



**KODIAK REGIONAL**  **AQUACULTURE ASSOCIATION**  
**2014 ANNUAL REPORT**

## **OUR MISSION**

*The Kodiak Regional Aquaculture Association is dedicated to salmon fisheries development in the Area K Management Area for the benefit of all common property users — subsistence, sport, and commercial — through research and management efforts, habitat monitoring and protection, stocking, enhancement and rehabilitation projects. KRAA further promotes respect for Kodiak Area salmon resources through science education and partnership programs.*









# AQUACULTURE IN KODIAK

Regional aquaculture associations were originally formed in 1976 through legislative action prompted by Alaskan fishermen who lobbied for the exclusion of private enterprise from salmon fisheries development and enhancement (and the creation of the nonprofit hatchery associations—both the regional aquaculture association for each area, as well as other private non-profit or PNP organizations). The ultimate goal was to give Alaskans a voice in salmon fishery enhancement decisions and a hand in actions, such as rehabilitation of weak salmon stocks or supplemental salmon production, research and educational outreach, and habitat protection and improvement.

Each association is governed by a board of directors comprised of area permit holders representing each gear group as well as processing, marketing, sport fishing and other interests. The Kodiak Regional Aquaculture Association (KRAA) was officially approved by the commissioner of the Alaska Department of Fish and Game in 1983, and it has been enhancing and rehabilitating salmon runs in the Kodiak area for over 30 years.

During its formative first decade, KRAA achieved much through lake enrichment projects, and, by 1994, supplemental sockeye production from stocking barren lakes reached significant levels. Since then, KRAA's contribution to the Kodiak Area salmon harvest has continued to expand.

Currently, the Association is primarily funded through two

avenues: cost-recovery fishery licensing revenues and a two percent salmon enhancement tax (SET) on first point-of-sale commercial salmon fisheries harvest revenues. The SET is initially paid to the State of Alaska by Area K salmon permit holders. The tax is calculated from gross revenue at the time of delivery and is held in the State of Alaska General Fund until the time of disbursement each year. The monies distributed to each Regional Aquaculture Association are based on landings in that region, and SET revenues generated in Area K are disbursed annually to KRAA by the state Department of Commerce, Community, and Economic Development.

## REGIONAL PLANNING TEAM

The Kodiak Regional Planning Team (KRPT) is comprised of six voting members: three positions are held by representatives of KRAA, and representatives of ADF&G hold three seats. The team currently has a non-voting chairman and several non-voting ex-officio members. According to Alaska regulations, 5AAC 40.340, "each regional planning team shall prepare a regional comprehensive salmon plan, for the appropriate region to rehabilitate natural stocks and supplement natural production with provisions for both public and private nonprofit hatcheries."



**RPT MEMBERS**

**Steve Schrof (ADF&G - Chair)**

**Oliver Holm (KRAA - President)**

**Wallace Fields (KRAA - Vice President)**

**Rick Ellingson (KRAA - Board Member)**

**Ron Josephson (ADF&G - FMPD)**

**Jeff Wadle (ADF&G -KMA)**

**Donn Tracy (ADF&G - SF)**

# PILLAR CREEK HATCHERY

**P**illar Creek Hatchery (PCH) was constructed in 1990 as a cooperative project between the ADF&G and KRAA. PCH is owned by the State of Alaska and is located on Kodiak Island Borough land that is leased to the State of Alaska. KRAA operates the facility under an agreement with the State. PCH is operated in accordance with Alaska statutes and regulations, ADF&G Private Nonprofit Salmon Hatchery Permit Number 41, the PCH Basic Management Plan (BMP), and PCH AMP.

PCH was originally designed to produce juvenile sockeye salmon for stocking barren-lake systems to enhance adult salmon production and for stocking anadromous lakes to rehabilitate weak sockeye salmon stocks. These stocking projects were developed to increase sockeye salmon harvest opportunities in the Kodiak Management Area (KMA) for common property fisheries, available to all Kodiak commercial, subsistence, personal use, and recreational fishermen. PCH was designed as a central incubation facility; where salmon eggs needed for production are collected from brood sources located at sites remote from PCH and transported to the facility for incubation, hatching and rearing of resulting juvenile fish. Most juvenile fish are then transported to and released at stocking sites remote from PCH.

Today, PCH continues to produce juvenile sockeye salmon for lake stocking projects, and, in the past two years, has started saltwater net pen projects while

continuing to work cooperatively with the ADF&G Division of Sport Fish to produce coho salmon, king salmon, and rainbow trout to enhance fishing opportunities on the Kodiak road system.

## 2014 Releases

LOCATION	SPECIES	STOCK	STAGE	NUMBER*
Hidden Lk	Sockeye	Afognak Lk	Fed Fry	200,000
Crescent Lk	Sockeye	Afognak Lk	Fed Fry	108,000
Spiridon Lk	Sockeye	Saltery Lk	Fed Fry	2,200,000
Lower Jennifer Lk	Sockeye	Saltery Lk	Fed Fry	55,200
Ruth Lk	Sockeye	Saltery Lk	Fed Fry	55,200
Telrod Cove	Sockeye	Saltery Lk	Smolt	607,000
Anton Larsen Bay	Sockeye	Little Kitoi Lk	Smolt	140,000
Ouzinkie Village	Sockeye	Little Kitoi Lk	Smolt	95,000
Island Lk	Coho	Buskin Lk	Fingerling	30,000
Dark Lk	Coho	Buskin Lk	Fingerling	9,000
Mission Lk	Coho	Buskin Lk	Fingerling	13,100
Potato Patch Lk	Coho	Buskin Lk	Fingerling	10,200
Mayflower Lk	Coho	Buskin Lk	Fingerling	6,500
Abercrombie Lk	Coho	Buskin Lk	Fingerling	3,500
Barry Lagoon	Coho	Buskin Lk	Fingerling	22,500
Lilly Lk	Coho	Buskin Lk	Fingerling	10,700
Salonie Ck	Chinook	Monashka Ck	Smolt	62,600
Monashka Ck	Chinook	Monashka Ck	Smolt	70,000
American River	Chinook	Monashka Ck	Smolt	70,000
Olds River	Chinook	Monashka Ck	Smolt	70,000
Kodiak Road System Lakes	Rainbow Trout	Ft. Richardson Cap. Spawn	Fingerling	18,600



# KITOI BAY HATCHERY

**T**he Kitoi Bay Hatchery (KBH) is located on Afognak Island (58°11.04'N lat, 152°21.04'W long) on the west side of Izhut Bay approximately 48 km (30 miles) north of the city of Kodiak (Appendix A1). The hatchery infrastructure was constructed in 1954 by the U. S. Department of the Interior, Fish and Wildlife Service (USFWS), but was destroyed in the 1964 earthquake and rebuilt by the Alaska Department of Fish and Game (ADF&G) in 1965.

The hatchery was initially designed as a Sockeye salmon, *Oncorhynchus nerka*, research facility. By 1976, hatchery production priorities switched to pink salmon, *O. gorbuscha*, fisheries enhancement. The present goal of the facility is to provide enhanced common property salmon fishing opportunities for Kodiak Management Area (KMA) fishermen by increasing returns of pink, chum (*O. keta*), coho (*O. kisutch*), and sockeye salmon through broodstock development, egg takes, incubation, hatching, rearing and releasing juvenile salmon (Appendix B), primarily to the Kitoi Bay area. KBH primarily increases salmon harvest of KMA commercial fisheries. Secondary user groups (in terms of the number of salmon harvested) of hatchery production include subsistence and recreational fishermen.

Today KBH is operating at full its full incubating capacity of 215 million pink salmon, 36 million chum salmon 2.3 million coho salmon and 850,000 sockeye salmon.

The old structure will be torn down and replaced in 2014.







# RESEARCH AND MONITORING

To evaluate the success and effectiveness of the Association's programs, KRAA and ADF&G biologists implement projects centered on monitoring and evaluating juvenile salmon survival and/or adult salmon returns. Projects for 2013 included:

## SPIRIDON LAKE/TELROD COVE

Annual sockeye salmon smolt emigrations from Spiridon Lake are enumerated and sampled for age and size to assess growth, juvenile survival and smolt-to-adult survival. These efforts include operation and maintenance of a bypass system (diversion weir, traps, dewatering tanks, and pipeline) in May and June. In 2013, approximately 700,000 sockeye salmon smolt emigrating from Spiridon Lake were enumerated through the bypass system. Approximately, 65% of the migrating smolt were age 1 and 35% were age 2

Returning adult sockeye salmon are harvested in the commercial salmon fisheries within the Northwest Kodiak District with a large portion caught in the Spiridon Bay Special Harvest Area (SBSHA), located at Telrod Cove. From mid-June to early August, the fishery in the SBSHA is monitored by KRAA staff. Monitoring duties include estimating the build-up of returning sockeye salmon, estimating and sampling the sockeye salmon harvest, and estimating the incidental harvest of Chinook, chum, pink, and coho salmon. Just under 130,000 sockeye salmon were harvested in Telrod Cove during the 2013 season.

## WATERFALL BAY

Sockeye salmon juveniles were stocked into Little Waterfall Lake from 1992-2009 and 2011, and intermittently into Big Waterfall Lake in 1992, 1994, and 1999-2010. In addition to stocking, Little Waterfall Lake was fertilized from 1993 through 2001 in order to maintain a stable forage base (zooplankton) for the rearing juvenile sockeye salmon. Due to low zooplankton levels, no fish were released at Little Waterfall and Big Waterfall lakes in 2013.

To quantify sockeye salmon returns to the Waterfall Bay Special Harvest Area, ADF&G and KRAA have been monitoring the annual commercial harvest since 1995. Commercial harvest monitoring duties include the installation and maintenance of a barrier net in the estuary of Little Waterfall Bay. The barrier net provides fishermen the opportunity to harvest all of the returning sockeye salmon to the WBSHA. The 2013 harvest at WBSHA yielded 7,232 sockeye salmon.

## HIDDEN LAKE/FOUL BAY

Sockeye salmon returning to Foul Bay are harvested in the Foul Bay Special Harvest Area (FBSHA). ADF&G annually monitors the commercial harvest and collects adult AWL samples. Lake limnology data is collected to evaluate the response of the lake's zooplankton community to predation by juvenile salmon. Additionally, freshwater growth and fry to adult survival data are collected and evaluated. A total of 9,201 sockeye salmon were harvested in Foul Bay.

## FRAZER LAKE





In 1962 a fish pass was constructed around the barrier waterfall on the Dog Salmon River, which allowed fish to access Frazer Lake and tributary spawning habitats. Throughout the years, many improvements have been made to the fish pass, and now both juvenile salmon and adults are passed and enumerated to provide better forecasting and management strategies.

Today, ADF&G and KRAA work in collaboration to operate the Frazer fish pass and weir for the duration of the sockeye return. To estimate the abundance of smolt, an incline plane trap is installed in the upper reaches of the Dog Salmon River and fished May through early July. Throughout the emigration, age, weight and length data are collected daily.

In 2013, just over 136,000 sockeye salmon were passed through the fish pass and into the upper reaches of the Frazer Lake. The associated commercial fishery in the Alitak Bay District is sampled and harvests are apportioned. In 2013, an estimated 170,623 Frazer sockeye salmon were harvested in Alitak\* commercial fisheries.

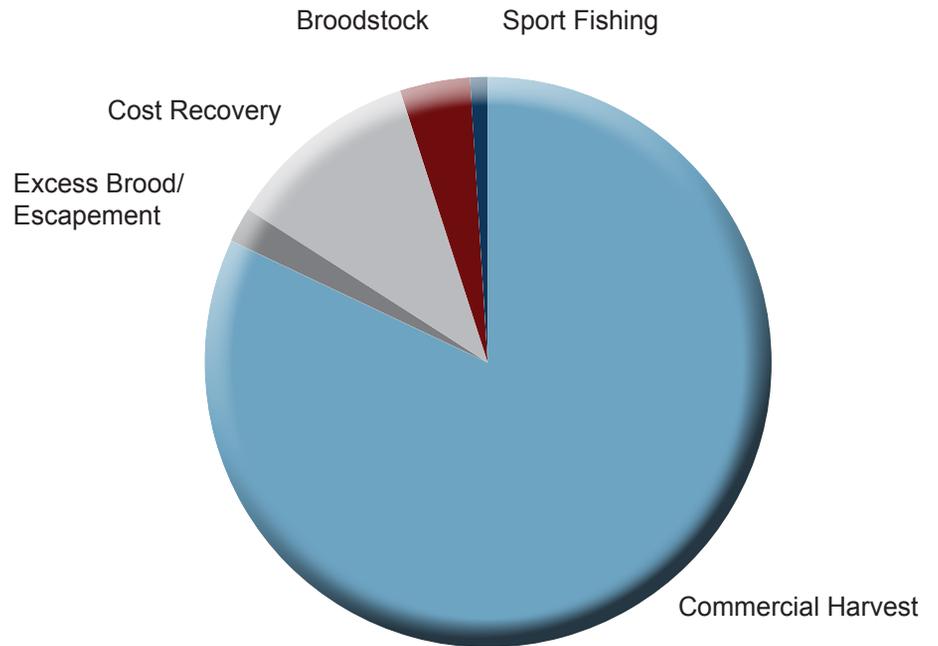
### SALTERY RIVER

KRAA provides funding and personnel to ADF&G to install and operate the weir on an annual basis. Reliable and accurate counts are particularly important to KRAA operations due to the remote egg-takes that occur on the system. Every summer, Pillar Creek Hatchery collects eggs from Saltery Lake sockeye salmon to be reared for release at Spiridon Lake or one of KRAA's other late-run

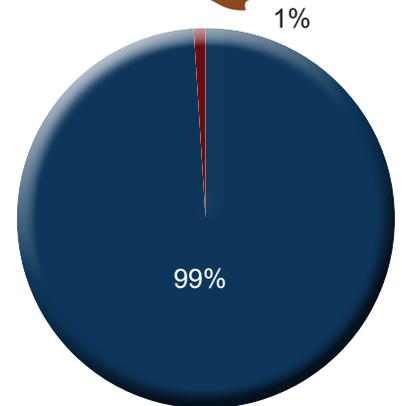
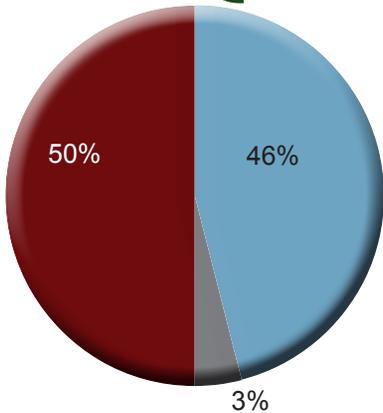
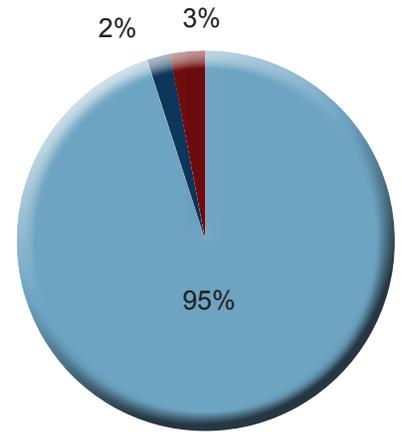
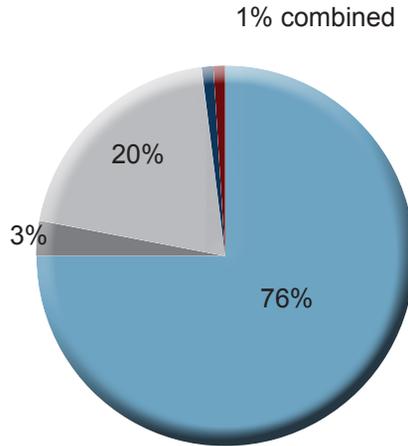
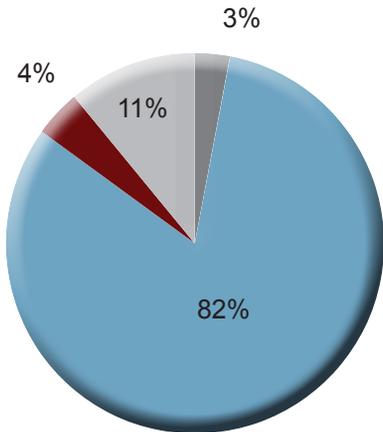
sockeye salmon projects.

In 2013, more than 36,000 sockeye salmon were passed through the Saltery River weir. Once escapement goals were met, KRAA utilized 2,286 adult sockeye salmon for broodstock. Saltery sockeye are targeted by subsistence, sport and commercial fishermen.

# KRAA CONTRIBUTION



Figures include all returning salmon attributed to all KRAA releases sites (except Crescent Lake)





# COST RECOVERY HARVEST

Cost recovery harvests are authorized by the State of Alaska to “recover” all or part of the costs of operating the hatchery, for improvements to the hatchery, for other salmon enhancement or rehabilitation projects in the region, fisheries research, or reasonable operating or administrative costs. Prior to the fishing season, the KRAA Board of Directors establishes cost recovery goals designed, in part, to reach funding objectives while minimizing impact on the common property fishery.

KRAA is authorized by the state to license the harvest of salmon for cost recovery in strategically designated locations called Special Harvest Areas (SHAs). These areas, often located in terminal or hatchery locations, allow harvest of salmon with minimal impact on common property openings. Once the hatchery’s broodstock and/or cost recovery goals are realized or within reach, salmon fishing in the SHA and associated districts may be opened by again to the common property fishery by order of ADF&G area managers and Management Plans.

In 2014, the Association concentrated cost recovery efforts at the Kitoi Bay and Spiridon Bay Special Harvest Areas.

## SPIRIDON BAY SPECIAL HARVEST AREA - TELROD COVE

KRAA initiated a cost recovery program in 2010 to provide a regular funding stream for Pillar Creek Hatchery operations and salmon research and monitoring projects. The 2014 Telrod Cove cost recovery goal was set at 400,000

pounds of sockeye salmon returning from Spiridon Lake stocking projects.

In 2013, the Telrod Cove cost recovery harvest began on June 26, 2013 and concluded on July 19, 2013. A total of 95,725 sockeye salmon, averaging approximately 5.3 lbs. were harvested during the cost recovery fishery, and an additional 33,299 sockeye salmon were harvested within the SHA during the common property fishery. The total return of Telrod Cove bound sockeye salmon was calculated at 330,831 adult fish and contributed more than 201,807 fish to fisheries in districts outside the SHA.

## KITOI BAY SPECIAL HARVEST AREA

The Kitoi Bay cost recovery goal for 2013 was set at 4 million pounds of Kitoi Bay Hatchery pink salmon. Efforts began on August 9, 2013 and concluded on August 24, 2013 when a total of 1,628,821 pink salmon had been harvested and the 4 million pound goal was realized. Over 10.1 million pink salmon were harvested in the common property fishery at Kitoi Bay.







# LIMNOLOGY PROGRAM

**A**DF&G, with KRAA funding and equipment, operates a limnology laboratory in Kodiak for the collection, processing and analysis of water chemistry and zooplankton samples. Limnology data collection from Kodiak lakes began in the early 1980's. KRAA, in a cooperative agreement with the ADF&G, has provided the funding for the majority of limnology data collection and processing since 1991. In 2013 KRAA funded sampling at 17 lakes on Kodiak and Afognak Island.

Most lakes in the Kodiak area are accessible only by floatplane. Samples collected while working off the floats include zooplankton net hauls, water samples, temperature and dissolved oxygen profiles, and light incidence measurements. In the laboratory, zooplankton is measured and enumerated under the microscope, and water samples can be analyzed for pH, alkalinity, Chlorophyll a, and nutrient content.

ADF&G uses limnology data to assess lake productivity and changes in the freshwater rearing environment of sockeye salmon. From these analyses, ADF&G provides stocking recommendations to KRAA for sockeye salmon projects.

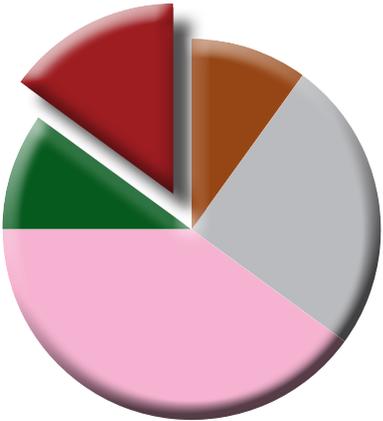
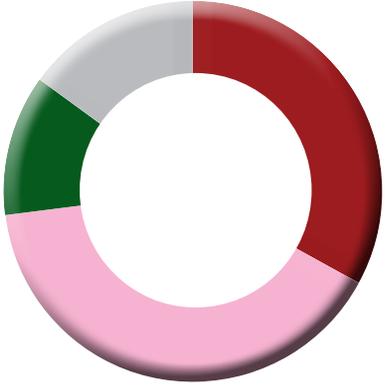
Limnology data collected on lakes that are not regularly stocked with salmon is archived to provide baseline information. These data are important in instances where sockeye returns begin to dwindle. The baseline limnology and zooplankton data can be used to attribute, or rule out, run failures caused by unfavorable juvenile rearing

conditions.

Data collected at Karluk, Spiridon, and Frazer lakes are







**A**s a state-sanctioned regional aquaculture association, KRAA has the unique ability to provide resources for the communities of Kodiak. Along with producing salmon, KRAA provides dynamic educational opportunities, events, and resources that advance scientific knowledge and promote stewardship of Kodiak's salmon resource. KRAA's education and outreach efforts strive to foster two-way communication and actively involve the community in salmon enhancement decisions.

In 2014, KRAA staff participated in Family Science night by teaching elementary students about the different salmon life stages. During the Kodiak Envirothon, the Research and Monitoring team taught high school students how salmon life histories played a part in where salmon are found in a watershed. Staff also manned the aquatics section during the Envirothon activity day.

KRAA and Pillar Creek Hatchery provided a fish tank display during the 2014 Kodiak ComFish Trade Show, and hatchery staff participated in Family Science Night and provided countless hatchery tours to members of the public, visitors to Kodiak and classes from our public and private schools.

Now in its seventh year, KRAA's internship program is targeted toward students pursuing fisheries, aquaculture, biology, and natural resources degrees. Students participating in the program are provided a hands-on opportunity to work in a field camp and gather data. By working alongside experienced biologists and technicians, students are provided professional development opportunities and acquire skills that often are not available in classroom settings.





2014 Staff

ADMINISTRATION AND OPERATIONS

TINA FAIRBANKS EXECUTIVE DIRECTOR  
JAMMY HULSE EXECUTIVE ASSISTANT  
MEGAN HOLLAND ACCOUNTING CLERK  
TRENTEN DODSON PRODUCTION AND OPERATIONS

RESEARCH AND MONITORING

NATHAN WEBER MANAGER  
JOSEPH BOTTOMS BIOLOGIST  
MELINNE PAW LIMNOLOGY

PILLAR CREEK HATCHERY

J. ALAN SEALE MANAGER  
ANDREW WALTER ASSISTANT MANAGER  
JAMES TURMAN FISH CULTURIST

KITOI BAY HATCHERY

ANDREW ARC MANAGER  
MICHAEL SMIMMO ASSISTANT MANAGER  
TERRY NORRIS MAINTENANCE MANAGER  
CHUCK JORGENSEN ASSISTANT MAINTENANCE MANAGER  
JOSEPH SAN FISH CULTURIST  
RANDY MASON FISH CULTURIST  
RIAN HILSDORF FISH CULTURIST  
MICHAEL WACHTER FISH CULTURIST



OLIVER HOLM  
Purse Seine  
*President*



WALLACE FIELDS  
Westside Set Net South  
*Vice-President*



HARVEY GOODELL  
Westside Set Net North  
*Secretary*



RAYMOND MAY  
Purse Seine  
*Treasurer*



HERMAN SQUARTSOFF  
Subsistence



DON DUMM  
Beach Seine



KIP THOMET  
Set Net At-Large



JESSE GLAMMAN  
Sport Fish



DANA REID  
Purse Seine



JEFF STEPHAN  
Marketing



RICK ELLINGSON  
Allitak Set Net



STEVE LEE  
Processor



RICK BERNS  
Purse Seine



STEVEN HORN  
Any Gear At-Large



CHRIS BERNS  
Any Gear At-Large



104 Center Ave, Suite 205  
Kodiak, AK 99615  
907.486.6555  
[www.kraa.org](http://www.kraa.org)