Agency: Commerce, Community and Economic Development

Grants to Named Recipients (AS 37.05.316)

Grant Recipient: Kodiak Regional Aquaculture Association **Federal Tax ID:** 92-0115279

Project Title: **Project Type:** Maintenance and Repairs

Kodiak Regional Aquaculture Association - Kitoi Bay Hatchery Deferred Maintenance and Upgrades

State Funding Requested: $6,588,000 **House District:** 35 / R

One-Time Need

Brief Project Description:

Major deferred maintenance and necessary upgrades at a state-owned salmon hatchery contractually operated by Kodiak Regional Aquaculture Association.

Funding Plan:

Total Project Cost:	$9,946,000
Funding Already Secured:	($3,358,000)
FY2014 State Funding Request:	($6,588,000)
Project Deficit:	$0

Funding Details:

FY 2011 $0.5 million

FY 2012 $1.308 million

FY 2013 $1.55 million

Detailed Project Description and Justification:

Project will finish Capital Improvements of State of Alaska-owned Kitoi Bay Hatchery on Afognak Island (Kodiak)

Deferred Maintenance and Upgrade projects began in FY2011. ADF&G Inspection Report (March 2012) estimated Corrective Work needed to bring aging structures and systems up to current codes and standards. Estimated total cost has increased ($9.946 million; due to inflation, higher replacement costs). FY11-13 funding ($3.358 million) is significantly short; hence, this request for an additional $6.588 million for repairs/upgrades of Kitoi Bay Hatchery.

Project funding will provide:

- Planning, management, engineering and architectural plans, permitting, contracting, and site preparation.
- Major infrastructure repairs/upgrades to the Kitoi Hatchery dam, bridge, dock, bulk fuel storage and distribution, power generation and distribution, and wastewater treatment systems.
- Replace failing pipes and reconfigure hatchery water systems for efficiency and future needs.
- Major repairs/upgrades of 4 hatchery buildings, 7 support/storage buildings, and 5 residential buildings to fix interior and exterior structural deficiencies, power and heating systems, energy efficiency, employee safety.
- Replace pink salmon incubation building to expand and increase pink salmon production;
- Replace 2 structurally deficient buildings to increase sockeye salmon production and increase space for maintenance/mechanics shop, storage, administrative offices and visitor services/educational center.
- Replace aged, failing heating systems, transport equipment, incubators, raceways and net pens.

For use by Co-chair Staff Only:

$3,300,000
Approved

2:00 PM 5/9/2013

Contact Name: Astrid Rose
Contact Number: 465-3271

Project Timeline:

Construction seasons 2013-2015

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Kodiak Regional Aquaculture Association

Grant Recipient Contact Information:

Name:	Kevin Brennan
Title:	Executive Director
Address:	104 Center Ave. Suite 205
	Kodiak, Alaska 99615
Phone Number:	(907)486-6555
Email:	kraa@gci.net

Has this project been through a public review process at the local level and is it a community priority? ☐ Yes ☒ No

For use by Co-chair Staff Only:

2:00 PM 5/9/2013

Contact Name: Astrid Rose
Contact Number: 465-3271

KITOI HATCHERY INSPECTION REPORT

Alaska Department of Fish and Game

March 2012

Jensen Yorba Lott Inc

KITOI BAY HATCHERY

Operator: Kodiak Regional Aquaculture Association (KRAA)

Location: Kitoi Bay, Southwest Afognak Island

	Permitted Capacity
Pink	215 million eggs
Chum	28 million eggs
Coho	2.3 million eggs
Sockeye	600,000 eggs

Year Built:	1964
Land Ownership:	Afognak Native Corporation Ouzinkie Native Corporation
PNP Permit #:	29
Permit Issue Date:	7/5/1988
Contract Expiration:	11/16/2031

	Release Sites	
Pink	Kitoi Bay	
Chum	Kitoi Bay	
Coho	Kitoi Bay	Ruth Lake
	Jennifer Lake	Crescent Lake
Sockeye	Little Kitoi Lake	

Kitoi is one of the oldest hatcheries still operating in Alaska. The original structure was built in 1954 as a sockeye salmon research station. It was destroyed in the earthquake and tidal wave of 1964, and rebuilt in 1965. It is now one of the largest pink salmon hatcheries in Alaska. It produces returns of about 7 million pink salmon, 200,000 chum salmon, 160,000 coho salmon, and 50,000 sockeye salmon each year.

2011 KITOI BAY HATCHERY
FACILITY DESCRIPTION/MAINTENANCE NEEDS

Big Kitoi Dam
The concrete dam is 12" thick and approximately 40' wide. The water level was 27" below the top of the dam. The main portion of the dam did not have any obvious signs of deterioration or instability. The spillway walls have extensive cracks and it was reported that the back of the spillway had subsided recently. The dam was inspected in 2008 and found in good condition. Report was sent to and reviewed by ADNR Dam Safety Engineer Charles Cobb.

Big Kitoi Creek Bridge
The 8' wide x 30' long bridge consists of the bottom of a shipping storage container. There is an intermediate support column with an unknown foundation. The steel framing has significant corrosion, and in some cases has completely corroded through. The bridge is only supposed to be used by ATV's, but due to the significant corrosion the bridge should be demolished and replaced.

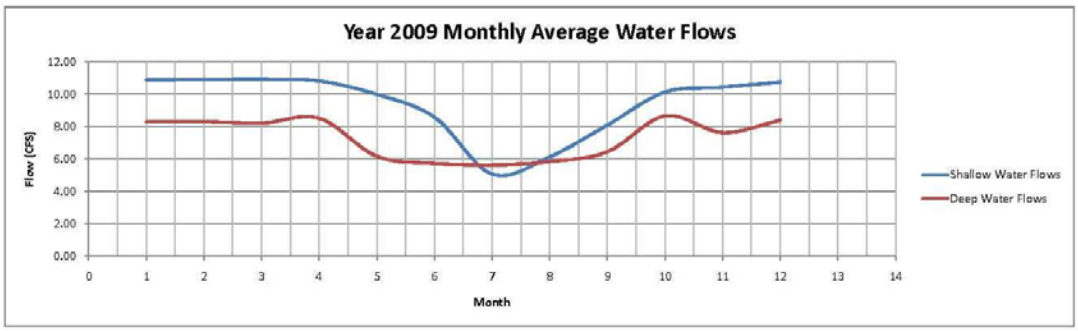
Civil
The water supply system consists of two 14-inch steel pipelines from Big Kitoi Lake to the hatchery. The shallow water intake withdraws water under an upward-acting slide gate at the outlet dam. There are two deep intakes, both used simultaneously. Most areas recive a mix of shallow and deep water, except the pink incubators which receive all shallow water. The intakes have not been inspected recently, but the operating instructions at the hatchery indicate that one intake is 50 feet deep approximately 1500 feet from the dam and the other is 75 feet deep approximately 2400 feet from the dam.

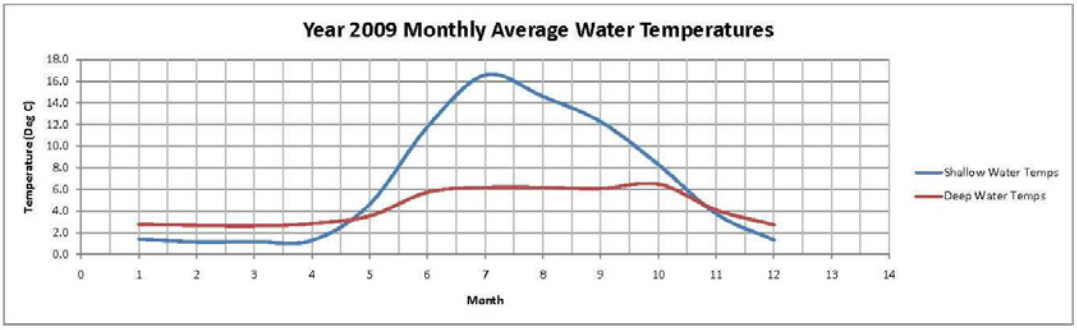
To meet current production goals, water use varies throughout the year with shallow water used for some programs and deep water for others. Temperature is the primary factor in determining which pipeline is used for which program.

Following is a summary of Year 2009 water usage:

Monthly Average Flows and Water Temperatures
Kitoi Bay Hatchery, 2009

	Flow [cfs]		Temperature [degC]	
	Shallow	Deep	Shallow	Deep
Jan	10.86	8.31	1.4	2.8
Feb	10.90	8.30	1.1	2.7
Mar	10.92	8.21	1.2	2.6
Apr	10.80	8.51	1.3	2.8
May	9.97	6.16	4.6	3.5
Jun	8.57	5.72	11.8	5.7
Jul	5.06	5.62	16.6	6.2
Aug	6.13	5.83	14.6	6.2
Sep	8.09	6.44	12.2	6.0
Oct	10.12	8.66	8.3	6.5
Nov	10.42	7.63	3.7	4.1
Dec	10.73	8.39	1.3	2.7





The water supply has intermittent periods of high turbidity and the filtration is used at the hatchery to remove particulates. In-line pressure filters are used throughout the incubation rooms and a drum filter is used for the outside raceways.

There is also IHNV in the lake water and water for both the sockeye and chum programs is disinfected with UV systems.

The operators have experienced periods of low level gas supersaturation which are treated with a screen deck at the chum incubation headbox and with degassing columns at the sockeye and coho raceways. There is also a gas stabilization tower at the lake through which the deep water intakes are piped. The coho silos offer sufficient depth to allow fish to avoid supersaturated conditions.

Water Supply Piping at Dam, Big Kitoi Lake


Site Piping, Degassing Tower

Site Piping:

Process water distribution piping has been modified numerous times over the life of the hatchery. Much of the primary supply pipe is exposed, large diameter PVC. The operators have experienced breaks and other damage to the pipe as it has aged. In a few locations, PVC has been replaced with HDPE which is more durable and rated for operating at lower temperatures.

Because of the numerous modifications to the system, it is also relatively complex and not easily understood without training or experience. Replacement of aging pipe could also include simplification of the system where feasible and clear identification of different types of pipes and valves.

Incubation System:

Four species of salmon are produced at Kitoi. The facility is permitted to incubate 215 million pink salmon, 28 million chum salmon, 600,000 sockeye salmon and 2.3 million coho salmon. The current capacity is lower than this, mainly in pink salmon incubation of approximately 185 million, but the operator is developing plans to increase production to permitted levels.

Chum salmon are incubated mainly in NOPAD incubators with a small portion in Kitoi boxes. Pink salmon, coho and sockeye are all incubated in Kitoi boxes.

Most Pink incubation is configured in single pass Kitoi box incubators. Water is supplied by a pressurized, closed pipe system. The water distribution and filtration system requires approximately 7 psi of incoming pressure at the upper level of the pink incubation rooms. Pink incubation uses mainly shallow water in the fall and winter and there is little or no excess pressure available when the shallow water system is flowing at its capacity.


Pink Incubation


Chum UV and Incubator


Sockeye UV


Coho Incubation

Rearing System:
Pink and chum fry are moved directly to saltwater net pens from the incubation rooms. Coho and sockeye are reared in raceways and silos on-site. Sockeye are reared in (14) aluminum raceways and coho are reared in (4) aluminum raceways and (4) FRP silos.

Hatchery Wastewater:
Incubation drain water is discharged to the intertidal segment of Big Kitoi Creek. The incubation water is generally of relatively high quality with low solids levels. Incubator drain water can also be discharged to the net pen complex when fry are being transferred and when freshwater is required at the net pens.

Coho raceway and silo drain water is also discharged to the intertidal segment of Big Kitoi Creek. Sockeye raceway drain water is discharged to saltwater on the east side of the site near the float plane and barge landing ramp. Raceway cleaning water is mixed with the continuous raceway effluent.

There were no NPDES or other discharge permits available at the hatchery. Consultation with Alaska DEC is necessary to determine current and anticipated requirements for hatchery discharges.

Domestic Water and Wastewater:
Domestic water is taken from the main hatchery water supply, disinfected with a separate small UV system and two stage particle filter and distributed to the housing.

Domestic wastewater is treated by five independent systems that combine into one outfall to Kitoi Bay. Each house has a package treatment plant with settling and aeration chambers. The domestic waste from the hatchery building and bunkhouse combine into one one septic tank near the barge landing. During the August 2011 visit, some odor was observed near the housing units when the aerator motors cycle on. There were not obvious odors or other signs of failure at the hatchery/bunkhouse system, but the operator was preparing for a pumping of the hatchery/bunkhouse septic tank.

Compliance of these systems with current regulations should be verified with Alaska DEC.

Electrical
The Kitoi Hatchery is powered from a single power plant with three diesel fired engine driven generators. Two generators are rated for 90 KW loads, and the third is rated for a 76 KW maximum load. All produce their power at 480Y/277 volts, three phase. At the time of this plant assessment, the loads ranged around 35 KW, total with approximately 22 KW fed to the hatchery. Generator no. 1 had been operated approximately 3,500 hours, no. 2 had been operated approximately 15,250 hours, and no. 3 had been operated approximately 6,100 hours at the time of this survey. Reportedly, generator no. 1 experienced problems for quite some time until resolution was determined, returning it to service. This explains the inequity of use between the two 90 KW units.

The generator sets are in fair condition and will need replacement or a major rebuild in approximately five years.

The engines are water cooled with an integrated system of heat exchangers and radiators. The system involves two air cooled radiators mounted on the skids supporting generator set nos. 2 & 3, and two tube heat exchangers mounted to the exterior of the building. The three components are integrated into a single loop with the engines. The heat exchanger extracts as much heat as possible from the loop for the bunkhouse and old hatchery building with the excess heat released to the air from the radiators. The radiators expel the heated air into a large box on the exterior of the power plant. The cooling system is in fair condition with some need for new piping insulation near the power plant. Many of the components will need replacement or major overhaul within the next five years. The box over the radiator exhaust air exit serves a purpose of reducing snow accumulation on the fuel tanks in the winter, however it also reduces the radiator cooling capacity in the summer. This enclosure is in poor condition and a new scheme should be developed with consideration for similar results, but allowing for better cooling in the summer.

The fuel for the engines is fed from an above ground tank behind the power plant with steel pipe manifold inside the building.

The generators feed directly into a switchboard inside the power plant. The switch board contains all circuit protection for the generators, generator controls, paralleling controls, and two main distribution circuit breakers. One distribution circuit breaker (200 ampere) feeds the hatchery, and the other (100 ampere) feeds the bunkhouse and housing. The circuit breakers for the generators are motor controlled.

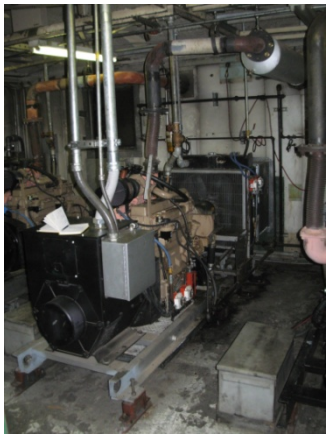
The controls are comprised of programmable logic controllers (PLC's) for the engine-generator operations, status conditions, and alarms. Additionally, they monitor the electrical conditions via solid state protective relays and secure the system appropriately for fault conditions. They also facilitate paralleling operations allowing switching of the generators and two generators to operate together to power the hatchery. The PLC and accessories is outdated and in poor condition. Some of its functions are no longer used due to newer generators and motors not being compatible with the old PLC system. Although this control system was well devised when it was fabricated, it is complex and difficult to maintain in a remote location.

Along with replacing the generators within five years, the switchboard should be replaced with one using modern components. However, attention must be made to select a simpler control system with fewer components. Such systems are available today.

The power plant earth ground system is buried and cannot be evaluated fully. With any major work, the system should be tested and upgraded accordingly.

Considering the need to maintain operation of the power plant all of the time, replacement of the switchgear requires a special strategy to ensure continued operation of the system. This might involve construction of a new power plant, and demolition of the old one upon commissioning of the new. The design of a new power plant should include a careful evaluation of the loads to allow the generators to be sized for optimal operation and economical fuel consumption. The effort to configure a new power plant might also include an evaluation of incorporating a hydro-turbine generator.

Power Plant



Generator No. 2

Fuel Tanks

Exhaust Air Enclosure

Switchboard and Generator Controls

Waste Heat Recovery

Power Distribution:

Two primary feeders issue from the power plant switchgear as noted above. The 100 ampere feeder for the housing and bunkhouse is circuited to a main distribution panel located in the power plant. This panel also serves power to the radiator fans, the egg-take conveyor hydraulic pump, and the power plant branch circuit panel. The housing is fed separately from the feeder for the bunkhouse. Both the housing and the bunk house circuits are fed underground with single conductors in a system of conduits and vaults. The circuits inside the power plant are all single conductors in conduit. The circuits exiting from the main distribution panel appear to be in fair to good condition with ten years, or more, of service life remaining (the exception may be the underground conduit which is difficult to discern).

The branch circuit panel in the power plant primarily supports circuits to the power plant ancillary equipment, but it also supports feeders to the egg take building and storage shed. This panel is fed from the main distribution panel via a 15 KVA step down transformer with an operating voltage of 208Y/120, three phase. The transformer is in moderately good condition and the panel is in fair condition. The circuit breakers should be replaced in the panel in the next five years.

The feeder and panel in the egg take building are new and in good condition.

The feeder to the bunkhouse enters a disconnect on the exterior of the building, and then a step down transformer in the crawl space. The disconnect is in poor condition and should be replaced with the bunkhouse remodel. The transformer is in good condition, although it is close to the floor joists and should be repositioned to allow better clearance. The transformer feeds a single branch circuit panel inside the bunkhouse. This branch circuit panel is in poor condition and will be replaced with the bunkhouse renovation.

The feeder to the housing units is tapped in underground vaults with sub feeders routed to each dwelling. At the dwellings, the circuit is routed through a disconnect and step down transformers to yield 120-240 volt power. Meters with secondary main circuit breakers monitor and protect the feeder into the panel inside the dwelling. The disconnects, transformers, and meter/mains on the original three dwellings are in fair condition and will require replacement in the next five to ten years. The equipment at the duplex is new.

The second feeder from the switchgear is directed to the hatchery as single conductors in buried conduit. This feeder supports a main distribution panel in the electrical room. The main distribution panel feeds three ultraviolet (UV) units, a plasma cutter receptacle, and a branch circuit panel via a 45 KVA step down transformer. This panel is in fair condition with some newer circuit breakers, along with some old ones. The older circuit breakers should be replaced within the next five years.

The step down transformer is circuited to a 208Y/120 volt main distribution panel, also inside the electrical room in the hatchery. This panel supports feeders to branch circuit panels in the original and new hatchery, as well as a small main distribution panel in the Hanger Dock building. This panel was originally configured for a 120-240 delta, three phase configuration. An unconventional neutral bus has been added to convert it to support a wye configured system. Although the panel is in good condition, it does not comply with the National Electrical Code (NEC). This panel should be replaced within two years. Note: the feeder to the new hatchery branch circuit panel is undersized for the provided circuit protection and should be corrected.

Ground buses, earth ground systems, and bonding to the neutral bus is provided in both the 480 volt and 208 volt panels. The ground systems do not appear to be interconnected. With any system upgrade in this building, the ground system needs to be evaluated more and reconstructed as needed to yield one ground system for the whole building.

Branch circuit panels A and B are located in the electrical room and support circuits inside the original hatchery building. Panel A also sub feeds Panel C in the shop. Panel A is old and in poor condition with a poorly fastened cover. It should be replaced in the next two years. Panel B is in good condition. Panel C is in fair condition and should be replaced in five years, or less. The circuit breakers in Panels A & B should be replaced within five years. The feeders to these panels are all in good condition.

The feeder to the new hatchery building panels is undersized as noted above. It terminates in a disconnect on the exterior of the building with an old panel inside the building. The disconnect is badly corroded and needs to be replaced along with the panel. The feeder is also tapped at the corroded disconnect with the tap going to another smaller disconnect and panel for the addition to the new hatchery. The disconnect is undersized for the circuit and needs to be replaced. The fusing in the disconnect needs to properly protect the supported panel. The panel is in good condition.

The main distribution panel in the Hanger Dock building supports feeders to branch circuit panels in the Hanger, in the Net Shed, and in the Barn. This panel and feeders are in good condition. The branch circuit panel (load center) in the Barn is new and in good condition. The panel in the net shed is a used panel in fair condition.

Power Plant Panels

Hatchery 480 Volt MDP and Panel B

280 Volt MDP and Panel A

Bunkhouse Main Disconnect (480 volt)

Residence Main Disconnect, Transformer and Meter/Disconnect

Dwelling Feeder Vault

Hanger 208 Volt MDP and Panel

Power Appliances and Lighting

The appliances at Kitoi Hatchery include an array of small pumps, heaters, portable tools, compressors, ultraviolet disinfection units, refrigeration, and instruments. Many of the appliances are permanently connected to branch circuits, while many are connected with common and special receptacles.

The lighting for the hatchery varies from area to area. Much of the illumination is accomplished with fluorescent lamps, yet with extensive use of incandescent and mercury vapor, and some high pressure sodium. Most of the lighting is controlled with manually operated switches with some operated automatically using photocells.

Fuel Storage:

Fuel oil is used to heat the hatchery building, bunkhouse and residences, and to continuously operate the power supply generators. Fuel is supplied to the site and stored in (1) 20,000-gal self-contained diked tank located between the dock and the hatchery building. Fuel oil is presently supplied by barge in 55-gal drums and pumped to the main storage tank with a drum pump. Using a mostly an above-ground rigid piping system, fuel is manually pumped to (2) 2,500-gal self-contained diked tanks at the generator building, (4) 300-gal tanks at each of four residences, (1) 300-gal tank at the bunkhouse and (1) 300-gal tank adjacent to hatchery mechanical room. The 300-gal tanks are mounted on precast concrete leak and spill containment structures. During pumping operations, the hatchery crew stations personnel at each tank being filled and the pump operator and the tank monitors communicate by radio.

The piping system is visible in most locations. Where it goes underground in two locations to cross vehicle access routes, the hatchery operator has installed PVC containment pipe sleeves. An underground segment also exists along the road to the generator building, with no containment sleeves on the piping. No leak detection system was observed. In most locations the piping is on the ground surface and not protected from physical damage. There was no evidence of recent spills or leaks, although some pipe joints did appear to be moist with a slight odor of fuel oil.

The saltwater system used for disease control during incubation is supplied by a diesel-driven pump with a manually-filled day tank. The day tank appears to be a custom-made, aluminum, single-wall tank with a capacity of approximately 100 gallons. A hose and dispenser is used to pump from the main tank pump room to the day tank, a distance of about 100 feet. There is no overfill or spill containment at the day tank and the engine fuel lines remove fuel from the bottom of the tank rather than top. Any breaks in the fuel line would result in draining the entire tank. There does not appear to be a vent on the tank which could affect engine operation.

Gasoline is stored in a 500-gal double wall tank and dispensed by electric pump to small containers. The tank is filled by pumping from 55-gal drums brought to the site by barge. There is a spill containment sump at the tank.

Most occupied buildings at the site are heated by oil-fired boilers, with the exception of the incubation building which has only electric wall fans for ventilation, and the barn which uses a waste oil furnace-forced air.

Domestic Water and Wastewater:

Domestic water is taken from a branch off the hatchery water supply and treated with UV. Domestic sewage from the hatchery building and from the bunk house is piped to a 3,000 gallon septic tank with a pretreatment cell. Each residence has its own septic tank with a pretreatment cell. Septic tank effluent is piped underground to a discharge point in Kitoi Bay at a depth of approximately 40 feet. Condition is rated as fair, though code compliance review and upgrades are recommended.

BUILDINGS:

Electrical Power Generation Building:

The generator building exterior envelope is in poor condition. The original metal roofing failed and exposed fastener metal roof was installed over it as a stopgap measure. It was not designated for wind uplift, lacks flashing, insulation or ventilation measures. Windows and doors are all badly deteriorated. Combustion air intake and exhaust are in poor shape, heavily corroded and lacking weather integrity. The wall siding is a dual skin metal siding with approximately 1.5” of fiberglass insulation between the painted metal panels. It is corroded through in places, lacks weather integrity and has a very poor prognosis. The panels do still appear to have sufficient structural integrity to serve as a backing for replacement panels.

Generator Building

Roof detail

Typical window

Plywood Exhaust Plenum

A plywood plenum was constructed that directs radiator exhaust heat to adjacent fuel oil tanks. This helps raise fuel temperature so that it does not gel in the winter. The system should be investigated to ensure that it does not adversely affect the flow of exhaust air from the generators.

Roofing and siding could be replaced along with doors, windows, louvers, and other exterior envelope elements if it is decided to retain the primary equipment inside the building (generators, switchgears, etc.) However, if it is determined to replace the primary generation equipment the existing building could be replaced with a new generation building installed on the site while the existing plant remains in operation. Demolition of the existing building could take place after the new building is brought on line. It is likely some site clearing, including excavation of adjacent uplands slope would be required to accomplish a level site on which to build a new generation building.

Structural: The structural framing was covered by fireproofing, siding, and roofing and could not be visually inspected. Based on the age of the structure, it is likely past its design life and should be demolished and replaced.

Electrical: The power plant is circuited primarily with single conductors in electrical metallic tubing (EMT) with some use of flexible conduit at transitions from stationary surfaces to equipment. The circuits are in fair condition with more than five years of service life remaining. With future remodels to the space, inactive circuits should be removed. There are few receptacles, and all are in fair condition. The lighting is accomplished with industrial type fluorescent lamped strip fixtures mounted to the ceiling. Manually operated wall switches control their operation. The exterior is illuminated with an old "barnyard" type fixture mounted to a pipe adjacent to the building. All of the lighting is in poor condition and should be replaced with the next renovation or replacement of the power plant.

Bunkhouse

The deficiencies of the bunkhouse have been adequately covered in prior reports, including bid ready construction documents and bids for construction that establish a value for the work. The work may proceed as soon as funding permits. The structure was not inspected as a renovation and addition to the structure have already been designed.

Bunkhouse

Electrical: The bunkhouse is circuited with Type NM or USE cables, which are in good condition. Receptacles are adequately scattered through the building in most spaces with some minor exceptions. They are in fair condition, but should be replaced soon. The lighting includes both fluorescent and incandescent fixtures, in fair condition. The circuits should be retained and supplemented with the project currently planned. Two or three circuits might have to be replaced due to the ground wire being cut, if they cannot be extended to the new panel.

Main Hatchery Building:

General: The building is an Amco pre-engineered metal building, 60' x 93'. Roofing is a 24 gage metal roofing with exposed fasteners installed directly to Zee shaped purlins. Roof insulation consists of spray applied polyurethane approximately 1.5 inches thick, with ½" cementitious spray fireproofing, applied to the underside of metal roofing, purlins, and other roof mounted elements. Estimated to be R-8, the spray insulation appears to be effective in preventing roof condensation as it effectively prevents through conductance at steel surfaces. Walls are 24 gage steel sandwich panels, smooth faced on the interior side and corrugated on the outside so that the panel thickness

varies from 2.5" to 4". Void space in the panels is assumed to be filled with fiberglass batt insulation estimated to be R-8. The wall panels are exposed on the interior except where covered by subsequent construction.

Main Hatchery Building

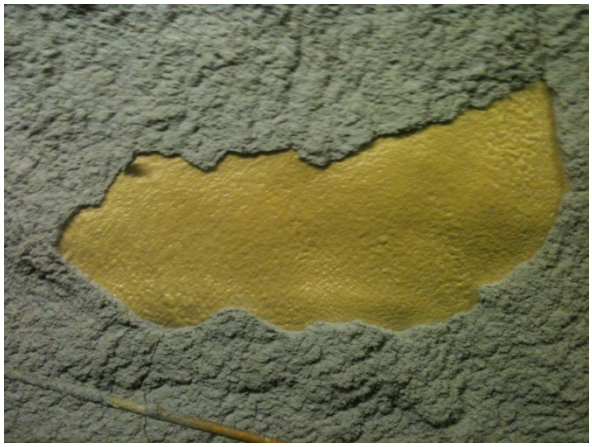
Exterior Elements:

Grade: A steep slope aligns along the north side of the building. It drains into the area between the toe of slope and the long axis of the building. Over the long life of the building organic material has built up in the area, as well as debris washed down from above. It should be excavated back and drainage structure installed at the base of the slope to permanently stabilize grades and drainage in the area.

Slope behind hatchery building

Roof: Metal roofing was painted approximately 2 years ago in effort to stretch the useful life of the assembly. Staff states that the roof was heavily corroded prior to the paint being applied. Corrosion is evident under the paint, especially at panel edges. The paint was a stopgap measure- the roof is past its useful life and should be replaced. The existing roofing can remain in place and a new metal roof installed on top of it. Insulation can be placed in the void space between existing and new roof panels as an inexpensive way to raise the thermal performance of the roof. Spray fireproofing has become dislodged from the urethane foam adhesive in a number of places. Trowel on fireproofing patch material should be applied at all areas where the urethane is exposed.

Roof panel corrosion

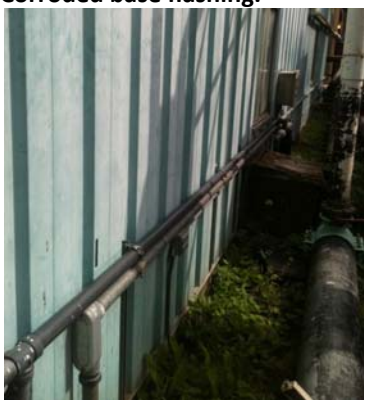


Exposed insulation

Siding: Metal siding is past its useful life. Base flashings have essentially rusted away. The paint finish is heavily chalked and eroded. Flashing at windows and doors are deteriorated. New siding is recommended, either as an overlay or as a complete remove/replace process. Siding replacement will be complicated by the large amount of electrical conduit and process water piping and equipment attached over the years to the sides of the building. Siding replacement should be coordinated with the planned reconfiguration of process piping.

Corroded base flashing.

Deteriorated window frame.



Deteriorated siding.

Personnel Doors: All doors exhibit heavy wear, many do not fully close. All exterior doors should be replaced with insulated G90 galvanized doors, frames and hardware.

Existing deteriorated door

Typical Window

Overhead doors: There are two overhead doors necessary to access the process and bulky incubation equipment. Both doors are necessary elements of the facility, are past their useful life and should be replaced.

Windows: Of the 17 original windows on the building, two have been replaced with insulated vinyl units. The remainder are single pane steel frame windows. All exhibit corrosion, leak in heavy weather and are passed their useful life. They should be replaced along with the metal window flashing.

Canopy: a canopy was installed at some point in the past on the north side of the building approximately in alignment with the metal roof of the hatchery. The canopy was a site designed and built response to a serious operational challenge and protects walkways, doorways, process piping, fuel tank, fuel distribution from sliding snow and weather. It is a light wood structure of indeterminate structural capability and has no foundations. The canopy is important to the maintenance and operations taking place in the building, but appears to be a temporary solution and is considered a liability. It should be replaced with a galvanized steel canopy structure sheltering approximately the same general area.

Canopy at Formalin Room

Peroxide Storage room: The storage room adjacent to the canopy appears to be a temporary structure framed of wood and built directly on grade with no floor structure. It appears to be a temporary structure and should be replaced in conjunction with the canopy replacement. Replacement of the storage room will need to be accomplished in accordance with code requirements for handling the materials used.

Building Interior

General Comments: The building is broken into two general areas. The eastern half of the building consists of conditioned spaces normally occupied by staff. The western half of the building houses the primary hatchery raceways and related equipment.

Floors: Concrete floors were once sealed and painted over time the finish coatings have failed, leaving fissures and bubbled surfaces that trap debris and are virtually impossible to clean. Fibrous expansion joint material originally placed at certain slab joints has largely disappeared leaving gaps in the floor open to the subgrade below. During cleaning activities debris laden water seeps down into these ½" gaps. It is suggested that the concrete floor surfaces be scrabbled to remove existing coatings and loose concrete, followed by power washing using high temperature pressure washing equipment. Once an acceptable surface is achieved, slab topping could be applied, followed by sealer and/or epoxy type coating. As part of this work, permanent boot rinse/sterilizing basins can be formed at doorways to eliminate the loose plastic basins presently used.

Failed floor sealer

Typical water damage at wall and door

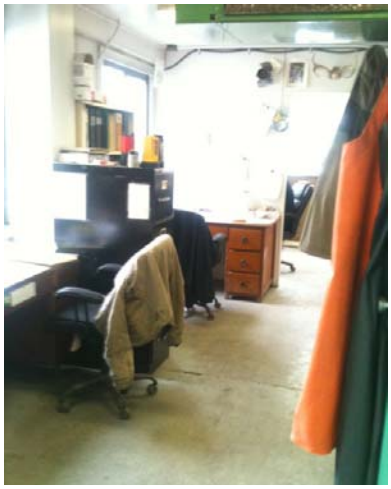
Walls: Walls between wet areas (incubation rooms) and occupied areas (lab, toilet rooms etc) are saturated from years of condensation and cleanup operations. Rot is present in the wood framing, and the lack of curbs has allowed water to run into adjacent areas. The drywall in these areas should be replaced with new moisture resistant assemblies, such as mold resistant drywall covered with FRP, possibly factory laminated, on galvanized metal studs. Curbs should be provided under all walls at wet areas. All surfaces, (existing to remain and new), should be painted, except where prefinished.

Ceilings: ceilings are gypsum drywall installed to the underside of the floor framing at mezzanine above. At wet areas the drywall ceilings are in good condition and will need to be removed and reinstalled only as required to accomplish other work. At wet areas gypsum drywall should be replaced with a mold resistant drywall.

Interior Doors: Interior doors and frames are past their useful life and should be replaced in all areas.

Individual Areas:

Office areas: Casework furniture and other FFE items in this area are past their useful life and should be replaced. Most of the circuits in this area of the hatchery are composed of single conductors in EMT. There is some NM cable for more recently installed equipment. The control circuits utilize open cables that are in poor condition and should be replaced. Although convenience receptacles are scattered through most of the rooms, many key locations are without such as evidenced by the number of extension cords routed around rooms and plug strips. The system of receptacles and corresponding circuits is in poor condition. The lighting includes linear fixtures with T12 lamps and wrap around acrylic lenses mounted to the ceiling surface (some of the lenses are missing or broken. Some small areas are illuminated with open incandescent lamps. All lighting is controlled with manually operated wall switches. The lighting is in poor condition.



Office

Breakroom

Break Room: Breakroom is presently used for a variety of purposes- as a workroom, small engine storage and electronic repair. The conflicting uses create conditions difficult to manage. It is suggested that the spaces be re-programmed to subdivide the spaces and create a more defined break room, possibly with its own entrance and divesting area. One way to accomplish this would be to convert the adjacent, sockeye incubation room into a work room. Break room furnishings are past their useful life are unsanitary and should be replaced. It is suggested that plumbing be provided in the break room for a handwash sink.

***Laboratory**:* The laboratory area includes fish food storage, stainless steel dissection table, sinks shelves, counters and other casework. All is unsanitary, heavily worn and well past useful life. All furnishings in this area should be replaced. It is suggested that some sort of palletized storage be provided for the large, heavy fish food bags to reduce the amount of handling required. It is also suggested that when the laboratory casework is replaced, that consideration be given to including more modern equipment to reflect the current state of hatchery technology and to more readily provide for future developments. Some receptacles are scattered through these spaces, but the presence of extension cords indicates a need for more. The circuiting in these spaces also uses single conductors in EMT. Most of it is in fair to good condition. However, it should be upgraded to support more receptacles. The control circuits utilize open cables that are in poor condition and should be replaced. The lighting in these spaces includes high pressure sodium (HPS), incandescent, and some linear industrial strip fluorescent. The HPS and fluorescent luminaires are manually controlled with wall switches. The incandescent lighting in the incubation areas is controlled with dimmers. The lighting is in fair condition with less than five years of service life remaining. The application of LED lighting with dimming control should be considered with the next project. It will provide better control response, lower maintenance costs, and lower energy consumption.

Lab Counter

Lab Counter

Toilet: Only one toilet is provided in the hatchery building and appears to be the only toilet provided at the facility outside of the residences. The toilet is collocated with the laundry area and janitor space and separated only by a metal toilet partition. Toilet area, since it is used by both genders, should be afforded more privacy. It should also be located in closer proximity to an outside door to make it more accessible to workers without forcing individuals to walk through the main hatchery area in order to use the toilet. All surfaces are past their useful life and should be replaced in this area, with separate areas provided for laundry and janitorial functions.

Toilet Room

Non-compliant Stair

Workshop: the workshop is used for a variety of needs that arise in a remote, self sufficient facility. It is a high bay space. The wall shared with adjacent spaces requires a fire separation. Penetrations of the walls should be repaired with fire safing materials. Again, most of the circuits in this area utilize single conductors in EMT. The circuits are in fair condition, but should be replaced when the spaces are remodeled. The control circuits utilize open cables that are in poor condition and should be replaced. Receptacles are scattered throughout the spaces with seemingly good distribution to meet the facility demands. The receptacles themselves are in fair condition, but will require replacement within two years, or when the spaces are remodeled. The lighting consists primarily of linear industrial strips with T12 fluorescent lamps and reflectors. Many of the luminaires are not operating, or are operating poorly. They should be replaced in the near future to not only better illuminate the spaces, but to do such in an energy efficient manner

Hatchery Area*:* The hatchery area is a wet area taken up with the various types of fish incubator tanks and related process water systems. Surfaces in this area are wet most of the time and subject to corrosion. Existing steel should be prepped and re-painted, including the primary steel frames. The existing, exterior lower walls should be disassembled and saturated insulation and wet substrate materials removed. Floors and walls should be repaired as described elsewhere. As discussed previously, consideration should be made to reconfigure circulation and door locations within the building while other work is being accomplished to reduce the amount of through traffic that occurs in this building to reduce the potential for cross contamination.

Storage Mezzanine*:* The ceiling above the occupied areas (except the high bay work room) is actually a structural floor for the storage mezzanine. One stair provides access to the mezzanine, located in the main hatchery area. The stair has 8.5" treads and 9" risers. It should be replaced with a galvanized stair compliant with current codes.

Structural: The structure is a pre-engineered steel building. The steel columns, roof beams and roof purlins all appear to be in good condition.

The lateral load resisting system consists of roof rod braces in two bays, four rigid frames in the transverse direction, and one bay of rod cross bracing in each longitudinal wall. The structure appears to be too large for a single bay of rod cross braces, especially where there are two bays of

roof cross bracing. A lateral load analysis should be performed on the structure by a professional engineer licensed in the State of Alaska. The original structural drawings, if available, would be useful for analysis.

There is a storage mezzanine in approximately half the structure. The framing is covered with sheet rock, but appears to be timber-framed. The as-builts of the structure specify ceiling joists, 2x10 spaced a 16" on center spanning up to 20'-0", which are inadequate for a storage live load. Additional joists or interior posts should be added or the space should not be used for storage.

There is a small storage mezzanine in the shop area with a posted sign specifying a maximum load of 1000 pounds. The maximum posted load should be verified with a professional engineer, if it has not been already.

There is a timber framed covered shelter on the side of the structure that is of questionable construction. There does not appear to be a lateral load resting system. There also are not any connections between the timber posts and the concrete footings, and two of the posts have very little bearing on the footings. The shelter should either be demolished or upgraded.

Cooler:

Roofing has reached end of useful life and is rusting through. The refrigerator doorway no longer secure, allows heat to enter cooler area. The latch is no longer functional, and could lead to a person being trapped inside. The refrigeration equipment does maintain freezing conditions, but cannot be considered reliable over the duration of this report. The cooler is used for long term storage of fish food, and while short shutdowns are not critical, the existing installation is not serving its original purpose. It is located directly against the slope, with debris, vegetation and sediment building up against the north side of the cooler. It is suggested that the cooler be replaced. One possible configuration would be to locate a new cooler under the replacement canopy so that it is no longer exposed to the elements.

Non functional refrigerator door

Incubation Building: Single-story 40' x 42' steel structure with steel roofing and siding built in 1989. The foundation is a reinforced concrete slab with thickened perimeter footing and foundation pads under columns. Interior spaces are finished with FRP wall panels. Building is in very poor condition and should be replaced.

Structural: The structure is a pre-engineered steel building. The steel columns, roof beams, and roof purlins all are corroded. The corrosion is significant enough that the structure should be demolished and replaced.


Incubation Building


Corroded columns


Structural corrosion

Electrical: This part of the facility appears to be continuously damp. The circuits incorporate the use of single conductors in EMT. In this environment, the service life of these circuits is greatly reduced. And although it is currently in good condition, it will need to be replaced within five years with a type more suitable for the environment. The control circuits utilize open cables that are in poor condition and should be replaced. Receptacles protected with ground fault type circuit breakers appear to be adequately scattered throughout the space. All include weatherproof covers, but they are common commercial grade devices, susceptible to corrosion. They should be replaced in the next two years with marine or non-corrosion grade devices. The lighting is accomplished with low bay type HPS. These fixtures are quite close to the head boxes for the incubation trays and provide inappropriate illumination. These fixtures should be replaced in the future with either pendant LED or enclosed linear fluorescent types suitable for this environment. The illumination will be more uniform and better light both levels. It will also be easier to control.

Egg-take Building: Single-story 36' x 16' wood structure with steel siding, built in 2008. The foundation is a reinforced concrete slab with thickened perimeter footing. Interior spaces are finished with FRP wall panels.

The building is in good condition. To help support long term maintenance, it is suggested that additional sealant be applied at window sills and transition between sill and metal siding to prevent water from entering wall assembly. It is also suggested that additional grade adjustment take place at high side of building to prevent water from entering at floor slab level.

Egg take building

Structural: The timber-framed structure was constructed in house. The structural framing was covered by sheet rock, siding, and roofing and could not be visually inspected. The structure should be investigated and analyzed by a professional engineer licensed in the State of Alaska for code compliance.

Electrical: The egg take building was recently constructed using non-metallic (Type NM) cable for branch circuits. The cables are adequately protected to allow the circuit life expectancy to exceed twenty years. The receptacles are common grade installed with weatherproof covers. They are not ground fault protected, and although possibly not required by the NEC, it would be prudent to do so to ensure safety. If erroneous circuit tripping occurs on circuits serving larger portable equipment, it may be necessary to utilize twist lock type receptacles for such equipment, protected by 30 milliampere type ground fault circuit breakers. The interior is illuminated with linear fixtures using T8 or T12 fluorescent lamps enclosed inside wraparound acrylic lenses mounted to the ceiling. They are controlled with manually operated wall switches. The lighting and controls is in good condition.

Hangar/Warehouse: Single-story 30’ x 40’ wood structure open on the front, with exposed structure walls and ceilings, wood siding and steel roofing, built in 1986. This building is used for general storage and to cover salmon rearing raceways. The foundation is perimeter grade beams, and the floor is gravel.

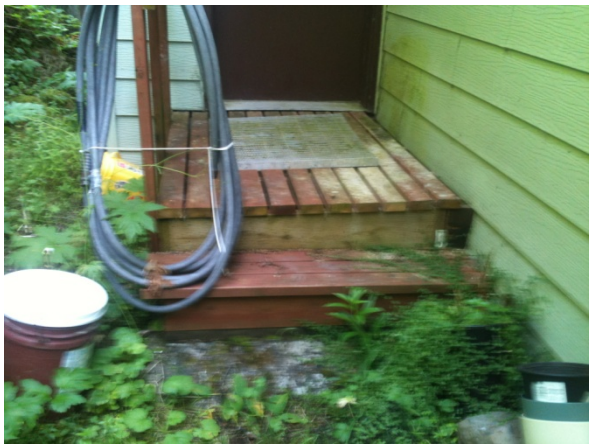
This building is structurally unsound. Trusses are not engineered and exhibit deformation. Rot is occurring in walls, siding. This building is a life safety hazard and should be replaced.

Hangar/Warehouse Building

Structural: The structure is timber-framed and appears to be in poor condition. The timber wall framing shows signs of dry rot in several locations. The timber roof trusses appear to be overstressed and are deflecting without any snow load. The structure should be demolished and replaced.

Single Family Residence Buildings: Three single-story buildings, 50' x 24', with three bedrooms, kitchen and laundry area, built in 1983. They are wood framed structures with aluminum siding and steel roofing. Reinforced concrete spread footing with pressure treated framed stem wall up to wall plates. Sheet rock walls and ceilings, carpet and vinyl flooring. The single family residences are similar in construction and exhibit mostly similar conditions:

Single Family Residence



Typical Back Porch

Investigate for rot in back porch floor areas and repair.

Metal roofing is near the end of its useful life and should be replaced.

All aluminum siding should be powerwashed and replaced where damaged.

Damaged siding

Deteriorated Exterior Door

Exterior doors are deteriorated and should be replaced.

Windows appear to be satisfactory.

Kitchen casework should be replaced.

Crawl spaces in building 2 are wet due to water from the adjacent hillside, which is leaking through the pressure treated wood foundation wall. The area outside the building should be re-graded to redirect surface drainage. The crawlspace drain should be replaced, and additional crawl space vents installed. It is also suggested that the fiberglass insulation on the all weather foundations be removed. Floor joist space should be insulated and the treated foundation repaired as required.

Moisture in crawl space

Structure: The timber-framed structures have pressure treated timber foundation walls. The crawl spaces have vapor barriers. The crawl spaces of residences 1 and 3 are fairly dry, but the crawl space of residence 2 has a significant amount of standing water. The water appears to be coming into the crawl space at the back of the foundation wall. A foundation drain along the backside of the building would likely alleviate the situation. The existing timber studs and sheathing should be investigated for rot even though they are pressure treated.

The roof framing was not inspected as there was no access, but they haven't noted any leaks in the roof recently.

Electrical: The circuits utilize Type NM cable and appear to be in good condition. Similarly, receptacles are seemingly located in accordance to the NEC and also appear to be in good condition. The lighting is accomplished primarily with incandescent type fixtures and also appears to be in good condition.

Duplex Residence Building: Two story building, 24' x 36', divided into two identical residences, each with two bedrooms and restroom upstairs and open living kitchen area downstairs, with 6' x 10' covered deck and 6' x 8' enclosed "mud-room" entryways in front and a common 4' x 10' enclosed mechanical room in back, built in 2010. Wood structure with vinyl siding and metal roofing. Reinforced concrete perimeter footing with pressure treated framed stem wall up to wall plates. Sheet rock walls and ceilings, carpet and vinyl flooring.

Water leaks into the existing crawl space due to groundwater oozing into the lowered space from the uphill slope.

Duplex Residence

Suggest following procedure to reduce moisture intrusion:

Re-grade surfaces surrounding the building to ensure that surface water is redirected away from the building;

Excavate around the foundation, install new waterproofing at pressure treated wood foundation panels, install foundation drains, daylight to grade.

Remove insulation from wall panels, add insulation to floor joist space, provide additional crawl space vents, and one the wood framing is dry, suggest fitting 2" rigid insulation into the voids between pressure treated foundation framing.

Structural: The timber-framed structure has pressure treated timber foundation walls. The crawl space has a vapor barrier. It appears that water is seeping through the back foundation wall at the sill plate. A foundation drain along the backside of the building would likely alleviate the situation.

The roof framing was not inspected due to the age of the structure, but it should be confirmed that the structure was designed by a professional engineer licensed in the State of Alaska.

Electrical: The circuits utilize Type NM cable and appear to be in good condition. Similarly, receptacles are seemingly located in accordance to the NEC and also appear to be in good condition. The lighting is accomplished primarily with incandescent type fixtures and also appears to be in good condition.

OTHER BUILDINGS:

Net Storage Building (2008), 25' x 25' wood structure with steel siding and roof, concrete slab foundation, painted plywood nails and ceiling, with loft; 240/120v electric feed from hatchery building powers outlets, lights and electric unit heater. Condition of this building is good.

Building was placed on a former containment dike foundation walls- It is assumed strong enough to support the building. It consists of an open lower level and a mezzanine.

Net Storage Building

Mezzanine Storage

Mezzanine storage area reached by ladder. If the mezzanine is considered an occupied space, it must have a stair. Opening through floor for ladder is not guarded by an operable guardrail. Suggest installing an operable guardrail at the stair opening.

Structural: The timber-framed structure was constructed in house. The majority of the structural framing is covered by sheet rock, siding, and roofing and could not be visually inspected.

The roof joists appear adequate if the wall near their midspan is considered a bearing wall. Unfortunately this wall does not extend below the loft floor, which would require the loft floor joists carry the weight of the roof as well as the storage live load. The structure should be investigated and analyzed by a professional engineer licensed in the State of Alaska for code compliance.

Electrical: The circuits in the net shed are rather new and in condition, consisting of single conductors in EMT. The lighting in this building utilizes industrial linear fluorescent. These fixtures are in fair condition with a life expectancy of five years.

Storage Building (original construction 1954, moved to this location 1980's), 32' x 20' wood structure with wood siding and steel roof, concrete block foundation, exposed wooden structure walls and ceiling with gravel floor.

The high bay storage building used for storage of floats and other in water related equipment as well as uplands equipment, located on the east end of the site. It has no foundations, insulation, structural connections, lateral or seismic tie downs. There is dryrot and deterioration present in siding and structure. The existing structure is unsafe- lacks any sort of structural integrity, no seismic stability. It should be demolished and replaced as a life safety risk. It should be replaced with a new storage structure, perhaps in conjunction with other planned building projects on the site which could lead to greater efficiency while providing the necessary dry storage.

Storage Building

Storage Building interior- no structural support

Structural: The timber-framed structure does not have wall studs, a foundation, or a lateral load resisting system. The structure should be demolished and replaced.

Barn (2008) 40' x 30' two story wood structure with steel siding and roofing, concrete slab foundation, painted plywood walls and ceilings.

This building consists of storage/work area downstairs with open alcove for heat plant, with activity room upstairs used as recreation room for staff and as overflow sleeping quarters.

Barn

Stairs

Stairs are 11" treads, 9" risers, railings consist of two rails. Floor to floor is 13'-6", stairs are a single run greater than 11' high. Because the space upstairs is used as a recreation occupancy and overflow bunkhouse, it needs two exits and a code compliant stair. It may remain as-is if used only as non-occupied storage space.

Insulation levels are not standard: walls r-19, ceilings are R-11. No vapor barrier evident. If the building is used substantially in the cold months, consideration should be given to adding additional insulation in the ceiling and walls of the upper level. It appears that these areas can be easily reached to add insulation without demolition of existing structure.

No fire separation between floors- floor louvers (4-9"x4") allow heat from downstairs to raise to upper level- open to boiler room. If the building is assumed to be all one occupancy type this is allowable.

Floor louver

We did not observe a compliant smoke detector in the second floor. There should also be a carbon monoxide detector.

Windows PVC insulated windows, 3'10x2'10, sliders. They meet egress requirements.

Structure is unusual, with plywood sear panels provided on lower walls and floor and ceiling, but not at roof. Recommend additional evaluation.

Structural: The timber-framed structure was constructed in house. The majority of the structural framing is covered by sheet rock, siding, and roofing and could not be visually inspected.

The roof is not sheathed and therefore cannot be considered a diaphragm. The knee braces that support the loft floor beams induce a large outward thrust on the supporting member in the wall, which could not be visually inspected. The structure should be investigated and analyzed by a professional engineer licensed in the State of Alaska.

Electrical: This is a new facility. The circuits in the building utilize Type NM cables. Receptacles are seemingly adequate for the use of the space. The lighting is composed primarily of industrial linear fluorescent with a life expectancy of ten years.

Saltwater Pumphouse: The building houses a diesel-driven pump for intermittent use during egg treatments. When the pump is being used, it is the only supply of water to portions of the incubation rooms, and therefore its continuous operation is critical to prevent egg mortality. It includes a number of electronic controls and operating systems.

Saltwater Pump House

Saltwater Pump

The recessed concrete slab floor is below level of adjacent grade, which could allow seasonal leaks to damage sensitive electronics for the pump and engine controls. No insulation is provided in the structure, and while it is not necessary to heat the building, it would be preferred to insulate the building to reduce potential temperature swings that can cause condensation. The structure is indeterminate, no seismic provisions or hold downs provided. The double doors providing entry to the building are worn out and do not close properly. The bears at the site could easily enter the building, and damage the contents.

Dryrot is occurring at framing and siding at the base of walls. Roofing is at the end of its useful life. Given the number of concerns with this building, it is suggested that the existing wood framed structure be replaced with a low maintenance, galvanized storage structure.

Whether or not the building is replaced, the fuel system should be improved as described in preceding sections, and the engine exhaust system should be upgraded. Specifically, the exhaust pipe wall penetration should be replaced with an insulated thimble and the exhaust pipe hangars

should be replaced with thermally-insulated material that prevents conduction of heat to combustible materials.

OTHER FACILITIES (DOCKS, ETC.):

Coho Silos

Structural: There are four fiberglass silos filled with water; two older 7'-6" diameter by 17'-6" tall silos and two newer 8'-0" diameter by 15'-6" tall silos. The silos bear on treated timber sleepers, but are not anchored down. The older silos have eyelets around the perimeter that could be used to anchor the silo down. The newer silos have a bottom flange that could be used to anchor the silo down. A seismic analysis should be performed on the structures by an professional engineer licensed in the State of Alaska.

Small Vessel Float:

Structural: The float is accessed by a 4' wide by 30' long aluminum gangway. The gangway bears on an 8' wide by 12' long landing float, which is connected to the 5'-6" wide by 30'-6" long main float. The timber main float is supported by foam and has approximately 12" of freeboard. The front of the main float is secured by a 500 pound concrete anchor. The back of the landing float is attached to two ropes that are attached to rock anchors near the top of the gangway. The floats are in fair condition, but are slightly wobbly.

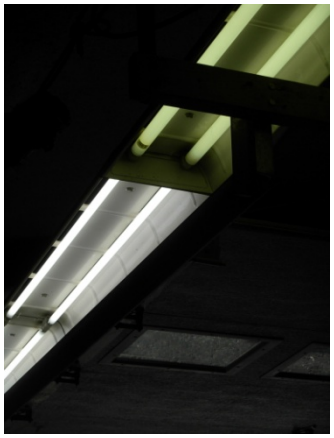
Main Dock: (*1965), approximately 90' x 18', treated wood pilings and 4" x 12" x 18" treated deck planks. Condition fair. Several pilings and half of deck boards need replacement. Hydraulic crane (1992) on dock, pinned to extend approximately 10' with 2,960 lb capacity (2,500 lb capacity at maximum extension of 15').*

Structural: The creosote treated timber dock is approximately 16' long by 105' wide with an additional 16' long by 45' wide extension on the back. The dock is framed with 4x12 decking, and is supported by 7"x16" stringers, 12"x12" pile caps, and 12" diameter piles. The decking of the main dock is fairly new, but the decking in the back extension needs to be replaced. The bullrail was also recently replaced. The stringers and pile caps appear to be in good condition.

The piles were briefly inspected, although the bases of several of the piles were not accessible due to the tide. A couple of the piles have soft spots near the base, and all five of the fender piles need to be replaced. The timber backwall has collapsed under a large portion of the dock. Steel sheet piles have been installed to prevent further erosion.

A thorough inspection and analysis of the dock should be performed by a professional engineer licensed in the State of Alaska during low tide.

Area Lighting: "Barnyard" type fixtures with mercury vapor lamps are installed on steel pipes in several locations illuminating some of the pathways between buildings. These fixtures are in poor condition and should be replaced soon. The lighting should be evaluated and repositioned to better illuminate the pathways for safety. The illumination may be limited to low levels, but the uniformity needs to be greatly improved. Fixtures utilizing LED sources should be considered for the best energy economy. Controls increasing the illumination levels from low to bright when motion is sensed may be included. The replacement of the area lighting should also include replacement of all of the circuits utilizing new underground cables.



Shop Lighting

Communications System:

The communications system consists of a GCI supported satellite system using a 1.2 meter dish antenna for telephone and internet. The telephone system consists of a network of instruments located in the bunkhouse, residences, and the main hatchery building with intercom capability between locations. The system was manufactured by Comdial with capacity for two outside lines. The internet system has limited bandwidth, limiting capacity and speed. The system is in fair condition.

There is limited network infrastructure within the buildings, and from building to building. This should be upgraded with a new network system including small racks with patch panels and switches supporting Ethernet horizontal circuits, and a fiberoptic system integrating the buildings and racks together as a backbone structure. This system can facilitate both internet and improved facility communications.

Alarm System: The alarm system utilizes an addressable fire alarm panel with support for 72 addressable devices. The equipment is relatively modern with continued support for components and service. The system primarily monitors raceway and head box water levels with discrete devices. These devices integrate to the system through addressable modules allowing several devices to communicate to the control panel through a single cable. The devices are mounted in junction boxes near to the float switches and miscellaneous discrete devices. The boxes are too small for the devices and retain moisture affecting their performance. This system will perform well for the next ten years or more with upgrades as noted.

HATCHERY CONDITIONS SURVEYS
Budget Estimate for Corrective Work
Kitoi Hatchery
3 22 12

Element	Item	Quantity	Unit	Unit Cost	Subtotal	Total	Total
General							
	Big Kitoi Dam						
	Perform inspection by qualified dam inspector	1	LS	$20,000	$20,000		
	Big Kitoi Creek Bridge						
	Demolish and Replace Bridge	240	SF	$150	$36,000		
	Coho Silos						
	Perform Lateral Analysis and Add Overturning Anchors	1	LS	$15,000	$15,000		
	Main Dock						
	Replace Decking at Extension	2500	BF	$5	$12,500		
	Replace Fender Piles	5	EA	$8,000	$40,000		
	Replace Rotten Piles	5	EA	$8,000	$40,000		
	Replace Timber Backwall	3000	BF	$5	$15,000		
	Electrical						
	Site Lighting	1	ls	$40,000.00	$40,000		
	Communications						
	New network including hatchery & residences	1	ls	$75,000.00	$75,000		
	New telephone system	1	ls	$35,000.00	$35,000		
	Subtotal					**$328,500**	
	Subtotal						**$328,500**
Generator Building							
	Architectural						
	Replace existing buidlng with new, heated, insulated modular building .	1	ls	$50,000	$50,000		
	Subtotal					**$50,000**	
	Electrical						
	Generators						
	New generator sets (excluding radiators) with ancillary equipment	3	ea	$90,000.00	$270,000		
	New exterior type radiators	2	ea	$15,000.00	$30,000		
	New heat exchangers and manifold	2	ea	$15,000.00	$30,000		
	New controls with paralleling	1	set	$60,000.00	$60,000		
	Distribution						
	New Switchgear/MDP	1	ea	$30,000.00	$30,000		
	Reconfigure feeders to residences, hatchery, egg take building, etc.	1	ls	$50,000.00	$50,000		
	Station Power						
	Panels	2	ea	$3,000.00	$6,000		
	Transformer	1	ea	$3,000.00	$3,000		
	Devices	1	ls	$2,000.00	$2,000		
	Circuits	1	ls	$5,000.00	$5,000		
	Lighting						
	Fixtures, controls, and circuits	1	ls	$5,000.00	$5,000		
	Remote monitoring & alarm						
	Remote equipment & circuits	1	ls	$20,000.00	$20,000		
	Subtotal					**$511,000**	
	Subtotal						**$561,000**

Element	Item	Quantity	Unit	Unit Cost	Subtotal	Total	Total
Main Hatchery Buidling							
Site	Improve drainage at north side of buidling	1	ls	$4,000.00	$4,000		
Exterior Closure							
	Install metal furring, insulation and metal roof panels over existing roof.	6,000	sf	$16.00	$96,000		
	Repair fireproofing	1	ls	$1,000.00	$1,000		
	Install metal furring, insulation and metal wall panels over existing wall panels.	4,000	sf	$16.00	$64,000		
	Misc roof and wall flashing	1	ls	$10,000.00	$10,000		
	Modify wall mounted elect and plumbing as required to install new panels.	1	ls	$30,000.00	$30,000		
	Replace ext doors, frames and hardware	6	ea	$1,200.00	$7,200		
	Replace ex windows with thermal windows and trim.	15	ea	1000	$15,000		
	Replace existing canopy at north side of building.	500	sf	$150.00	$75,000		
Interior							
	Install sloping concrete floors over ex concrete slabs in wet areas.	3,800	sf	$10.00	$38,000		
	replace formalin storage room	1	ls	$10,000.00	$10,000		
	Provide curb under wall between wet and dry areas.	60	lf	$20.00	$1,200		
	Replace water damage drywall and framing and repaint at walls and ceilings	1	ls	$30,000.00	$30,000		
	Replace interior doors, frames and hardware.	10	ea	$1,200.00	$12,000		
	Replace office casework and furnishings	1	ls	$6,000.00	$6,000		
	Reconfigure breakroom to include separate work room and break room with dish sink and handwash sinks.	1	ls	$10,000.00	$10,000		
	Replace laboratory casework, counters and sinks.	1	ls	$10,000.00	$10,000		
	reconfigure toilet/laundry/janitorial area and replace all fixtures, furnishings and equipment.	1	ls	$10,000.00	$10,000		
	Paint exposed steel in hatchery area	1	ls	$15,000.00	$15,000		
	Provide galvanized stell stair to mezanine	1	ls	$12,000.00	$12,000		
	Subtotal					**$456,400**	
Civil							
Hatchery Water Supply							
	Repair main pipelines and dam structure	1	ls	$50,000.00	$50,000		
	Upgrade site piping	1	ls	$50,000.00	$50,000		
Domestic Wastewater Upgrades							
	Replace outfall	1	ls	$20,000.00	$20,000		
	Install secondary treatment system	1	ls	$50,000.00	$50,000		
	Expand collection system	1	ls	$10,000.00	$10,000		
Fuel System							
	Inspect all fuel tanks	1	ls	$10,000.00	$10,000		
	Relocate main fuel oil and gasoline tanks	1	ls	$50,000.00	$50,000		
	Subtotal					**$240,000**	
Structural							
	Lateral Analysis and Improvements	1	LS	$20,000	$20,000		
	Add Mezzanine Floor Joists	2000	SF	$10	$20,000		
	Demolish and Replace Covered Shelter	240	SF	$60	$14,400		
	Subtotal					**$54,400**	

Element	Item	Quantity	Unit	Unit Cost	Subtotal	Total	Total
	Electrical						
	Distribution						
	Replace 480Y/277 volt MDP circuit breakers	1	ls	$5,000.00	$5,000		
	Replace 208Y/120 volt MDP	1	ea	$10,000.00	$10,000		
	Replace feeder to New Hatchery	1	ls	$7,000.00	$7,000		
	Upgrade the grounding system	1	ls	$2,000.00	$2,000		
	Replace Panels A & C	2	ea	$5,000.00	$10,000		
	Replace Panel B circuit breakers	1	ls	$2,000.00	$2,000		
	Power Appliances and Lighting						
	Circuit upgrades	1	ls	$45,000.00	$45,000		
	Device replacement	1	ls	$5,000.00	$5,000		
	Replace lighting	1	ls	$60,000.00	$60,000		
	Communications						
	New telephone and computer circuits	1	ls	$5,000.00	$5,000		
	Alarms						
	Replace sensor device boxes	1	ls	$8,000.00	$8,000		
	Subtotal					**$159,000**	
	Subtotal						**$909,800**
Cooler							
	Replace existing walk in cooler with new, modular .	1	ls	$20,000	$20,000		
	Subtotal					**$20,000**	
	Subtotal						**$20,000**
Incubation Building							
	Replace existing pre-engineered incubation building with new, pre-engineerd building, approx 40x42, reinstall existing equipment	1,680	ls	$200	$336,000		
	Subtotal					**$336,000**	
	Electrical						
	Panel, devices & circuits	1	ls	$35,000	$35,000		
	Lighting	1	ls	$15,000	$15,000		
	Alarm	1	ls	$30,000	$30,000		
	Subtotal					**$80,000**	
	Subtotal						**$416,000**
Egg Take Building							
	Re-seal existing windows	1	ls	$500	$500		
	Re-grade north side of building	1	ls	$1,000	$1,000		
	Struct Code Analysis and Improvements	1	LS	$30,000	$30,000		
	Subtotal					**$31,500**	
	Subtotal						**$31,500**
Hanger/Warehouse							
	Replace exsting building with pre-engineered metal building	1,200	sf	$200	$240,000		
	Subtotal					**$240,000**	
	Subtotal						**$240,000**
Residences (three identical buildings)							
	Exterior						
	Replace deteriorated decks	3	ea	$4,000	$12,000		
	Replace metal roofing	4,000	sf	$12	$48,000		
	Clean and repair existing metal siding	3	ea	$2,000	$6,000		
	Replace exterior doors	6	ea	$1,200	$7,200		
	Insulate floor joist space	3600	sf	$6	$21,600		
	replace crawl space drain	1	ls	$2,000	$2,000		
	Interior						
	Replace kitchen equipment and casework	3	ea	$15,000	$45,000		
	Subtotal					**$141,800**	

Element	Item	Quantity	Unit	Unit Cost	Subtotal	Total	Total
Structural							
	Install Foundation Drains	225	LF	$60	$13,500		
	Replace Rotten Timber Foundation Wall studs and sheathing	250	SF	$15	$3,750		
	Subtotal					**$17,250**	
Electrical							
	Replace meters, main disconnects, & transformers	3	ea	$7,000	$21,000		
	Subtotal					**$21,000**	
	Subtotal						**$180,050**
Duplex							
	Re-grade around building to prevent water from entering crawl space.	1	ls	$4,000	$4,000		
	Provide perimeter wall waterproofing	150	ls	$20	$3,000		
	Insulate floor joist space	1,100	sf	$6	$6,600		
	Install Foundation Drain	150	lf	$60	$9,000		
	Subtotal					**$22,600**	
	Subtotal						**$22,600**
Net Storage Building							
	Provide guardrail at 2nd floor opening	1	ls	$500.00	$500		
	Struct Code Analysis and Improvements	1	ls	$30,000	$35,000		
	Subtotal					**$35,500**	
	Subtotal						**$35,500**
Emergency Generator Building							
	Exterior Closure:						
	Replace exterior door and frame	1	ea	$1,200.00	$1,200		
	Lower grade around building and slope to drain away from building.	1	ls	$1,000.00	$1,000		
	Repair siding and re-paint	1	ls	$500.00	$500		
	Interior:						
	Insulate wall cavities, install drywall for interior finish	260	sf	$8.00	$2,080		
	Subtotal					**$4,780**	
	Subtotal						**$4,780**
Storage Building							
	Demolish existing wood framed storage building with pre-engineered metal storage building	650	sf	$200.00	$130,000		
	Subtotal					**$130,000**	
	Subtotal						**$130,000**
Barn							
	Add second floor stair	1	ls	5000	$5,000		
	Add insulation to second floor ceiling and walls.	650	sf	$200.00	$130,000		
	Add smoke and carbon monoxide sensor	1	ls	$500.00	$500		
	Struct Code Analysis and Improvements	1	ls	$65,000	$65,000		
	Subtotal					**$200,500**	
	Subtotal						**$200,500**
Salt Water Pumphouse							
	Demolish existign pumphouse and reinstall pump system in new, modular pumphouse	1	ls	$25,000.00	$25,000		
	Subtotal					**$25,000**	
	Subtotal						**$25,000**

Element	Item	Quantity	Unit	Unit Cost	Subtotal	Total	Total
General Conditions							
	Mobilization/demobilization	1	ls	$10,000	$10,000		
	Freight	1	ls	$15,000	$15,000		
	Supervision	6	mos	$12,000	$72,000		
	Clerical/Expediting/Admin	6	mos	$2,000	$12,000		
	Temporary Facilities (tenting, etc)	6	mos	$5,000	$30,000		
	Miscellaneous motorized equipment	6	mos	$2,500	$15,000		
	Tools	6	mos	$1,700	$10,200		
	Consumables, fuel etc	6	mos	$1,000	$6,000		
	Disposal	6	mos	$2,000	$12,000		
	Home Office Expenses	6	mos	$2,500	$15,000		
	Subtotal					**$197,200**	
Total Materials, Labor and General Conditions							**$3,302,430**
Mark Ups							
	Contractors Overhead/Profit			10.00%	$330,243		
	Bonding			1.50%	$49,536		
	Insurance			1.50%	$49,536		
	Remote Site Conditions			25.00%	$825,608		
	Estimating Contingency			10%	$330,243		
	Subtotal					**$1,585,166**	
Total Construction Costs							**$4,887,596**
Project Cost	Design			**10%**	$488,760		
	Administration			**20%**	$977,519		
	Subtotal					**$1,466,279**	
Total Project Cost							**$6,353,875**

1100 West Ewing Street
Seattle, WA 98119

December 26, 2012

The Honorable Sean Parnell
Governor of Alaska
P.O. Box 110001
Juneau, AK 99811-001

Dear Governor Parnell:

I am writing you today to express my support for the funding of Deferred Maintenance and Upgrades for Kodiak Regional Aquaculture Association's two hatcheries. The funding of the necessary maintenance and upgrades will assist the hatchery in creating a more stable annual production of Pink Salmon in addition to increasing production by 30%.

KRAA's hatcheries are dedicated to increasing salmon production through producing salmon juveniles. The Kitoi Bay Hatchery is one of the oldest State-owned hatcheries operating in Alaska. The hatchery operates on a large scale with a great deal of responsibility in the community but its structures have surpassed their intended lifespan decreasing its intended ability. The Pillar Creek Hatchery has had a great deal of success as well but the hatchery is not able to live up to its full potential due to deferred equipment upgrades and maintenance. KRAA's salmon enhancement projects at these hatcheries contribute approximately $17million to the state on an annual basis and with your support; this number can continue to grow.

Ocean Beauty Seafoods depends on organizations like KRAA. The hatcheries increased output allows Ocean Beauty to employ more community members at our six production facilities throughout Alaska. Currently, we employ about 200 people year round at our Kodiak facility and we would like to see this number grow. This goal can be accomplished through a higher and more stable annual production of salmon.

KRAA's contribution to the Kodiak area salmon harvest continues to expand. Annually, KRAA has provided an average of over $5 million increased value to Kodiak's commercial fleet and more than 7.5 million adult salmon to the Kodiak area. These contributions can increase with the required upgrades and positively impact Kodiak with increased jobs and much needed economic growth.

A large amount of construction and equipment upgrades are required at both the Kitoi Bay Hatchery and Pillar Creek Hatchery. KRAA is grateful for past assistance received from the State of Alaska, yet the funds have not met the needs of the aging hatcheries. Your support of this budget item will decrease the time it takes to see quantitative improvements of pink production at Kitoi as well as increased sockeye and coho salmon production at the Pillar Creek Hatchery. The opportunity to accelerate the production

of salmon will continue to keep Alaska seafood competitive and gaining new consumers around the world.

Ocean Beauty Seafoods supports Kodiak Regional Aquaculture Association's request for $7.921million for Deferred Maintenance and Upgrade funding for the hatcheries. I hope you can lend your support for this request and help push Alaska's fishing industry forward as Alaska's vital economic engine.

Best Regards,

Mark Palmer

President – CEO Ocean Beauty Seafoods

KODIAK
CHAMBER
OF COMMERCE
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www.kodiak.org • Email: chamber@kodiak.org

November 19, 2012

The Honorable Sean Parnell
Governor of Alaska
P.O. Box 110001
Juneau, AK 99811-0001

Dear Governor Parnell,

Re: Kodiak Regional Aquaculture Association request for Deferred Maintenance and Upgrades Funding.

The Kodiak Chamber of Commerce represents approximately 325 businesses and 6,000 employees and promotes development of a strong and diverse economy for the region. The Port of Kodiak consistently ranks as the third largest fishing port in the United States, by value. The Kodiak Regional Aquaculture Association (KRAA) operates the Kitoi Bay Hatchery and the Pillar Creek hatchery, both State-owned. The Governor and Alaska Legislature have been supportive of the Alaska salmon hatchery system, and of spending State funds to bring aging and worn State facilities up to modern standards.

The Kitoi Bay Hatchery is one of the oldest operating hatcheries in the State, begun in the 1950s, and is the largest State-owned hatchery. Many of its structures are 30 to 50 years old and have long surpassed their intended lives. Pillar Creek, while newer, has been unable to fulfill its potential. Combined, KRAA salmon enhancement projects contribute approximately $17 million to the state each year, first wholesale value based on the 2000-2010 averages. This includes up to 58% of the entire commercial salmon harvest in some years, and averaged 14% of sockeye, 39% of coho, 34% of pink, and 21% of chum salmon commercial harvests for the area. KRAA also has projects specifically targeting subsistence and sport harvesters. The Port Lions/Crescent Lake project produced a reported subsistence harvest of over 11,000 sockeye in 2011 and the sport coho and Chinook projects return up to 3,000 Chinook and 10,000 coho annually. And KRAA is expanding such programs to other villages and road-system locations (Ouzinkie and Anton Larsen in 2014).

KRAA pays for all operations and for maintenance, repairs and replacement of equipment. They are funded by a tax on all Kodiak salmon landings (the 2% Salmon Enhancement Tax) and Cost Recovery fisheries. While KRAA is grateful for the support received to date, the amount granted to KRAA over the past three years does not meet the anticipated cost of major repairs, deferred maintenance and upgrades. KRAA is once again asking the Governor to include in his budget a funding increment for KRAA to complete the identified needs.

These projects will directly increase the benefits that accrue to the Kodiak community from the continued presence of these hatcheries. For instance, an upgrade to the pink salmon incubation building will allow continued salmon production during construction and will actually increase the output of pink salmon from Kitoi by 23%. An improvement project at the Pillar Creek Hatchery would create a new multi-purpose building which would include an area for tours and school children to learn about Alaska salmon and the benefits to our community and State.

The Kodiak Chamber of Commerce supports Kodiak Regional Aquaculture Association's request for an additional $7.921 million in the Governor's Budget for standard deferred maintenance and additional upgrades.

Yours in Economic Prosperity,

Trevor Brown
Executive Director

CC: Senator Gary Stevens
Representative Alan Austerman

ICICLE

Governor Sean Parnell

November 19, 2012

State of Alaska

Dear Sir,

This letter is in support for State funding of the deferred maintenance and upgrades desperately needed for the State owned hatcheries, Kitoi Bay and Pillar Creek located on Kodiak Island. I am in support of this funding to be included in the Governors' Budget for all of the following reasons.

Kodiak Regional Aquaculture Association efficiently operates and maintains both facilities through a portion of funds collected through the Salmon Enhancement Tax and cost recovery fisheries. Although this money covers the day to day operations and some repairs and maintenance; it does not cover long term costs in upgrading and modernizing both hatcheries.

The Kitoi Bay hatchery is one of the oldest operating hatcheries in the State, starting in the 1950's and rebuilt after the 1964 earthquake. Many of its structures are 30-50 years old and have surpassed their intended lives. Pillar creek, while newer, was built during lean economic times and has been unable to fulfill its potential.

I manage a salmon cannery in Larsen Bay on Kodiak Island. My livelihood as well as the livelihood of many of the fisherman I service and deliver to me depends on the future of the Alaska Salmon Fisheries, which include not only the wild salmon stock but also the hatchery raised salmon.

I am further requesting that funds for the Deferred Maintenance and Upgrades requested by KRAA be included in your budget for 2013.

Respectively submitted,

Stephen Lee

Plant Manager – Larsen Bay

Icicle Seafoods, Inc.

ICICLE SEAFOODS, INC.
4019 - 21st Avenue West • Seattle, WA 98199
P.O. Box 79003 • Seattle, WA 98119 • Tel: 206-282-0988 • Fax: 206-282-7222

Kodiak Regional Aquaculture Association

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An Open Letter to Alaska State Legislators

January 31, 2012

Dear Senators and Representatives of the State of Alaska,

Kodiak Regional Aquaculture Association (KRAA) is the private non-profit operator of the two state-owned salmon hatcheries in the Kodiak region. Kodiak is very appreciative and thankful for the Alaska legislature's commitment to the funding of needed upgrades and deferred maintenance for the Kitoi Bay and Pillar Creek hatcheries. Alaska's continued support in providing funding for State-owned salmon hatchery infrastructure is paramount to their continued success.

The importance of these two State-owned hatcheries to the Kodiak commercial, subsistence and sport users of salmon can't be overstated. In the past decade, KRAA supplemental salmon production has contributed up to 58% of the total Kodiak commercial salmon harvest, and averaged 14% of sockeye, 39% of coho, 34% of pink, and 21% of chum salmon commercial harvests. Over the past decade, KRAA enhanced salmon contributions have added over $17 million annually to the Kodiak and Alaska economies (first wholesale), as well as thousands of jobs for fishermen, tenders, processors, and local vendors of fuel, food, equipment and repairs. KRAA manages and operates these hatcheries at no cost to the State.

KRAA projects also provide salmon for subsistence and sport harvesters. In 2011, over 12,000 sockeye salmon were reported as subsistence harvest from the KRAA Crescent Lake stocking project (at the Native Village of Port Lions). This is almost half of the average reported subsistence sockeye harvest from all of Kodiak. Similar projects will start this year at the Native Village of Ouzinkie and near the City of Kodiak. For anglers, KRAA projects return up to 3,000 Chinook and 10,500 coho salmon annually to Kodiak sport fisheries along the Kodiak road-system, contributing fish for the table and tourism dollars throughout the community.

The cost of completing necessary deferred maintenance and upgrades at the State-owned Pillar Creek and Kitoi Bay hatcheries is more expensive than State funding granted to date. Along with the Alaska Department of Fish and Game (ADF&G), we've assessed the work that is required to bring these aging facilities up to modern standards for safety, energy use and operational efficiency. Architect/Engineer reviews in 2011/2012 detailed deferred maintenance needs and estimated the expense at approximately $8.410 million. Subtracting the State funding granted to KRAA, $5.034 million, leaves $3.376 million required to complete the necessary deferred maintenance and upgrades. However, there were a few poor calculations used in that analysis, and correcting for actual costs, the deficit increases to $4.952 million. Added to this amount is $2.969 million for necessary building replacement costs, unforeseen during the facility evaluations.

KRAA is respectfully requesting that $7.921 million be included within the Alaska Capital Budget for FY 2014, to allow completion of needed repairs to the State-owned Kitoi Bay and Pillar Creek salmon hatcheries. Of the total amount requested for deferred maintenance and upgrades ($7.921 million), $6.588 million (83%) is for renovations and repairs at the Kitoi Bay Hatchery and $1.333 million (17%) is for Pillar Creek Hatchery deferred maintenance and upgrades. This is explained in more detail in the following pages.

Of the 11 state-owned hatcheries to receive State funding for deferred maintenance and upgrades over the past three years, the KRAA operated hatcheries in Kodiak are by far the largest, with a combined permitted capacity of 277 million eggs. In contrast, Cannery Creek, Main Bay and Gulkana Hatcheries (PWSAC) combined are permitted 201 million eggs and Hidden Falls Hatchery (NSRAA) is permitted 112 million eggs. The Kitoi Bay

Hatchery, though one of the oldest hatcheries in the State, is still one of the largest pink salmon hatcheries in Alaska (215 million eggs).

The funding KRAA received in the past two years (FY12 and 13) was based on the request submitted in FY11 (October, 2010), before KRAA began an engineer's analysis of conditions and needed projects for the hatcheries. In FY12, ADF&G more thoroughly inspected State-owned hatcheries with a team of architects, and mechanical, civil and electrical engineers. The ADF&G Inspection Reports on Kitoi and Pillar hatcheries were released in March 2012, too late to modify previous funding requests. These reports are attached, for your review.

While the ADF&G inspection reports provide good estimates of conditions, deferred maintenance needs and projected costs, KRAA has found that they are incomplete in two ways.

- **First, the cost estimates in the ADF&G inspection report have not proven to be entirely correct and in most cases were lower than actual costs for Kodiak construction**. This is particularly true for construction at the Kitoi hatchery, which is remote and accessible only by boat or float plane. Also, estimates for site preparation were missing in some cases, and the cost of contractor mark-ups for contingencies and profit

  To determine the veracity of cost estimates, KRAA employed two methods: 1) Actual cost for projects or project components (based on actual expenditures or project bid documents) were compared to the inspection report estimates; and, 2) The inspection report cost estimates were reviewed by E&CM, Inc., a Kodiak-based construction project management company with extensive experience with both Kitoi and Pillar hatcheries. Based on their experience and knowledge of actual Kodiak region construction costs, some estimated costs for identified deferred maintenance needs were adjusted.

  Some specific examples of actual costs or known bids in excess of ADF&G inspection report estimated cost:

  Kitoi Duplex: This structure was built in 2010, using KRAA funds. The total cost of the building, including all site preparation, concrete foundation, structural/carpentry, electrical, mechanical, materials, freight, and labor expenses, was approximately $425,000. At 1850 ft^2, this represents a cost of approximately $230 per ft^2. The estimate used in the ADF&G inspection report is $200 per ft^2.

  Kitoi Bunkhouse: Built in 1965, this 3,400 ft^2, two-story wooden structure was a top priority for deferred maintenance/upgrade as extensive repairs or replacement were needed to bring this aged and failing structure up to current code for employee safety and improve energy efficiency. Renovation of this building began in FY11 but wasn't completed until FY12, using DLG funding. The final cost to completely renovate this structure, including all site preparation, concrete foundation, remediation of lead paint and asbestos, structural/carpentry, electrical, mechanical, materials, freight, and labor expenses, was approximately $900,000 (the original engineer's estimate was $556,000, but the actual cost was over 60% more). At 3,400 ft^2, this represents a cost of approximately $265 per ft^2, again in excess of the Kitoi inspection report estimated cost of construction of $200 per ft^2. Bear in mind, KRAA was acting as the General Contractor in order to reduce costs. KRAA will continue to strive to find significant savings to project costs by acting as General Contractor (reducing costs for contractor project management and overhead) or by utilizing KRAA labor and coordinating shipping and freight.

  Sockeye Incubation/Rearing Building: Based on needs for biosecurity and requirements of ADF&G Fish Pathology Section, sockeye salmon at Kitoi need to be isolated from other salmon and all water must be depurated with UV disinfection systems, to remove the chance of spreading INHV, a disease known to occur in sockeye salmon and known to be in Kitoi's water supply. Currently, sockeye eggs are incubated in

a small, isolated room within the main hatchery and sockeye rearing raceways are located outside surrounding the main hatchery building and within and adjacent storage building (the "hangar" building). A new building, to house all sockeye salmon incubating eggs and rearing juveniles, was the second priority for Kitoi Hatchery upgrades. Based on estimated cost of site preparation, materials, freight and labor for the concrete foundation/floors and erection of a 3,300 metal building received as bids, the cost for constructing the building shell (with no electrical, mechanical, or the specialized piping, UV water systems, and raceways required) is estimated at approximately $750,000, or $$227 per ft^2 Completion of the interior, electrical and mechanical is estimated at an additional $200,000, bringing the estimated cost of the completed specialized hatchery building to approximately $285 per ft^2. Also, for this new metal building, the cost per square foot for siding and roofing is approximately $65 per ft^2 installed at Kitoi. This is significantly higher than the estimates given in the ADF&G inspection report for replacing/repairing metal siding and roofing, $16/$ft^2$. Calls to local Kodiak contractors and consultation with E&CM lead to an updated estimate of $24/$ft^2$ for this work, installed at Kitoi. At Pillar, the $16/$ft^2$ estimate will suffice.

Concrete: In the ADF&G inspection report the cost of concrete is shown at $10/$ft^2$. This is unrealistically low, even allowing for the markup shown for remote construction, 25%. The weight of concrete and gravel and the needed equipment to mix and pour large amounts of concrete and the high freight costs, all push the actual or known costs much higher. Based on work at the Kitoi Bunkhouse and the bids received for the cost of concrete work, a realistic cost estimate for Kitoi is $25/$ft^2$ (about $3,000 per yard).

For Pillar Creek hatchery construction, estimates given in the ADF&G inspection reports for building ($200/$ft^2$) have also proven too low. In the inspection report, the Oxygen Building, a mechanical building housing O_2 generators needed in fish culture, was estimated to cost approximately $100,000 for a 500 ft^2 metal sided, single story wooden building, plus an additional $50,000 for needed site preparation and drainage. Bid estimates from local contractors for this job came in over $250,000. These were considered excessive, so KRAA acted as the General Contractor and subcontracted out individual components of site preparation, structural, electrical and plumbing/mechanical. The final cost for the building will be about $121,500 for 432 ft^2, or approximately $280 per ft^2, plus $37,200 for more extensive site work and drainage (acting as the General Contractor, KRAA can bring significant savings, and will be undertaken as time and expertise allows).

FOR SPECIALIZED BUILDING CONSTRUCTION (HATCHERY, POWER PLANT, O_2 GENERATION BUILDING) OR BUILDINGS REQUIRING LARGE AMOUNTS OF CONCRETE, AN ESTIMATED COST OF $285 PER SQUARE FOOT MUST BE USED FOR HATCHERY PROJECTS

FOR MORE STANDARD CONSTRUCTION OR REPAIR, $225 PER SQUARE FOOT MUST BE USED FOR PILLAR HATCHERY PROJECTS, AND $250 PER SQUARE FOOT WILL BE USED FOR KITOI HATCHERY PROJECTS.

- **Second, the ADF&G inspection report does not include projects that had either 1) already been adequately planned, with good cost estimates, or had already been started, with known contractor bid estimates of cost; or 2) were not included in the inspection report, which focused on structural and electrical repairs not upgrades and new construction.**

Examples of the first type, projects not included because they had been previously planned and had good estimates for cost, include the Kitoi Hatchery bunkhouse renovations, as described above. The Kitoi Bay Hatchery inspection report states "The deficiencies of the bunkhouse have been adequately covered in prior reports.... The structure was not inspected, as a renovation and an addition to the structure have already

been designed" (page 14). So, despite the known need and the known cost of the renovation project, it wasn't included in the ADF&G inspection report, but should be added to the total estimated costs for all deferred maintenance and upgrades.

An example of the second type, projects that KRAA knows are needed that were not included in the ADF&G inspection report, is the Kitoi Sockeye Building, as shown above. The eyes of the engineers and architect involved in the inspection looked at refurbishing or rebuilding the old Hangar storage building (estimated cost $240,000), but the needs of the hatchery to come up to fish pathology standards and as recommended by ADF&G's Pathology section, lead us to the demolition of the Hangar and building in that spot a different and more costly building (estimated cost $950,000). The difference ($710,000) should be included in the final list of estimated costs for the deferred maintenance and upgrade of the Kitoi hatchery.

An example of a project at Pillar Hatchery that is needed, but was not included in the ADF&G inspection report, is upgrades to the hatchery water system (domestic water in the hatchery building was addressed). The water supply available to the Pillar hatchery is the factor limiting Pillar salmon production. Built to incubate over 20 million salmon eggs, the current Pillar hatchery water supply will support only 25-30% of that capacity. This has long been considered the number one priority for improving fish culture and success of the Pillar Creek Hatchery, but the engineer's estimated cost of $601,000 was not included in the Pillar hatchery inspection report (similar to the Kitoi Bunkhouse example above).

The full picture of need should include the most realistic estimates of cost, and should include some projects not in the ADF&G inspection report. A spreadsheet breakdown of the ADF&G estimated costs and updated cost estimates for all desired projects is available.

I thank you for your consideration and I look forward to discussing this with you. Should more information be required, please contact KRAA at your earliest convenience.

And again, our thanks for your continued support of the Alaska salmon hatchery system and your commitment to the funding of needed upgrades and deferred maintenance for the Kitoi Bay and Pillar Creek hatcheries.

Sincerely,

Kevin Brennan, Executive Director
Kodiak Regional Aquaculture Association