

EVOSTC FY 22-26 GENERAL RESTORATION and HABITAT PROJECT PROPOSAL FORM

Does this proposal contain confidential information? Yes No

Project Number* and Title

**Number will be assigned by EVOSTC office if this is a new project.*

Clean Water Act Assessment of Beaches with Lingering Oil

Primary Proposer(s)/Project Manager and Affiliation(s)

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Date Proposal Submitted

3/29/2021

Brief Project Description (maximum 300 words)

In 1990 DEC classified 35 impacted beaches in the Exxon Valdez Oil Spill impact zone as impaired for petroleum exceedances under the Clean Water Act (CWA). Today, new information and technology exist that would allow for a re-evaluation of the condition of those impaired beaches. This project would allow DEC to evaluate the beaches and determine if the impairments still exist or if the beaches could be removed from the impaired list under the CWA. DEC will use a literature review, Gulf Watch data, SCAT surveys, and development of a lingering oil listing methodology to evaluate the status of the impaired beaches.

The impaired beaches are the only waters currently designated and listed by State as impaired from the Exxon Valdez spill. Initially, these beaches were listed as Category 5 (impaired waters) in accordance with section 303(d) of the CWA. In 1996, the beaches were reclassified off the 303(d) list as Category 4b (impaired waters with a recovery plan) because of the restoration efforts identified in the 1994 *Exxon Valdez* Oil Spill Plan (Restoration Plan).

Recent studies indicate that key injured resources are no longer negatively affected by the lingering oil that remains in the substrate of certain beaches. In 2015, passive samplers were deployed in the intertidal zone of one of the most contaminated beaches; no *Exxon Valdez* oil was detected leaching into the marine water. The study concludes that remaining lingering oil (still largely in an un-weathered state) remains sequestered in the subsurface and is not biologically available. The population of target species, such as harlequin ducks and sea otters, between oiled and unoiled sites are now similar, indicating recovery from long-term effects of the spill. The recovery of injured resources and sequestered oil may justify the removal of the impaired status of some of the beaches.

EVOSTC Funding Requested* (round to the nearest hundred, including 9% GA, where applicable*):

FY22	FY23	FY24	FY25	FY26	FY22-26 Total
	138,700	215,800	178,700	125,200	658,400

Non-EVOSTC Funds to be used for this project, please include source and amount per source: Limited DEC staff time, 100% federal funding

FY22	FY23	FY24	FY25	FY26	FY22-26 Total
	6,624	6,823	7,027	7,238	27,712

1. EXECUTIVE SUMMARY (maximum ~1500 words, not including figures and tables)

The intertidal zone of 35 beaches in Prince William Sound fouled by the Exxon Valdez Oil spill were still impacted in 2015. These beaches are listed as impaired, i.e. exceeding Alaska water quality standards (WQS). Under the Clean Water Act, states must evaluate waters in the Integrated Water Quality Monitoring and Assessment Report. This process typically occurs every two years. However, the cost of re-evaluating the impairments of EVOS waters far exceeds the DEC's normal agency management resources and the State has not evaluated recent data and science surrounding lingering oil since 2015. DEC requests EVOS funds to assure these waters [and beaches] are restored, as EVOS funds have been established for this purpose. The federal Environmental Protection Agency is supportive of DEC's effort and will participate in this process to assure the necessary steps are taken to assure that the correct impairment status decisions are reached.

Current DEC methodologies to remove impaired waters do not address lingering oil. DEC lists waters as impaired based on impacts to designated uses. Recent work funded by EVOSTC suggests lingering oil is not biologically available and therefore may not be affecting designated uses. DEC would need to develop a publically reviewed process, listing methodology, to evaluate and determine attainment or impairment of WQS. Any listing methodology created by DEC must be reviewed by EPA and undergo Tribal Consultation.

This project is necessary to collect data needed to determine if impairments remain, develop the tools necessary to manage the impaired beaches for the long term, and to solicit public input regarding the impacts of long term impairment status.

Objective #1 Determine the current status of the impaired beaches

Model predicted locations, historic data, and activities outlined in the 1994 restoration plan were used as justification for listing waters as impaired and in support of the State of Alaska Category 4b Rationale. Since this listing DEC has adopted a data driven process whereby a specific methodology must be laid to defend an impairment. DEC must develop this methodology to re-evaluate EVOS impaired beaches.

Objective #2 Updating Clean Water Act status of impaired beaches

DEC will utilize the scoring matrix developed to gauge recovery as the basis for creation of listing methodology. The listing methodologies provide guidance DEC uses to evaluate waters against Alaska Water Quality Standards, it will be used to determine impairment or recovery. This guidance defines minimum data requirements and data evaluation methods used to complete waterbody impairment or attainment

determinations to satisfy Integrated Report reporting requirements. This task will focus on creating a new listing methodology to address lingering oil impacts to designated uses of several water quality standards. It may need to be a hybrid method addressing petroleum, residues, and sediment impacts.

Once the listing methodology is drafted, a public notice process occurs where key stakeholders are invited to review it before it is public. Once the key stakeholder review is complete the methodology undergoes a public comment period and EPA review. Once approved, DEC then can apply it to current data regarding lingering oil and impaired beaches.

Evaluating data using the new listing methodology occurs during DEC biennial Integrated Report. This report describes to Alaskans the health of Alaska's waters and includes the list of impaired waters. EVOS listed beaches will be evaluating during this process and may lead to removing beaches from the impaired waters list or confirming a continued impairment.

Objective #3 Stakeholder involvement

DEC will involve stakeholders in the process by developing and implementing a communications and public relations plan. Not only is community engagement legally required throughout this process, its success depends on community input and knowledge. Understanding if human services continue to be impacted is directly related to understanding if designated uses are being protected.

2. PROJECT HISTORY (maximum 400 words)

This is a new project. In 2015, DEC updated its rationale for placement of beaches into Category 4b. This work did not utilize EVOS funding. Placing water in Category 4b required the Environmental Protection Agency (EPA) approval and addressed the following six elements:

Identification of impaired segment and statement of problem causing the impairment;

Description of pollution controls and how they will achieve WQS;

An estimate or projection of the time when WQS will be met;

Schedule for implementing pollution controls;

Monitoring plan to track effectiveness of pollution controls; and

Commitment to revise pollution controls as necessary.

The 1994 Restoration Plan was used as a basis for Category 4b justification.

3. PROJECT DESIGN

A. Objectives

Objective #1 Determine the current status of the listed waters. Disagreement and uncertainty remain about the status of beach locations in the impact zone. New research and information is likely available to address some of these questions. In 2015, 40 known sites were candidates for restoration, 18 sites were adjacent to known sites

and model predicted as candidates for restoration, and 5 sites were model predicted unique sites. Out of the potential 63 sites, DEC currently has 35 of these sites listed as impaired, but has not evaluated the entire suite of sites. This objective will compile existing research on potential locations comparing the information against DEC impaired sites. This initial evaluation will inform our process for Clean Water Act evaluations.

Objective #2 Updating Clean Water Act status of impaired beaches. The Integrated Report categorizes waterbodies in Alaska to meet the reporting requirements for the Section 305(b) report and Section 303(d) list of impaired waters. The Integrated Report helps the State prioritize waters for data gathering, watershed protection, and restoration of impaired waters. Impairment means that a waterbody persistently exceeds state water quality standards (18 AAC 70), usually determined after two or more years of water quality monitoring. DEC makes impairment decisions using publicly available listing methodologies. Waters are then placed into one of five categories.

Categories 1 and 2: Waters for which there is enough information to determine that water quality standards are attained for all or some of their designated uses.

Category 3: Waters for which there is not enough information to determine their status.

Category 4: Waters that are impaired, but have one of several different types of waterbody recovery plans.

Category 5: Waters that are impaired and do not yet have waterbody recovery plans. Also known as 303(d) list impaired waters.

EPA has approval authority over waters moving into and out of Category 5, also known as the impaired waters list. Waters in Category 4 are also impaired but have an EPA-approved waterbody recovery plan.

The evaluation of waters is based on impacts to designated uses, those designated uses should be protective of EVOS identified injured resources such as sediments, aquatic animals, intertidal communities, commercial fishing, passive use, recreation and tourism, and subsistence services. The table below compares DEC designated uses and EVOS identified injured resources. When a water is listed as impaired for one or more designated uses, it means that use is being impacted by pollution. The State of Alaska identified 35 waters as being polluted with all the designated uses affected in the EVOS spill area. Since the spill various activities have attempted to mitigate impacts including the use of dispersants, in-situ burning, sediment removal, tilling, monitored natural attenuation, manual techniques, and bioremediation. These activities have led to recovery in the impact zone for some injured resources and designated uses. DEC has no way of formally recognizing that recovery until an evaluation and a methodology is developed.

DEC Designated Uses	2014 EVOS Injured Resources
Aquatic life	sediments, aquatic animals, intertidal communities
Industry	Commercial fishing
Human use (recreation)	Recreation and tourism,
Human use (harvesting and consumption of seafood)	Subsistence services, passive use

Objective #3 Stakeholder involvement

Human Use of these locations has long been identified by the Trustee Council and numerous projects have involved managing or restoring uses. DEC also recognizes the importance of human use of the environment through designated uses in water quality standards. Designated uses are goals for waterbody, the state has identified the ability to safely recreate, harvest and consume local foods as a goal for all Alaskans. DEC and EVOSTC share a commitment to the long-term health and sustainability of the PWS region.

B. Project Location

This project will evaluate data collected from beaches in Prince William Sound area from Perry Island east to Peak Island to the northern tip of Montague Island and west to Evans Island. The table below identifies the locations currently listed as CWA impaired, based on the 2014/2016 Integrated Report.

DEC Impaired EVOS Beaches (2014/2016 Integrated Report)						
FIELD_SI_2	LOCATION	Updated DEC Site ID	Start Lat	Start Long	End Lat	End Long
LA015E	Latouche Island	20202-803	60.05962	-147.8164	60.06041	-147.81741
LA020C1, LA020C2	Latouche Island	20202-806	60.07258	147.84589	60.07439	-147.84586
LA018A1, LA018A2	Latouche Island	20202-807	60.06518	147.83947	60.06849	-147.83161
Eleanor 2	Eleanor Island	20202-810	60.55689	147.55002	60.55458	-147.5503
EV037A	Evans Island	20202-820	60.10927	147.88979	60.11008	-147.89044
SM005B	Smith Island	20202-822	60.52965	147.34467	60.52931	-147.34564
PWS-4V1, PWS-4V2	Latouche Island	20202-823	60.06862	-147.8462	60.06883	-147.84635
Smith 1	Smith Island	20202-824	60.51805	147.40824	60.51721	-147.40565
SM006C1	Smith Island	20202-825	60.51968	147.40308	60.51907	-147.40454
PWS-1V1, PWS-1V2, SM006B	Smith Island	20202-826	60.52755	147.38221	60.52748	-147.38638
PWS-3A4	Eleanor Island	20202-827	60.54896	147.55797	60.54963	-147.55646
Eleanor 1	Eleanor Island	20202-828	60.54575	147.56136	60.54553	-147.56214
Eleanor 4	Eleanor Island	20202-829	60.53586	147.56813	60.54166	-147.57516
PWS-12V1, PWS-12V2	Eleanor Island	20202-830	60.53931	147.58023	60.53961	-147.58118
EL056C.1, EL056C.2, EL056C.3	Eleanor Island	20202-831	60.5511	147.57879	60.55054	-147.57997
PWS-3B47	Eleanor Island	20202-832	60.55465	147.57811	60.55409	-147.57715
PWS-10V1, PWS-10V2	Northwest Bay	20202-833	60.55932	147.57829	60.55879	-147.57829
EL058B	Eleanor Island	20202-834	60.56221	147.57311	60.56189	-147.57391
Eleanor 3	Eleanor Island	20202-835	60.56938	147.58377	60.56537	-147.57273
KN0300A2	Herring Bay	20202-836	60.48306	147.77697	60.48359	-147.7773
Herring 3	Knight Island	20202-837	60.43984	147.74923	60.44063	-147.74696
KN0117A	Herring Bay	20202-838	60.47159	147.72102	60.4712	-147.71979
KN0115A-2	Herring Bay	20202-839	60.47658	147.71175	60.47589	-147.71248
KN0115A-1	Herring Bay	20202-840	60.47874	147.71591	60.47844	-147.71487
KN0114A	Herring Bay	20202-841	60.48509	147.72385	60.48466	-147.72306

PWS-3A13, PWS-4A13	Herring Bay	20202-842	60.50778	147.71661	60.50782	-147.71761
KN0109A	Herring Bay	20202-843	60.50734	147.70645	60.50731	-147.7073
KN0109A-2	Herring Bay	20202-844	60.50977	147.70554	60.5093	-147.70421
KN0136A, KN0136A_3	Bay of Isles	20202-845	60.37965	147.71291	60.38066	-147.71296
KN0135B, PWS-8V2, PWS-8V1	Bay of Isles	20202-846	60.37744	147.71061	60.3786	-147.71186
GR103B	Green Island	20202-847	60.30071	147.36406	60.30006	-147.36533
Green 1	Green Island	20202-848	60.30139	147.36276	60.30336	-147.35925
DI067A, PWS-9V1	Disk Island	20202-849	60.49895	147.65917	60.49774	-147.65921
PWS-9V3	Disk Island	20202-850	60.49824	147.66078	60.4982	-147.66114
IN031B2, PWS-7V1, PWS-7V2	Ingot Island	20202-851	60.49871	147.63427	60.49893	-147.63606
IN031A	Ingot Island	20202-852	60.50007	147.63781	60.49937	-147.63709

literature search, since the main EVOS Trustee and agency library is housed at this location with a dedicated librarian. The literature search, data compilation, and modeling projections will include studies conducted by federal and state agencies, universities, private firms, and other studies conducted on behalf of the EVOS Trustees as well as any available data and reports that were conducted on behalf of Exxon. The majority of this work will be performed by a contractor.

Task A. Identify waters of concern

To determine the preliminary status of the 35 impaired beach segments in Prince William Sound a detailed literature search and data compilation will be performed. The most valuable information is likely contained within the SCAT survey data and more recent Gulf Watch data. The literature search will focus on the 35 impaired beach segments.

Task B. Develop a set of standards suitable to gauge recovery and compliance with water quality standards

Results of the data search will provide a means to compare the relative impacts to each of the beaches. Specific statistical methods cannot be identified until the results of the literature search are complete and the usability and amount of data available for each beach have been determined. DEC will develop a set of metrics to use as part of the evaluation process. The metrics will include weighted scores for a variety of evaluation criteria that will then be used to determine beach impairment or recovery under the WQS. Metrics will examine magnitude, frequency, duration, and bioavailability.

Alaska Water Quality Standards are applied to all state waters and provide protection to many of the injured resources identified by the Trustee Council. WQS are designed to be protective of aquatic life, industry uses, and human use through recreation, consumption of seafood, or harvesting of local resources. The beaches currently identified as impaired are listed under Alaska marine water quality criteria for petroleum hydrocarbons, oils and grease (18 AAC 70.020(17)), see the table below. These criteria are protective of the 2014 Update Injured Resources and Services, such as sediments, aquatic animals, intertidal communities, commercial fishing, passive use, recreation and tourism, and subsistence services.

18 AAC 70.020(17) Alaska marine water quality criteria for petroleum hydrocarbons, oils and grease	
Designated use	Description of criteria
(A) Water supply	
(i) aquaculture	Total aqueous hydrocarbons (TAqH) in the water column may not exceed 15 µg/l (see note 7). Total aromatic hydrocarbons (TAH) in the water column may not exceed 10 µg/l (see note 7). There may be no concentrations of petroleum hydrocarbons, animal fats, or vegetable oils in shoreline or bottom sediments that cause deleterious effects to aquatic life. Surface waters and adjoining shorelines must be virtually free from floating oil, film, sheen, or discoloration.

(ii) seafood processing	May not cause a film, sheen, or discoloration on the surface or floor of the waterbody or adjoining shorelines. Surface waters must be virtually free from floating oils. May not exceed concentrations that individually or in combination impart odor or taste as determined by organoleptic tests.
(iii) industrial	May not make the water unfit or unsafe for the use.
(B) Water recreation	
(i) contact recreation	May not cause a film, sheen, or discoloration on the surface or floor of the waterbody or adjoining shorelines. Surface waters must be virtually free from floating oils.
(ii) secondary recreation	Same as (17)(B)(i).
(C) Growth and propagation of fish, shellfish, other aquatic life, and wildlife	Same as (17)(A)(i).
(D) Harvesting for consumption of raw mollusks or other raw aquatic life	May not exceed concentrations that individually or in combination impart undesirable odor or taste to organisms as determined by bioassay or organoleptic tests.

Task C. Compile available information regarding impaired waters

Based on a literature and data search, a draft and final Report will be completed. Included in these reports will be a preliminary conceptual model for each of the 35 identified beaches and any other beaches discovered during the literature search.

Task D. Develop GIS map

Compiled data will be loaded into a GIS database using ArcView. The database application will be consistent with the Federal Geographic Data Committee content standard for digital geospatial metadata. The application will contain information regarding oiled areas and habitat types present and be developed in coordination with EVOS staff to assure that it may be used for other EVOS projects, if desired.

Objective #2 Updating Clean Water Act status of impaired beaches. Working with local communities, EPA, and other key stakeholders will be critical to the success of this objective. DEC will review listing methodologies from other coastal states that experience marine oil pollution events, those examples may not be appropriate considering Alaska's unique weather conditions but they may illustrate a path forward.

Task A. Develop listing methodology

The development of lingering oil listing methodology will be necessary before data can be evaluated. DEC's Water Quality Standards expert will be heavily involved in this process as it may involve multiple criteria.

Alaska's marine water quality standard for petroleum hydrocarbons, oils and grease include criteria that are impossible to directly measure. Specifically (D) Harvesting for consumption of raw mollusks or other raw aquatic life is aesthetic in nature, its based on undesirable odor or taste. DEC may evaluate this use through semi directed group interviews, mapping interviews, self-reporting, and questionnaires of impacted communities, DEC will utilize the Traditional Ecological Knowledge Handbook funded by the Trustee Council to guide this effort.

Task B. Evaluate data

After the listing methodology is complete, the Integrated Report process will begin. This process involves data review, analysis and determination. It's a public process and will also involve local communities, EPA, and other key stakeholders.

Objective #3 Stakeholder involvement. Outreach will occur throughout this project.

Task A. Communication Plan

The first task for this objective is the development of communication plan. The plan will include development of outreach materials, identification of key stakeholders and target audience, messages and talking points, an action plan, and important contacts. DEC's Tribal Relations specialist will be engaged throughout this process to ensure culturally sensitive material is created.

Task B. Public Engagement

Community engagement will occur during public comment periods, workshops, and public meetings. Community meetings will be planned at the beginning of the data evaluation, during listing methodology development, and during key stakeholder review of the Integrated Report. Local resources will be used to support the project during community meetings.

D. Project Reporting

Annual reports describing progress on objectives and tasks will be provided on March 1 of each fiscal year. This will include a completed Project Reporting Form and Budget Form. A final report will be submitted on March 1 in the year following the fiscal year in which project work is completed. Deliverables will be included with the annual reports.

4. COORDINATION AND COLLABORATION

A. With Other EVOSTC-funded Projects (if applicable)

Does not apply.

B. With Trustee or Other Management Agencies or Organizations

This effort has received no prior EVOSTC funding. This work supports efforts of the Alaska Department of Environmental Conservation, a Trustee organization of the Council. DEC and EVOSTC are committed to the long-term health and sustainability of the PWS region.

EPA Region 10, Water Division, Standards and Assessment Section supports the work outlined in this proposal.

C. With Alaska Native and Other Local Communities

One of the stated objectives of this project is stakeholder involvement. The main goal of the project, evaluation of Clean Water Act impaired beaches, relies on outreach and involvement with communities impacted by the spill. Outreach to the nearest communities to the impaired beaches will be targeted, meetings and workshops will be planned in the nearest community several times throughout the project. DEC employs a Tribal Relations Specialist who will review material for cultural sensitivity and coordinate outreach with Tribes.

5. DELIVERABLES

Literature Review and Data Summary, draft and final. DEC will document all literature and data utilized in the evaluation of beaches and in the development of a listing methodology. While this document will be created by a contractor, it will be managed by DEC staff.

GIS map. Data used will be compiled into a GIS compatible format. While this document will be created by a contractor, it will be managed by DEC staff.

Lingering Oil Listing Methodology draft, responsiveness summary, and final.

Determination Report, draft and final. After a listing methodology is developed, DEC will apply that methodology to beach data. The final results will be documented in a determination paper which summarizes the findings and recommendations on waterbody category. This is a public process. The draft package, summary of public comments received, response to those comments, and the final package submitted to EPA will be provided.

Outreach material. Material developed to reach out to community members to understand impacts to designated uses and injured resources will be provided. This may include survey questions and results, a summary of community presentations, and other outreach material such as flyers or posters.

Financial reports. Yearly breakdown of expenses and balances will be provided. EVOSTC forms will be utilized.

Annual progress reports. Yearly summary of progress, challenges, or delays will be provided. EVOSTC forms will be utilized.

6. STATUS OF SCHEDULED PROJECT ACCOMPLISHMENTS

Milestone/Task	FY22				FY23				FY24				FY25				FY26			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone: Status of impaired waters																				
Task: Identify waters of concern								C												
Task: Develop standards to gauge recovery											C									
Task: Compile data and information											C									
Milestone: Update status																				
Task: Develop listing methodology (LM)													C							
Task: Evaluate data against LM																	C			
Milestone: Stakeholder involvement																				
Task: Develop communication plan								C												

Milestone/Task	FY22				FY23				FY24				FY25				FY26			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Task: Public engagement											C		C				C			
Reporting:																				
Annual progress report									C				C				C			
FY work plan						C			C				C				C			
Final report/Project results									C				C				C			
Deliverables:																				
Literature Review and Data Summary, draft									C											
Literature Review and Data Summary, final											C									
GIS Map											C									
Listing Methodology, draft													C							
Listing Methodology, final														C						
Determination Report, draft																			C	
Determination Report, final																				C
Outreach Material																			C	

7. PROJECT BUDGET

A. Budget Forms (Attach)

DEC requests funds be released the beginning of each state fiscal year (July 1-June 30). Work is not anticipated to begin until FY23. Work planned for FY23 includes development of a detailed work plan, staff review to identify waters of concern, draft and finalization of communication plan, as well as development and implementation of a contract for a literature and data review. FY24 will see the completion of contract work, development of metrics to gauge recovery, drafting of lingering oil listing methodology, and public engagement. In FY25 public engagement regarding the listing methodology occurs, the LM is finalized, and data analysis begins. The final year, FY26, sees continued public engagement around data analysis and proposed and final water body status determinations.

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	\$47,310	\$98,455	\$118,444	\$82,401	\$346,610	
Travel	\$0	\$1,240	\$2,040	\$2,040	\$2,040	\$7,360	
Contractual	\$0	\$45,000	\$45,000	\$0	\$0	\$90,000	
Commodities	\$0	\$0	\$0	\$0	\$0	\$0	
Equipment	\$0	\$0	\$0	\$0	\$0	\$0	
Indirect Costs (report rate here)	\$0	\$33,734	\$52,466	\$43,447	\$30,449	\$160,096	
SUBTOTAL	\$0	\$127,284	\$197,961	\$163,931	\$114,890	\$604,066	
General Administration (9% of subtotal)	\$0	\$11,456	\$17,816	\$14,754	\$10,340	\$54,366	N/A
PROJECT TOTAL	\$0	\$138,740	\$215,778	\$178,684	\$125,230	\$658,432	
Other Resources (In-Kind Funds)	\$0	\$0	\$0	\$0	\$0	\$0	

B. Sources of Additional Funding

Non-EVOSTC Funds to be used for this project, please include source(s) and amount and timing per source, and any conditions on their use. Original source of funding is federal, cannot be used to match other federal funding.

FY22	FY23	FY24	FY25	FY26	FY22-26 Total
	6,624	6,823	7,027	7,238	27,712

Non-EVOSTC funds used to support this project include DEC staff salary for individuals providing limited support for project objectives. Salary for DEC's Tribal Engagement Specialist, Public Relations Coordinator, and Quality Assurance Officer are estimated.

8. PROJECT MANAGEMENT AND PERSONNEL

A. Project Management

Terri Lomax, Project Manager. State of Alaska, Department of Environmental Conservation.

Myra Pugh, Fiscal Manager. State of Alaska, Department of Environmental Conservation.

Laura Eldred, key project personnel. State of Alaska, Department of Environmental Conservation.

B. Personnel Qualifications

Resumes for Terri Lomax and Laura Eldred attached to application email.