passed the towers in 2017. The escapement peaked twice (July 5 and July 12), reflecting the entry pattern to the river and influenced by harvest effects in the Naknek-Kvichak district (Figure 6).

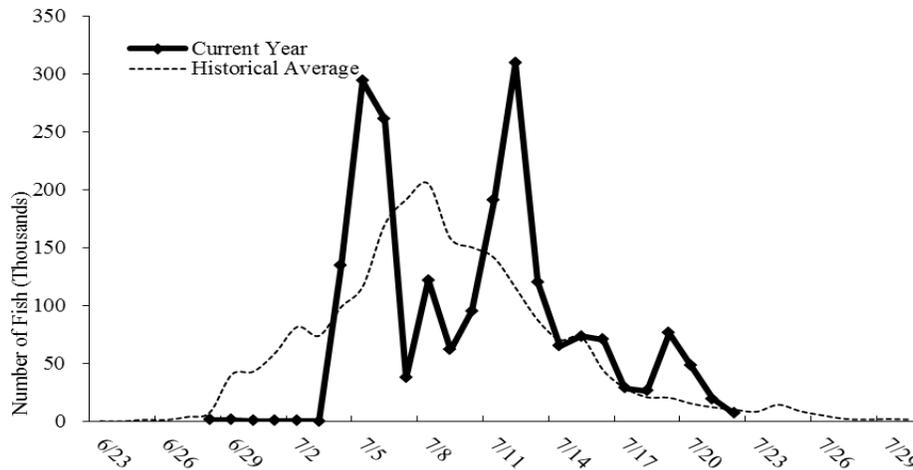


Figure 6. Daily estimates of sockeye salmon at the Alagnak River counting tower in 2017, and the historical average applied to an escapement of 320,000.

A total of 592 fish were captured by beach seine and sampled for length and scales to be later aged (538 fish) to apportion the annual Alagnak River escapement by freshwater and marine age. The age sampling eliminated the need for post-season sampling on the spawning grounds to obtain the age composition. Tower counts and age composition are used to develop age-specific returns and maintain brood tables for the Alagnak River sockeye stock. More results are provided in an annual report prepared by Thomsen and Bures (2017).

The Alagnak River sockeye salmon lower bound escapement goal was achieved on July 5, which was an early indication of a strong Alagnak River run. Alagnak River escapement data is used to help apportion catches from the Naknek-Kvichak District to one of the three river systems that flow into the district. This is critical for in-season estimates total run for each river. Since escapements are managed to fall within the escapement goal ranges proportional to run size, total run estimates are used to determine where in the escapement goal range the escapement should be. This is particularly important for the Kvichak River. This escapement information helped inform decisions to provide opportunity for drift gillnet gear in the Kvichak Section on July 6 and from July 11–16.

Nushagak Sonar

The Nushagak River sonar has operated near Portage Creek since 1980⁴. In 2017, the field crew began their season on June 1 and commenced estimating the Nushagak River daily escapement on June 7. Daily estimates of sockeye, Chinook and chum salmon were based on apportioning fish observed in the sonar beam and gillnet sampling. The project operated until July 20 as planned (Table 4). Combined across these three species, over 3.3 million salmon were estimated to have passed the Nushagak River sonar site in 2017.

⁴ http://www.adfg.alaska.gov/index.cfm?adfg=sonar.site_info&site=8

Table 4. Daily and cumulative escapement at the Portage Creek sonar site on the Nushagak River in 2017.

Date	Sockeye		Chinook		Chum	
	Daily	Cum	Daily	Cum	Daily	Cum
7-Jun	257	257	36	36	308	308
8-Jun	417	674	78	113	555	863
9-Jun	473	1,147	85	199	617	1,481
10-Jun	616	1,763	62	261	642	2,123
11-Jun	466	2,228	66	326	536	2,659
12-Jun	1,552	3,780	231	557	1,919	4,579
13-Jun	3,684	7,464	485	1,042	3,481	8,060
14-Jun	2,442	9,906	108	1,150	1,578	9,638
15-Jun	7,014	16,920	356	1,506	5,883	15,521
16-Jun	21,455	38,375	201	1,708	6,424	21,945
17-Jun	24,566	62,941	92	1,799	4,167	26,112
18-Jun	50,374	113,315	537	2,337	8,621	34,732
19-Jun	50,206	163,521	284	2,621	16,008	50,740
20-Jun	46,021	209,542	410	3,031	4,605	55,345
21-Jun	76,400	285,941	1,246	4,276	17,971	73,316
22-Jun	294,242	580,183	10,633	14,910	45,273	118,590
23-Jun	204,265	784,448	1,826	16,736	56,025	174,614
24-Jun	74,151	858,599	564	17,299	8,823	183,438
25-Jun	20,709	879,308	2,369	19,669	8,524	191,961
26-Jun	12,269	891,577	1,114	20,782	9,819	201,780
27-Jun	45,748	937,326	2,783	23,565	13,125	214,905
28-Jun	58,847	996,173	8,880	32,445	17,287	232,192
29-Jun	50,957	1,047,130	1,374	33,818	9,493	241,686
30-Jun	42,998	1,090,128	1,017	34,835	7,148	248,833
1-Jul	30,149	1,120,276	3,161	37,997	5,138	253,971
2-Jul	14,796	1,135,072	4,254	42,251	7,620	261,591
3-Jul	21,559	1,156,631	1,065	43,316	8,558	270,149
4-Jul	363,047	1,519,678	902	44,218	16,031	286,180
5-Jul	440,612	1,960,289	2,240	46,458	9,764	295,944
6-Jul	199,591	2,159,881	4,597	51,055	45,328	341,272
7-Jul	69,605	2,229,486	2,215	53,270	4,974	346,246
8-Jul	62,550	2,292,036	760	54,030	3,356	349,602
9-Jul	74,750	2,366,787	165	54,195	17,994	367,596
10-Jul	134,244	2,501,031	320	54,515	8,296	375,892
11-Jul	104,973	2,606,003	310	54,825	2,153	378,046
12-Jul	72,315	2,678,318	199	55,024	12,104	390,150
13-Jul	30,838	2,709,156	291	55,314	2,946	393,095
14-Jul	40,401	2,749,558	189	55,504	1,745	394,841
15-Jul	29,748	2,779,305	193	55,697	4,043	398,884
16-Jul	28,611	2,807,916	377	56,074	4,085	402,968
17-Jul	11,325	2,819,241	370	56,444	7,103	410,071
18-Jul	7,478	2,826,719	123	56,567	4,843	414,914
19-Jul	16,922	2,843,641	204	56,772	300	415,214
20-Jul	8,665	2,852,306	189	56,961	274	415,488

Aerial Surveys of the Naknek, Kvichak, and Alagnak watersheds

Aerial surveys of spawning grounds in the Naknek, Kvichak, and Alagnak watersheds were conducted from August 14–17. Escapement surveys provide indices that are used to assess spawning distribution to individual tributaries and unique habitats. These indices go into historical data sets for each watershed (the dataset for Kvichak pre-dates statehood). Surveys also provide managers with visual of spawning densities throughout each watershed and the ability to see variability of production within and among these three major producing watersheds.

Summary of Expenditures in 2017

Actual expenditures on BBFC projects in 2017 were less than originally budgeted. Rounded to the nearest \$1,000, expenditures totaled \$482,000, compared to \$682,000 budgeted (Table 5). Some of the difference was due to cost savings, but the bulk of the difference for the expenditures coming in 29.35% under forecast was that ADF&G supported their June project operations with money saved elsewhere in the Department over the course of their fiscal year, which ended on June 30, 2017. ADF&G's year-end funds were used to offset the costs of BBFC projects for the early part of the 2017 season. The budgets remain accurate and expenditures were made in 2017; ADF&G just did not use BBFC funds.

Table 5. Summary of BBFC project budgets and expenditures, 2017. Note that ADF&G relied on its own year-end funds instead of BBFC funds to support project expenditures prior to July 1, hence why the BBFC expenditures in this table are less than the budget in most cases.

	Operator	Budget (\$)	Expenditures by Organization			Budget minus	
			ADF&G	BBSRI	Total	Actual	
Port Moller Test Fishery	ADFG/BBSRI	277,011	58,104	122,617	180,721	96,290	
Kvichak R. inriver test fishery	ADFG	43,040	26,839	-	26,839	16,201	
Egegik R. inriver test fishery	ADFG	50,390	30,059	-	30,059	20,331	
Ugashik R. inriver test fishery	ADFG	49,340	24,522	-	24,522	24,818	
District catch sampling	ADFG	136,700	98,059	-	98,059	38,641	
Nushagak sonar (~37% of project costs)	ADFG	53,730	53,725	-	53,725	5	
Alagnak R. tower	BBSRI/ADFG	50,037	3,990	49,419	53,409	-3,373	
Post-season aerial surveys (Naknek, Kvichak)	ADFG	14,700	14,490	-	14,490	210	
Igushik & Togiak tower support (~6% of project cost)	BBSRI	7,053	-	0	0	7,053	
Totals		682,000	309,788	172,036	481,824	200,176	
					Percent of Budget:	70.65%	29.35%

Dealing with the Overage of Funds Raised in 2017

Given that more funds were raised than needed for 2017 projects, contributors must decide whether to apply any of the overage toward the 2018 season, or refund it. To have all contributors pay only their proportionate commitment toward the total 2017 expenses, we determined a percentage decrease that would result in raising 50% of \$481,824 in 2017 costs (Table 6). This was 29.92% of the funds raised, which is slightly larger than the percentage of the budget noted in the table. This is because refunds are a larger percentage of the funds raised than expenditures were of the budget.

An agreement between the RSDA and BBSRI to support BBFC was restricted to cover only project expenditures in 2017. Therefore, they will contribute \$91,103 to support 2017 BBFC projects (i.e., \$38,897 less than their \$130,000 pledge). As for the remaining contributors, issuing 26 refunds, only to embark on another fund-raising effort weeks later, seems cumbersome for BBSRI if deemed by contributors as not necessary. It may be possible to apply the overage by organization toward the BBFC funding needs in 2018, thereby reducing the 2018

fund raising goal. If this carry over approach was adopted, the RSDA would not have a carryover to apply to a 2018 contribution.

Table 6. Computation of the potential carry-forward funds or refunds from money raised in 2017 and that might be applied to 2018 BBFC project costs. Commitments made in 2017 were reduced 29.92% across all contributors.

Source	Original Commitment	Refund	Potential carryover to 2018	Contribution toward 2017 project expenses
Bristol Bay RSDA (1,860 Driftnetters)	130,000	38,897		91,103
Processors (12)	130,000		38,897	91,103
Others				
Bristol Bay Native Corporation	20,000		5,984	14,016
Shippers (AML, APL, DeltaWestern)	16,500		4,937	11,563
Bristol Bay Borough	10,000		2,992	7,008
Lake and Peninsula Borough	10,000		2,992	7,008
City of Egegik	10,000		2,992	7,008
Levelock Village Council	5,000		1,496	3,504
Curyung Village Council	5,000		1,496	3,504
Ugashik Traditional Village	3,000		898	2,102
Northern Air Cargo	2,500		748	1,752
Kvichak Setnetters Association	1,500		449	1,051
Individual fishermen	270		81	189
Subtotal, Others	83,770		25,064	58,706
Total (Processors/Others)	343,770		63,961	240,912

Organized differently to show net results of fund raising this year, Table 7 shows the total funds raised and the BBSRI match, after accounting for the refund to the RSDA. The total carryover is twice as much as the sum of individual carryovers shown in the table above because BBSRI committed to matching all funds raised. The total in Table 7 includes all those contributors listed in Table 6 (above), and BBSRI's 1:1 match of those funds. If all remaining overages in 2017 were carried over to 2018, stakeholders will have contributed a total of \$304,873 during 2017 and combined with a match from BBSRI of the same amount, a total of \$609,746 was raised to support projects in 2017 and a portion of 2018 project costs.

Table 7. Computation of net carryover to 2018 if no additional refunds were issued and BBSRI matched all funds raised in 2017.

Total <u>Commitments</u> , non-BBSRI	343,770	(Table 2)
Minus RSDA refund	38,897	
Total funds non-BBSRI, 2017	304,873	
BBSRI Match	304,873	
<u>Total Raised</u>	609,746	A
Expenditures	481,824	B
Potential Carry-forward to 2018	127,922	C (A-B)

Scope and Cost of the Core Program, 2018

The Working Group met on December 7, 2017 to review and approve the scope of the Core Program for 2018. The current Core Program component costs are shown in Table 8 below. ADF&G is able to undertake all BBFC-funded projects in 2018, including two salmon components that were not attempted in 2017 (Nushagak sonar extension for pink and coho salmon, and the seasonal Assistant management biologist). The entire cost of the Core Program in 2018, including funding provided by ADF& and that provided via BBFC, totals \$2,755,000 (Table 8). Using these figures, BBFC funding would represent 29% of the entire cost of the Bristol Bay management program (not including ADF&G's regional staff in the total cost).

Funding Needs, 2018

If all organization-specific overages were refunded, the funds needed for 2018 would be \$815,000. However, all organizations that BBSRI has heard from by early December have asked to simply apply the 2017 overage to 2018 Core Program cost. If the entire remaining overage from 2017 (\$127,922) was applied to the to reduce the 2018 needs, the 2018 goal would be to raise \$687,000 (Table 8), which, by coincidence, is similar to the adjusted goal in 2017 (adjustment had been made due to the removal of Nushagak sonar and the westside assistant manager).

If funds were raised in a similar ratio among the stakeholder groups as was the case in 2017 (50:20:20:10), the RSDA and processors would account for \$163,000, and non-traditional contributors \$81,500. These numbers are prior to the removal of any overage an organization may have carried over from 2017 (Table 6).

Table 8. Components and costs associated with the Bristol Bay Core Program in 2018, as currently defined by the BBFC Working Group, November 2017.

Program Component	Core Program	Funding Source, 2018	
		ADF&G	BBFC
ADF&G funded			
<u>2017 General Fund (GF)</u>			
Program Mgt Eastside	347.2	347.2	
Fishery Monitoring Eastside	59.8	59.8	
Kvichak River Tower	46.9	46.9	
Naknek River Tower	51.7	51.7	
Egegik River Tower	52.7	52.7	
Ugashik River Tower	54.6	54.6	
Bristol Bay Research	388.8	388.8	
Program Management Westside	459.5	459.5	
Fishery Monitoring Westside	37.8	37.8	
Wood River Tower	33.9	33.9	
Nushagak River Sonar	90.2	90.2	
Catch Allocation, Genetics	99.8	99.8	
Port Moller In-season Genetic Stock ID	79.2	79.2	
Togiak River Tower	60.0	60.0	
Igushik River Tower	50.0	50.0	
Subtotal (ADF&G, 2018)	1,912	1,912	
Core Projects supported by BBFC			
	Cost (\$k)		
Unfunded portion of Nushagak River Sonar	50		50
Kvichak River Inside Test	41		41
Egegik River Inside Test	48		48
Ugashik River Inside Test	47		47
District Catch Sampling	130		130
Port Moller Test Fishery	267		267
Mgt Biologist/Trainee, Westside	60		60
Alagnak River tower	50		50
Nushagak River Sonar Coho/Pink	75		75
Kvichak, Naknek post-season aerial surveys	15		15
Togiak Herring Assessment	61		*
Total Program and total BBFC	2,755		782
10% Indirect fee applied to ADF&G labor on BBFC projects			33
	Grand total, BBFC		815
	Fund raising goal if the remaining 2017 overage was applied to 2018		687

* Herring support computed outside of this table and with a different subset of industry.

Required Timing of Commitments, 2018

For ADF&G to deliver the Core Program in 2018, the WG concluded at the December 7, 2017 meeting that funding commitments are needed by **February 15, 2018**. We expect these commitments will be made contingent on no further cuts to the ADF&G budget during the 2018 legislative session. If insufficient funds have been committed by February 15, alternatives include cutting projects for 2017 and/or raising funds outside of the stakeholder groups. A Cooperative Agreement between BBSRI and ADF&G outlining the scope supported by BBFC will be executed shortly after February 15 so that ADF&G can proceed with various commitments to deploy projects and personnel for the 2018 salmon season.

Conclusions

The inaugural year of BBFC was a success. Within 8 months of ADF&G and BBSRI signing the agreement, over \$680,000 was raised and six BBFC-supported projects were underway. The goal of BBFC to resurrect management capacity lost due to budget cuts in recent years was met. The fish stocks were better utilized, important long-term datasets were maintained, all in a more coordinated manner than would have occurred without BBFC. Other highlights of this effort include the following.

- A total of \$687,539 was pledged from 26 organizations from industry, communities, BBSRI, and other regional stakeholders.
 - None of these funds were spent to administer BBFC; all funds will be spent on projects to assist managers with managing the fishery.
- ADF&G's Bristol Bay budget was not cut for its fiscal year starting on July 1, 2017.
- Cost recovery test fishing was not implemented in 2017.
- The size and impacts of budget cuts on ADF&G's ability to manage the fishery are better understood among many stakeholders.
- Previously cut projects and those previously supported by cost recovery test fishing were implemented to give ADF&G tools to manage the bountiful 2017 salmon return.
- The largest datasets on sockeye salmon productivity in the world were maintained, providing a knowledge base that provides for better preseason forecasts.

Implementing BBFC's first year had some challenges, mostly related to little time between when funding commitments were received and when projects needed to be on the water. Even with the short notice, most of the proposed work was implemented but two of the Core Projects could not be implemented in time. BBSRI's fund raising, although very successful, was labor intensive. None of these challenges were unexpected. However, going forward we expect that this will become less challenging and less labor intensive.

The sustainability of BBFC to support a world-class fishery management system during this challenging fiscal environment will likely depend on keeping BBFC simple, transparent, and not overly burdensome to any one group of stakeholders.

Literature Cited

- Elison, T., P. Salomone, T. Sands, G. Buck, K. Sechrist and, T. Lemons (in prep.). 2017 Annual Management Report for Bristol Bay. Alaska Department of Fish and Game. Fishery Management Report No. *TBD*.
www.adfg.alaska.gov/index.cfm?adfg=commercialbyareabristolbay.salmon#management
- Clark, J.H. 2005. Bristol Bay Salmon: A Program Review. Alaska Department of Fish and Game, Special Publication No. 05-02. Anchorage. www.sf.adfg.state.ak.us/FedAidPDFs/sp05-02.pdf
- Raborn, S.W., M.R. Link, and T.H. Dann. 2017. Annual Report for the 2017 Port Moller Test Fishery. Report prepared for the Bristol Bay Science and Research Institute, Dillingham, AK and the Bristol Bay Fisheries Collaborative, 23 pp. + appendices. Available at:
www.bbsri.org/port-moller-test-fishery
- Thomsen, S. and J.W. Bures 2017. Alagnak River Counting Tower, 2017. Report prepared by the Bristol Bay Science and Research Institute, Dillingham, AK for the Alaska Department of Fish and Game and the Bristol Bay Fisheries Collaborative. 15 p.

APPENDIX A. Memorandum of Agreement between ADF&G and BBSRI to form the Bristol Bay Fisheries Collaborative, 2016, including the terms of reference for the Working Group.

MEMORANDUM OF AGREEMENT

Between

ALASKA DEPARTMENT OF FISH AND GAME
P.O. BOX 115526
JUNEAU, ALASKA 99811

and

BRISTOL BAY SCIENCE AND RESEARCH INSTITUTE
P.O. BOX 1464
DILLINGHAM, ALASKA 99576

This Memorandum of Agreement (MOA) is made and entered into by and between the Alaska Department of Fish and Game, hereinafter referred to as ADF&G and Bristol Bay Science and Research Institute, hereinafter referred to as BBSRI. ADF&G enters into this agreement under authority of AS 16.05.050 (12).

A. PURPOSE:

The purpose of this Memorandum of Agreement is to provide a framework upon which ADF&G and BBSRI may jointly plan, fund and accomplish mutually beneficial projects and activities within the Bristol Bay watershed. Such activities and projects will complement the missions of ADF&G and BBSRI and be in the best interest of the fishery resources and communities within the Bristol Bay watershed.

Together ADF&G and BBSRI will consider projects and activities that achieve these common goals:

1. Maintain and enhance a world-class, collaborative fisheries management program in Bristol Bay to benefit all stakeholders, including communities and residents of the region.
2. Stabilize and secure funding for annual research and monitoring programs used to manage the fisheries of Bristol Bay.

B. BACKGROUND:

WHEREAS, the State of Alaska, acting through its agents in ADF&G, is constitutionally responsible for the sustainability of all wildlife and fish within its borders, regardless of land ownership or designation, and it has the statutory authority, jurisdiction, and responsibility to manage, control, and regulate wildlife and fish populations, including for subsistence purposes, unless specifically preempted by Federal law.

WHEREAS, the State of Alaska is facing fiscal challenges with dramatic declines in revenues, and this has already significantly affected management of Bristol Bay fisheries.

WHEREAS, the Bristol Bay salmon and herring fisheries occur over short periods and as a result an information-intensive management system has evolved since statehood.

WHEREAS, ADF&G must seek to manage all renewable resources on the sustained yield principle for the common use of all people, subject to preferences among beneficial uses, and the State may enter into cooperative agreements with other organizations to benefit these resources and uses, but it cannot surrender its responsibility to manage fisheries resources to them.

WHEREAS, ADF&G's mandate and mission do not require it to maximize or optimize the economic benefits from the fish stocks and ecosystems.

WHEREAS, the fishery can be more conservatively managed than it is currently and still meet the requirements of Alaska's Sustainable Salmon Fisheries Policy (SSFP, 5 AAC 39.222). However, less real-time information on the status of the fish stocks, and post-season run reconstruction/apportionment to maintain meaningful preseason forecasts, will require that ADF&G manage fishing effort more conservatively, and that in turn will result in less overall harvest and/or value of harvest by distributing effort and catch less favorably across days within seasons.

WHEREAS, BBSRI undertakes scientific projects to facilitate a greater understanding of the environment and fisheries resources of the Bristol Bay region and to pursue projects that will foster the economic health and vitality of the region and its inhabitants.

WHEREAS, over the last 15 years BBSRI has brought resources and focus to important topics and research needs that agencies have been unable to address because of declining budgets or narrow mandates. The State of Alaska is responsible for ensuring that the Bristol Bay salmon fishery provides a sustained yield over time, but no agency (state or federal) has a mandate to ensure economic vitality of the fishery. Much of BBSRI's work has been toward fostering the economic health and vitality of the region and its residents.

WHEREAS, processors and fishermen support fisheries monitoring activities in Bristol Bay through financial and in-kind support and they bring valuable knowledge and information to ADF&G fishery managers to assist in the prosecution of the fishery.

NOW THEREFORE, with this five-year agreement, ADF&G and BBSRI recognize that it is mutually beneficial to work collaboratively to ensure the wellbeing of the fishery resources and the people who use them within the Bristol Bay watershed. Both parties envision leveraging one another's resources for the greater good of the fisheries and the science that supports its management.

- This MOA formalizes BBSRI's and other participating stakeholders support and input to projects and activities used to manage the Bristol Bay fisheries. This formalization is preferable to the current *ad hoc* nature of assistance from BBSRI and other stakeholders.
- This MOA does not intend in any way to transfer or dilute ADF&G authority to open and close the fishery, or interfere with any other functions associated with Emergency Order authority granted to Area Managers by the Commissioner of ADF&G, adherence to the SSFP, or regulations promulgated by the Alaska Board of Fisheries.
- This collaboration between ADF&G and BBSRI will be referred to as the **Bristol Bay Fisheries Collaborative (BBFC)**.

C. GENERAL PROVISIONS:

1. Both parties agree to comply with all applicable federal or state laws regulating ethical conduct of public officers and employees.
2. Nothing herein is intended to conflict with federal, state, or local laws or regulations, or limit the current policies, bylaws, laws, or authorities of ADF&G or BBSRI. If there are conflicts, this agreement will be amended at the first opportunity to bring it into conformance with laws or regulations.
3. Addendums to this agreement can be made by mutual written consent of BBSRI and ADF&G.
4. If any part of this agreement is determined to be in violation of law, all other parts not so determined shall remain in full force and effect.
5. This agreement is executed as of the last date shown below, and shall expire or be renewed five years from that date; however, either party may withdraw from the Agreement 18 months after providing written notice to the other party.

D. PARTNERS:

Alaska Department of Fish and Game

Alaska Department of Fish and Game is an entity within the State of Alaska which has the constitutional responsibility for the sustainability of all wildlife and fish within state borders, regardless of land ownership or designation, and it has the statutory authority, jurisdiction, and responsibility to manage, control, and regulate wildlife and fish populations, including for subsistence purposes.

Bristol Bay Science and Research Institute

Bristol Bay Science and Research Institute is a 501.c.3 corporation incorporated in 1998. BBSRI is a subsidiary of the Bristol Bay Economic Development Corporation (BBEDC). BBSRI has been active in fishery monitoring, management, and research in the Bay since 2002. It has collaborated with ADF&G on many aspects of the Bristol Bay fishery program, and has provided financial and human resources to Bay management for over a decade.

Together, the Commissioner of ADF&G and the Board of Directors of BBSRI constitute the **Parties' Leadership**.

F. IT IS MUTUALLY AGREED THAT:

1. Either party(s) in writing may terminate the instrument in whole, or in part, at any time before the date of expiration with 18 months written notice.
2. Both parties will provide funding, in ADF&G's case subject to appropriation by the legislature and in BBSRI's case subject to approval by its Board of Directors, on an annual basis that will be used in the operation of the Bristol Bay fisheries. Each party will be responsible in ensuring that their annual commitment is commensurate with their own fiscal abilities.

3. Reductions by one party in annual commitments to support a core program may result in a commensurate reduction by the other party.
4. This MOA in no way restricts ADF&G or BBSRI from participating in similar activities with other public or private agencies, organizations, and individuals.
5. Meetings between the Parties Leadership’, the BBSRI Board of Directors (or its designate) and the Commissioner of ADF&G (or his/her designate) will be held at least annually to review the agreement, the Work Group performance and appointees, and discuss, identify, and coordinate the various activities pursuant to this MOA, or to discuss, identify and coordinate future opportunities that fall within the area of common benefits and interests.
6. A “Work Group” (WG) will be comprised of two representatives from each of ADF&G and BBSRI.
7. Each party will appoint its WG members, in consultation with the other party to the MOA to ensure WG members are appropriately qualified.
8. The WG will work collaboratively to define the scope of a “Core Program” and will develop non-binding recommendations on how to allocate available resources among monitoring and research tasks on an annual basis. The WG will also regularly review specific projects and overall program performance. The mandate of the WG is to obtain the best management program with the funds available.
9. A Terms of Reference for the WG provides scope and structure to the entity (Appendix A).
10. The principal contacts for this instrument are:

ADFG Administrative Contact	Cooperator Administrative Contact
Amy Moselle Administrative Operations Manager	Keggie Tubbs Executive Director
Alaska Department of Fish and Game	Bristol Bay Science and Research Institute
1255 W. 8 th Street Juneau, Alaska 99801	Box 1464 Dillingham, Alaska 99708
Phone: 907-465-6158	Phone: 907-842-4370
E-mail: amy.moselle@alaska.gov	Email: keggie@bbedc.com

G. SIGNATORIES, BRISTOL BAY FISHERIES COLLABORATIVE

For the Alaska Department of Fish and Game



Sam Cotten
Commissioner

10-21-16

Date

For the Bristol Bay Science and Research Institute



H. Robin Samuelsen, Jr.
Chairman, Board of Directors

10-12-16

Date

Appendix A to the BBFC MOA

TERMS OF REFERENCE

Working Group for the Bristol Bay Fisheries Collaborative

OVERVIEW

The Bristol Bay Fisheries Collaborative (BBFC) is a joint effort to fund and implement the monitoring and management activities for salmon and herring stocks in Bristol Bay, Alaska. It is organized under a Memorandum of Agreement (MOA) between the Alaska Department of Fish and Game (ADF&G) and the Bristol Bay Science and Research Institute (BBSRI), herein referred to as the “Parties”. “Industry Partners” are companies and organizations who participate in the collaborative through funding and input to the components of the management program.

The ADF&G-BBSRI MOA formally sets out terms for contributing funding and participating in the BBFC. The MOA mandates that a Working Group (WG) be formed to discuss, review, and recommend a suite of activities that it defines as a “Core Program” for the Bay area fisheries. The Core Program represents what both Parties identify as essential projects and activities to maintain world-class fisheries and management systems. This *Terms of Reference* defines the scope and duties of the WG, its membership, meeting frequency, decision making processes, and deliverables.

SCOPE OF WORK AND DUTIES

- Defining and regularly reviewing the scope of the annual monitoring and research activities for Bay area salmon and herring fisheries managed by ADF&G.
- Ensuring the efficacy and suitability of the annual and multi-year research and monitoring projects for Bay area fisheries.
- Ensuring that to the extent possible BBFC’s collective funds are being expended in the most judicious and efficient manner, taking into account “full-cost accounting principles” (i.e., taking into account all sources of costs to conduct various functions/projects and not just the marginal costs).
- Conducting regular reviews of individual projects/functions and any potential projects to update the content of a Core Program.
- Meeting at least twice annually, as well as work outside meetings to collate and prepare information for review at meetings, and for briefing the Parties’ Leadership (BBSRI Board of Directors and Commissioner of ADF&G, or their delegates).
- Providing non-binding recommendations to the Parties’ leadership on the makeup of the Core Program for the upcoming season.

MEMBERSHIP

- The WG will be comprised of two representatives from each of the Parties.
- Each Party will appoint its WG members annually in consultation with the other Party to ensure WG members are appropriately qualified.
- The Parties' Leadership will review the performance of the WG and its individual members as often as once annually.
- Each Party to the MOA will financially support the participation of its WG members.
- Minimum qualifications for individuals to serve on the WG include considerable familiarity with management and/or science of Bristol Bay fisheries (e.g., 5 or more years working in the Bay fisheries), and a demonstrated track record of working constructively with multiple parties in an agency-industry environment. This minimum qualification can be waived for a particular individual by mutual consent of the Parties.

MEETING FREQUENCY

- The WG shall meet a minimum of twice per calendar year with additional work occurring outside of the WG meetings.

DECISION MAKING

- The WG work products, including its annual recommendations, will be based on consensus-based decision making. Recommendations of the WG must be compliant with the State of Alaska's procurement procedures and labor agreements.
- The WG will make every attempt to resolve differences to achieve consensus. Should consensus not be achieved among the WG members, the relevant matter will go to the Parties' Leadership for final determination.

DELIVERABLES

- The WG group will provide an annual report to its benefactors (funders), other stakeholders in the fisheries, and the general public that summarizes a general accounting of funds, programs conducted, and review any possibly upcoming changes. This report will be provided by March 31 each year.