



**Exxon Valdez Oil Spill Trustee Council**  
**General Restoration, Habitat Enhancement, Habitat Protection, and Facilities Projects**  
**Quarterly Project Reporting Form**

*\*Detailed instructions for each section below are given in Section II. Quarterly Project Reports in the Reporting Policy on the website, <https://evostc.state.ak.us/policies-procedures/reporting-procedures/>*

**Project Number:** 21210131

**Project Title:** Alaska SeaLife Center Facilities Project \$2,000,000/\$500,000

**Principal Investigator(s):** Chip Arnold, Ben Smith

**Reporting Periods and Due Dates:**

<i>Reporting Period</i>	<i>Due Date</i>
February, March, April	June 1
May, June, July	September 1
August, September, October	December 1
November, December, January	March 1

**Submission Date:** June 1, September 1, December 1, or March 1

**Project Website:** N/A

Please check all the boxes that apply to the current reporting period.

**Project progress is on schedule.**

Text

**Project progress is delayed**

Text

**Budget reallocation request.**

Text

**Personnel changes.**



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**Summary of Work Performed:**

Building lighting and DDC control work has been ongoing with the lighting project completed in February. The contractor for the project was able to complete most of the necessary programming of the controllers at their shops and will install them in February through March 2023. Repair work to water supply pumps was required, and new replacement pumps have been put on order. Survey work on the intake pipes reveals considerable fouling and burial issues that prompted an engineering review to determine feasible solutions. Engineering review and discussions on how to proceed with intake well sedimentation and intake line repairs are ongoing. Freshwater pump house barrier wall plans are under review and the project is on hold pending final plans regarding Lowell Creek diversion work by the Army Corps of Engineers. Structural engineers reviewed some of the interior drain related problems and have provided recommendations for action and further investigations.

**Abstract:**

**Building Infrastructure:**

The electrical contractor for Trane began work on the Lutron lighting system upgrades on 10/3/2022, focusing on the installation of the wireless sensor network and replacement of the lighting control panels. Panel replacement had to be closely coordinated with ASLC staff in order to avoid conflicts with animal needs and ASLC functions. As work progressed, several areas were found to have insufficient equipment allocated for the area or too much. However, the contract was able to make changes necessary to minimize additional expenses. The electrician, Kevin Mitchel, installed 14 lighting relay control panels. The wired receiver network was installed which required running data cables and conduit systems throughout ASLC. Approximately 124 occupancy sensors, 179 switches, and 37 wireless sensors have been installed. Lutron technician Greg Booth completed commissioning of this system on 2/16/2023. Training for staff on operating the system was delivered during system commissioning.

Building BAS DDC controls work on site started on 1/31/2023 and has been progressing steadily since then. Trane delivered Variable Air Volume Controllers that were pre-programmed at their shops during the month of January. Onsite work was initially scheduled for mid-November. Trane project manager, Kody Bull, reports that programming work on Trane controllers has been completed in their shop. The current expected completion date for the BAS project is the end of March. Training for staff will be conducted onsite before project completion. Advanced training from Trane factory personnel is being offered as part of the project in May 2023 for selected members of the operations staff.



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Figure 1. Trane subcontractor wiring new lighting control relay panel.

**Seawater Life Support System:**

Global Diving & Salvage submitted their report for Phase 2 ROV surveys conducted 10/24/2022 and sub-bottom profiling conducted on 11/1/2022. The sub-bottom profiling survey of the seawater intake pipes determined their position and depth of burial. Global's subcontractor eTrac conducted the sub-bottom survey under the direct supervision of Global's Project Manager. All work was conducted on eTrac's research survey vessel, "Inverness" on 11/1/2022 and 11/2/2022. Global reported finding the East A Line intake and associated pig trap with the ROV. However, the B Line intake appears to be buried in at least 6 ft of silt. The Lowell Canyon diversion tunnel has created a plume of debris that is within 120 feet of B Line and is expected to continue encroaching on the line. These findings support the observed reduced flow from B Line into the intake well, and may help to explain the large gravel inflows into the intake wells. The sub-bottom survey seems to confirm the burial and also revealed the location of both pipelines where they are buried. After review of these findings, ASLC staff contacted PND Engineering for further advice on how to proceed. Global is proposing a follow-up survey in fall 2023 at an estimated cost of \$28,350. The follow-up survey is expected to reveal changes in burial depths and advancement rates, if any, of the Lowell Creek diversion plume.



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Figure 2. Pig trap on "A Line" as viewed from Global ROV.

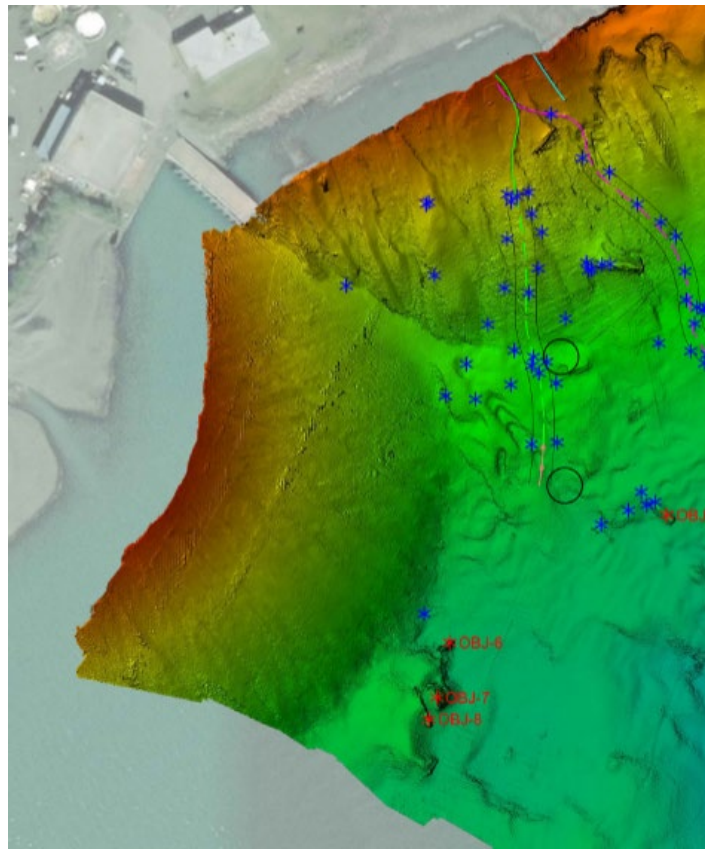


Figure 3. Global Diving sub service hits identifying buried B Line components, overlaid with bathymetric survey data.



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Doug Kenley, P.E. and Vice President PND Engineers Inc. was contacted and relayed the results of the Global intake survey. Mr. Kenley was involved in the original design and construction of the system and is uniquely familiar with the design. PND proposed to assess the conditions and make recommendations for improvements to the seawater intake lines and piping within the wet well. A site visit at low tide conditions was conducted to observe the wet well and a memo describing the findings associated with the site visit with a list of options for repair with corresponding relative construction costs, permitting requirements and a list of permits required was delivered. On 1/28/23 Jake Kopplow, PE, and Jackson Waters, EIT, performed a site investigation of the ASLC seawater intake system. A preliminary report was received outlining repair options on 2/10/2023 and is currently under review by ASLC management. In response to water temperature concerns raised during review of PND proposals ASLC determined that more information was required regarding thermoclines and temperature variations at various depths. Data loggers, required data collection apparatus and software were purchased from Onset HOBO. The study aims to determine the water temperature at depths of 100 feet, 65 feet, and 25 feet below MLLW near the ASLC Intakes over the course of a year and evaluate any patterns or trends in temperature change in support of Critical Water Projects Seawater Life Support systems work.



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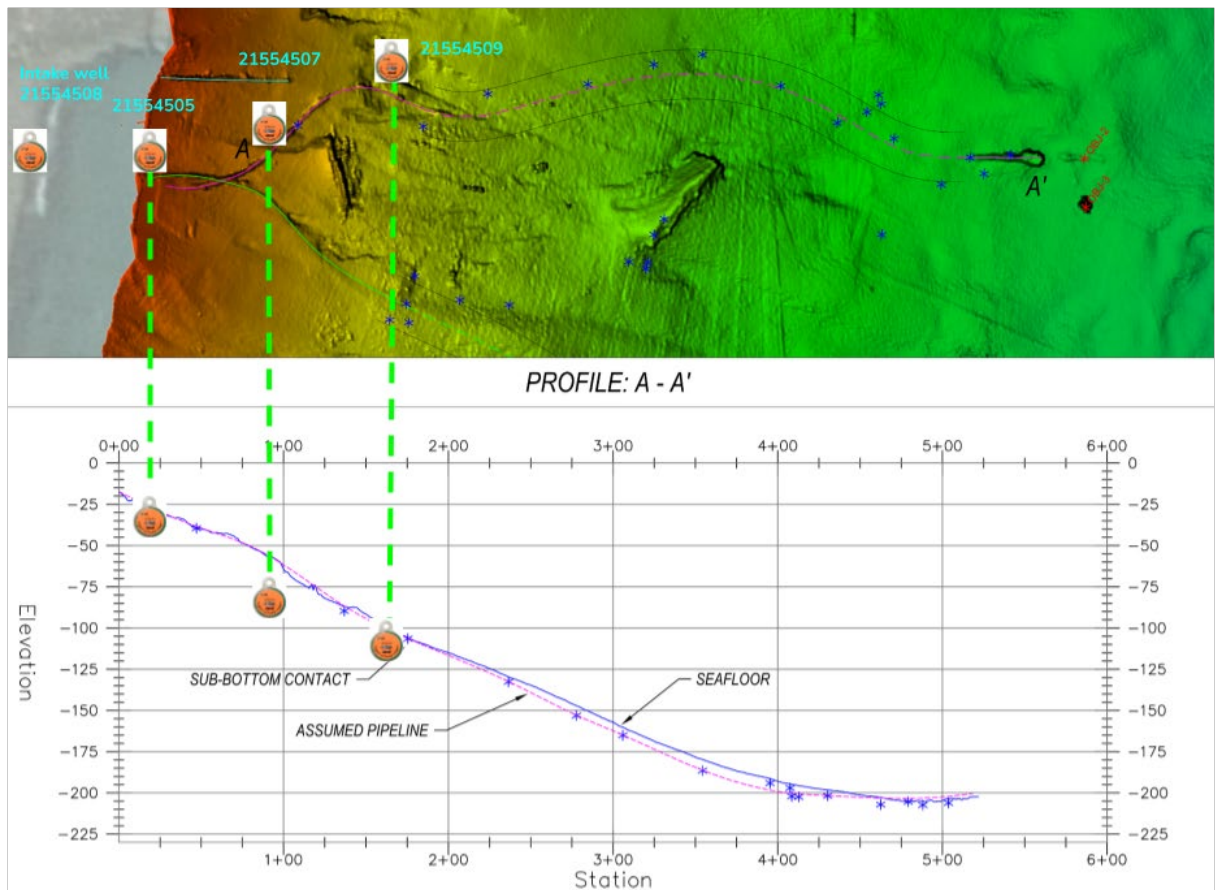


Figure 4. ASLC planned temperature study data logger locations and depths.

Investigations into intake well sediment removal revealed several factors adding costs and complexity not captured by original cleanout estimates. The first dive conducted by Global in October 2022 increased estimates to 30-40 cubic yards of material requiring removal. Global Diving and Salvage provided a cost estimate of \$59,445 but only provides for divers and their associated equipment and does not offer a performance guarantee and assumes ASLC will obtain necessary permits and construct silt containment. Containment and disposal of the silt and sediment will be required under current regulations and permits. The necessary structures and systems further complicate the process. ASLC operations staff and management are in the process of obtaining separate bids for the work and exploring alternative methods of sediment removal and mitigation.



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Figure 5. Proposed location for a sedimentation pond related to well cleanout efforts.

The RCK water control system backup power supply was upgraded for the controller cabinet, and an additional backup power supply was purchased and installed by ASLC operations that will supply long duration high quality backup power for both the RCK system and the Trane BAS system. The RCK system has been identified as a priority item and work to obtain replacement or upgrade costs estimates is underway.

**SeaWater Pump Replacements:**

Quotes for replacement seawater pumps from several vendors were obtained, and Industrial Pumps of Alaska (IPA) was selected. An order was placed for stainless steel Franklin Electric vertical turbine pumps with specific recommended enhancement included. As these pumps are built to specifications, there is an extensive lead time, with a July 2023 expected ship date. A total of four new turbine pumps were ordered including a 40 horsepower supply pump, two 15 horsepower makeup water supply pumps, and one 20 horsepower effluent pump all optimized for the severe conditions related to salt water pumping (LSS-02, LSS-05, LSS-06 and LSS-12).

The condition of the current pumps has required continued maintenance and repair efforts in the interim. Andy Dixon, Manager, IPA, has performed several corrective maintenance actions



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including seal replacements and motor replacements on site which was necessary to maintain normal water flows. IPA was contracted to rebuild pump LSS-02 in order to provide raw salt water supply system redundancy while new pumps are on order.

Effluent wastewater has been a problematic and constraining portion of the water supply system. In part this is due to the use of turbine pumps which are not designed for pumping large solids sometimes admitted into the waste wells. Solids handling pumps have been installed however these also have issues regarding priming and efficiency. To combat issues regarding priming, efficiency, and solids handling capabilities a submersible slurry pump was ordered from Beckwith & Kuffel. This model “GPM Eliminator” is designed specifically for abrasive solids and has a built in agitator system that will allow for operation in the sediment and silt present in the well. The expected ship date for this pump is 3/21/2023. This pump will be installed in place of LSS-09.



Figure 6. GPM Eliminator Slurry Pump.

Data collection efforts are ongoing for the pump electrical power system and associated parameters in the well. Data collected from the intake wells was also able to be relayed to PND engineers for use in the associated seawater supply tasks.





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DXP Alaska Pump and Supply installed a new freshwater pump, restoring redundancy in a critical water supply on Wednesday 1/25.



Figure 7. DXP Installing new Goulds vertical turbine pump.

Investigations into methods to improve electrical distribution system reliability and efficiency continue. Cost estimates from Trane and from Parijat Controlware, Inc to integrate the EMS (electrical monitoring system) to the Tracer system were obtained and reviewed. ASLC management is currently reviewing these options.

**Ozone Water Treatment System:**

No additional work was performed on ozone systems during this reporting period however operations staff is working to develop plans to rebuild the pump room ozone generator that is currently being supplied temporarily by habitat ozone generator systems.



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**Pump House Barrier:**

The US Army Corps of Engineers met in December 2022 and do not have a final decision on how they are going to improve the Lowell Canyon Tunnel. The preferred method is still to create a flume across the road out into the bay. This method would put outflow closer to our lines but it may change how the sediment is conveyed which will affect the ASLC B Line intake system. Due to the uncertainty of the direction of the Lowell Canyon Diversion tunnel ASLC is postponing a construction of a barrier wall. Additionally, the City of Seward has left a large mound of sediment and debris alongside the pumphouse and between the existing tunnel that will likely provide some relief against severe flooding should it occur in the interim. The City of Seward Public Works department was contacted and reports that there are no plans to move the gravel pile and additionally advises not to start any major site work until the Corps plan is finalized, remarking that adjustments to infrastructure in the general area may be required.



Figure 8. Freshwater Pumphouse and adjacent gravel berm on city property.

**Cast Iron Drain Pipe Assessment:**

The underwater viewing areas have had persistent leaks relating to issues with building drains in the seal habitat and bird outdoor viewing decks. Structural engineers from RESPEC were consulted with and performed a site visit and prepared a follow up report. Jacob Lovaas, Structural EIT at RESPEC, inspected the building on December 9, 2022. He identified leak locations and coordinated with senior engineers to determine potential causes and solutions to fix the issues. Leaks were observed to be coming from cracks and concrete floor slab pipe hanger penetrations with the location under the exterior Bird observation area to be in the worst condition. The report underlines the complexity and the uniqueness of the ASLC structure.



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Several repair alternatives were proposed to address this immediate leak concern. RESPEC also investigated additional areas in curatorial spaces where leaks and water migration through concrete and around drains were observed. RESPEC recommends stabilizing concrete embedded steel with a product like Sika FerroGard-993 or similar. Additionally the use of Lidar LIDAR "light detection and ranging" was recommended to better help locate water migration paths through the structure. ASLC management is currently reviewing these findings.

**Coordination and Collaboration:**

N/A

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**Response to EVOSTC Review, Recommendations and Comments:**

N/A

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**Budget:** ASLC works on an accrual basis of accounting and books appropriate expenses into the previous period, where appropriate. Because of the EVOSTC invoice reporting policy, our records will not match as ASLC financial reporting.

Budget Category:	Proposed FY 22	Proposed FY 23	Proposed FY 24	Proposed FY 25	Proposed FY 26	5-YR TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Travel	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contractual	\$126,095	\$0	\$0	\$0	\$0	\$126,095	\$76,393
Commodities	\$0	\$0	\$0	\$0	\$0	\$0	\$32,840
Equipment	\$2,373,905	\$0	\$0	\$0	\$0	\$2,373,905	\$8,562
Indirect Costs (report rate here)	\$0	\$0	\$0	\$0	\$0	\$0	\$11,780
<b>SUBTOTAL</b>	<b>\$2,500,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,500,000</b>	<b>\$129,575</b>
General Administration (9% of subtotal)	\$225,000	\$0	\$0	\$0	\$0	\$225,000	N/A
<b>PROJECT TOTAL</b>	<b>\$2,725,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,725,000</b>	
Other Resources (In-Kind Funds)	\$580,897	\$0	\$0	\$0	\$0	\$580,897	\$492,490

**INSTRUCTIONS:** This summary page provides a five-year overview (FY 22-26) of proposed funding and actual cumulative spending which includes the non-trustee agency and trustee agency worksheets. **This Summary Page should automatically populate as the formulas reference the cells in the non-trustee agency and trustee agency worksheets. Please make sure the totals given are correct.** The column titled 'Actual Cumulative' will be updated each fiscal year and included in the annual report (include information on the total amount actually spent for all completed years of the project). On the Project Annual Report Form, if any line item exceeds a 10% deviation from the originally-proposed amount; provide detail regarding the reason for the deviation.

**COMMENTS:** Expenses are current as of January 31, 2023

<b>FY22-26</b>	Project Number: 21210131 Project Title: Alaska SeaLife Center Facilities Project \$2,000,000/\$500,000 PM(s): Arnold, Smith	<b>SUMMARY TABLE</b>
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