

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

Proposals requesting FY22 - 26 funding are due to shiway.wang@alaska.gov and linda.kilbourne@alaska.gov by March 29, 2021. Please note that the information in your proposal and budget form will be used for funding review. Please refer to the FY22-26 General Restoration Invitation for Proposals, posted on the EVOSTC web site (evostc.state.ak.us) for specific proposal requirements. The information requested in this form is in addition to the information requested by the General Restoration Invitation. We may make inquiries regarding the project and proposer(s), including consulting with subject matter experts, government agencies or other parties. Project proposals may be submitted in response to only one current Invitation (FY 22-31 or FY 22-26). A project that is submitted under both Invitations may be disqualified from consideration. Please indicate below if your proposal contains confidential information.

Does this proposal contain confidential information? Yes No

Segregate any confidential information on separate pages of the proposal, with each page marked "CONFIDENTIAL".

Project Number* and Title

22220508 Standardized High-Resolution Wetlands and Hydrography Data across the EVOS Region

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

Sydney Thielke, Regional Wetlands Coordinator, U.S. Fish and Wildlife Service (USFWS)

Dr. Leslie Jones, Geospatial Information Officer, Alaska Department of Natural Resources (AK DNR)

Brian Wright, National Map Liaison, U.S. Geological Survey (USGS)

Date Proposal Submitted

August 13, 2021 (correction made August 30, 2021)

Brief Project Description (maximum 300 words)

The Project Description should provide a brief and concise summary of the proposal, its budgeted costs and its benefits for oil spill recovery and restoration. The Project Description should provide sufficient information for a summary review as this is the text that will be reproduced in the public work plan and may be relied upon by staff, the EVOSTC Public Advisory Committee and other reviewers.

This is an extension of the project, Standardized High-Resolution Wetlands and Hydrography Data across the EVOS Region, funded by the EVOSTC for FY2021 to produce wetland and hydrologic data for EVOS region watersheds. Continuous coverage of high-resolution NWI and NHD products do not exist for the EVOS region, yet these data are critically important for continued management and recovery of injured resources and services. This proposal requests \$3.7 million to update wetlands mapping across 17 million acres (including the lower Copper River and Bering Glacier watersheds), update hydrography mapping on 2.5 million acres of the Bering River watershed, and collect 670,000 acres of LiDAR data to enhance wetland mapping in the Copper River Delta. The final products will be integrated into statewide databases, compliant with national standards, and publicly available.

The NWI provides the location, characteristics and extent of wetlands, intertidal, and nearshore marine habitats. The NHD characterizes water drainage networks, including features such as rivers, streams, lakes, ponds, glaciers, and watersheds. The NWI and NHD are used, where available in Alaska, for habitat management, species assessments (including anadromous waters), and to make informed decisions about development activities. The data serve as baseline geospatial information needed to monitor aquatic and wetland dependent species, including those that move between freshwater and marine habitats such as salmon and migratory birds. This includes providing information about coastal wetlands and the contribution of freshwater inputs to estuarine and

nearshore habitats. This proposal will provide geospatial data that can be used to assess intertidal systems, from the headwater inputs to marine interface, that support habitat for injured species and injured subsistence and recreation activities.

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

FY22	FY23	FY24	FY25	FY26	FY22-26 Total
\$3,647,776	\$32,921	\$32,921	\$32,921	\$0	\$3,746,540

* GA is a General Administration cost that applies to all EVOSTC projects except for purchase prices of habitat parcels. Please indicate if funds will be requested to be released on other than an annual basis. If the amount requested here does not match the amount on the budget form, the request on the budget form will be considered to be correct.

Non-EVOSTC Funds to be used for this project, please include source and amount per source:

	FY22	FY23	FY24	FY25	FY26	FY22-26 Total
USFWS (in-kind)	11,731	11,731	11,731	11,731		46,924
USGS (in-kind)	13,865	13,865	13,865	13,865		55,460

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

Please provide a summary of the project including key objectives and overall goals. Describe the background and history of the problem. Include which injured resources and services the project supports and describe how those resources and services will benefit from this project.

In October 2020 the EVOS Trustee Council funded, for its fiscal year 2021, NWI and NHD data production across the Shelikof Strait and Kodiak Island watersheds to support injured resources and service recovery. The proposal highlighted that comprehensive geospatial information is necessary to properly model and plan for management activities that affect hydrologic and aquatic resources within the spill region. Without that information, it can be difficult to adequately predict how interconnected resources are related. This proposal will compliment information being developed from the 2020 award and complete wetland and hydrographic mapping for the EVOS region. We request \$3.7 million to complete high-resolution, publicly available mapping of wetlands and nearshore habitats on 17 million acres (Figures 1 and 2), hydrography mapping on 2.5 million acres and collect 670,000 acres of LiDAR data to enhance the wetland mapping in Copper River Delta (Figure 3).

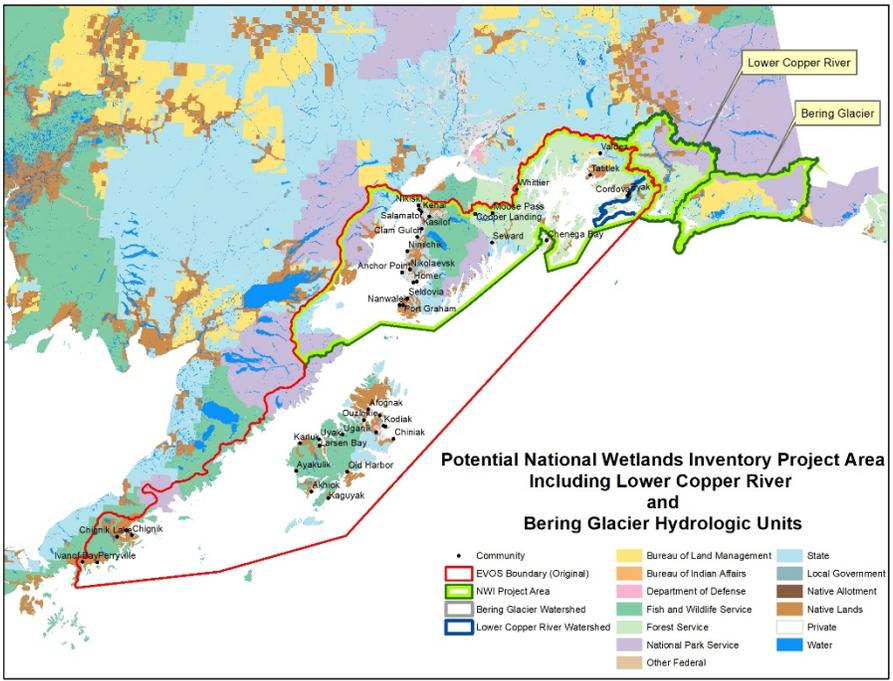


Figure 1 National Wetlands Inventory (NWI) project area

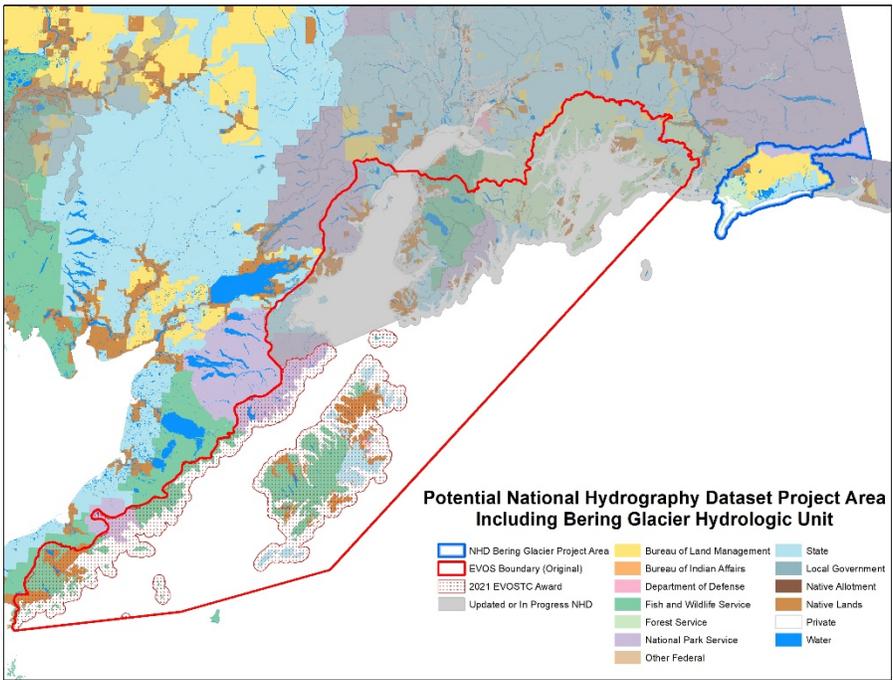


Figure 2 National Hydrography Dataset (NHD) project area

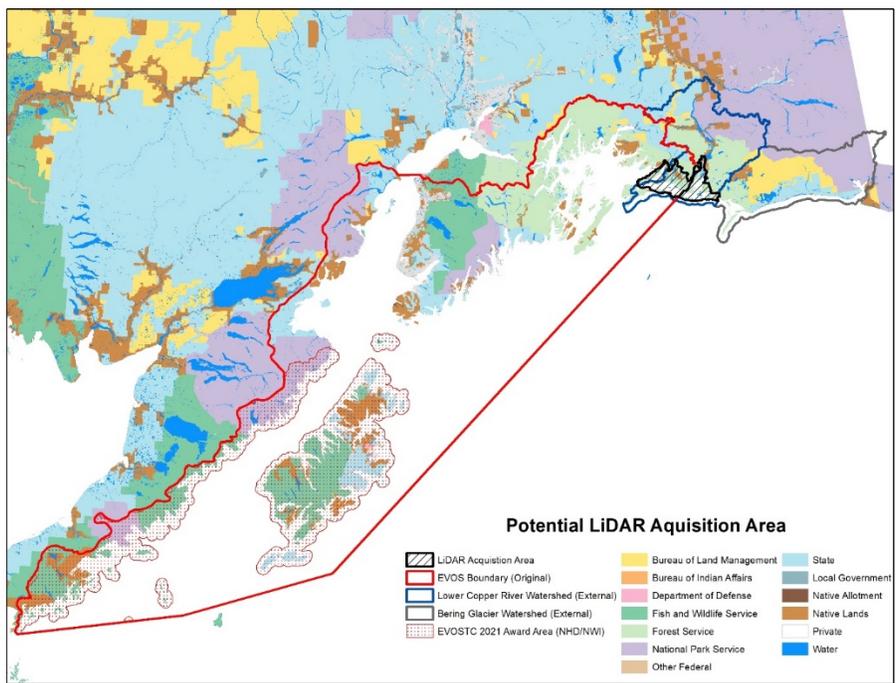


Figure 3. Lidar collection area

The overall objective of this project is to establish a framework for understanding the hydrologic connectivity and relationships that exist between wetlands and surface water features throughout the EVOS region, and adjacent Copper River Delta and Bering Glacier watersheds. Many of the injured resources depend on terrestrial inputs to the aquatic system for supporting healthy water quality and quantity, nutrient transport, and unobstructed stream flow. For example, the NHD and NWI can be used in a Geographic Information System (GIS) to identify surface connectivity of resources downstream of an outflow. Or, the NWI, NHD and a roads dataset can be used to identify locations for potential culvert obstructions. In the examples above, the cumulative impacts from an outflow or obstructed culvert could be affecting the recovery of injured resources. Accurate and contemporary geospatial data can assist all parties supporting injured resource recovery with better understanding of resources and identifying situations that could be delaying recovery.

The Alaska Geospatial Council (AGC) chaired by the Commissioner of AK DNR representing state mapping interests, and the Alaska Mapping Executive Committee (AMEC) chaired by Directors of USGS and NOAA representing federal interests, have advocated for up-to-date and consistent geospatial datasets for Alaska. Through active collaboration and coordination, the AGC and AMEC have acquired digital elevation and imagery products that form a foundation for developing other geospatial information across the state. Wetlands and hydrography updates lack statewide funding for data production. The National Wetlands Inventory (NWI) for the northern spill region (Cook Inlet and Prince William Sound) and the National Hydrography Dataset (NHD) in the Bering Glacier watershed are extremely out of date and do not represent current ground characteristics of wetlands and hydrography at management levels of detail. For the NHD and NWI datasets to be used to support recovery on injured species and services, they must be of consistent scale, comprehensive and accurate. This project seeks to update and complete NWI and NHD using recent imagery and elevation data, and includes collection of high resolution, QL1, LiDAR elevation data to supplement mapping activities for the low gradient landscape in the Copper River Delta. If funded, the area within the EVOS Region will have up-to-date high-resolution wetlands and hydrologic information that meet national standards.

Accurately representing the connectivity of wetland, terrestrial hydrography, estuarine and nearshore habitats allows for an ecosystem approach to managing injured resources and services. An ecosystem approach includes evaluating the landscape for relationships and connectivity. The NWI represents the location, characteristics and extent of wetlands, intertidal, and nearshore marine habitats. This includes subtidal habitat information such as coastline substrate and the presence of nearshore aquatic vegetation. The NHD dataset documents the location of terrestrial surface waters (i.e., stream, rivers, lakes), their flow paths, and watershed boundaries. Both datasets can be integrated with other products including the ShoreZone (previously funded by the EVOSTC) and Coastal Salt Marsh projects to more thoroughly understand relationships and connectivity of habitats supporting populations of injured resources and aid as a decision-support tool in planning (Figure 4). Properly assessing downstream impacts of projects on injured resources is important for long term recovery.

Examples of activities informed by NWI and NHD that affect injured resources and services include:

- Manage water such as stream flow and stormwater
- Monitor water quality
- Model and map flood risk
- Manage terrestrial and aquatic habitats
- Manage fisheries, rangeland, timberlands, and agricultural lands
- Assess coastal hazards
- Plan for future land development activities and infrastructure
- Provide recreational opportunities for citizens

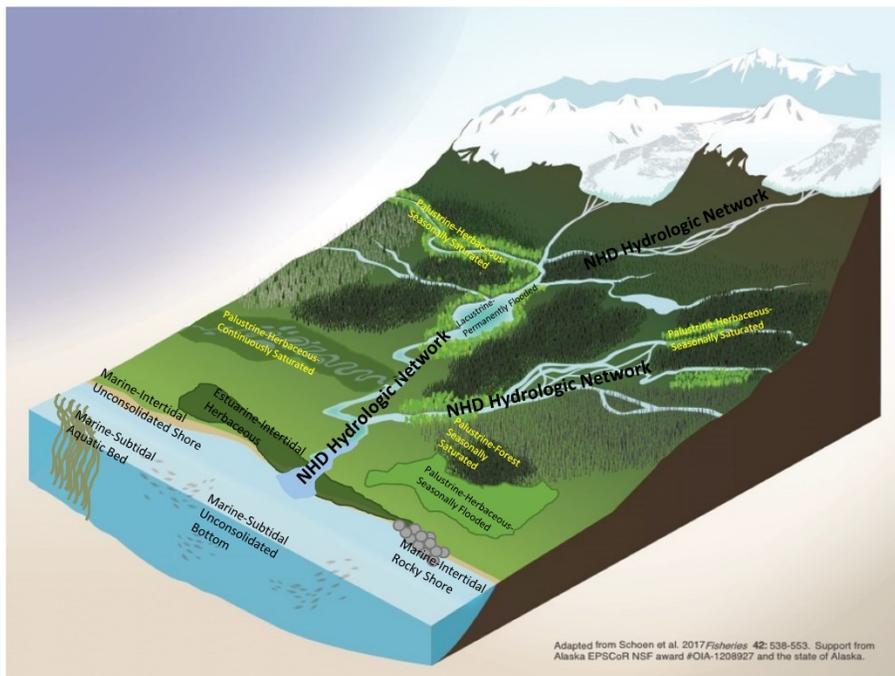


Figure 4 Example characterization of landscape connectivity of wetlands and hydrography

This proposal will provide framework geospatial data (FGDC, 2014) that can be used to assess intertidal systems that support not only habitat for injured resources but also subsistence and recreation activities and services. The NWI and NHD are used in Alaska for habitat management, species assessments, (Flagstad et. Al 2018, Fellman et. Al 2014, Shanley and Albert 2014), and to inform development activities throughout Alaska (USACE

2015, ADOT&PF 2010). The data serve as the baseline information needed to plan infrastructure projects and monitor aquatic and wetland dependent species, including species such as salmon that move between freshwater, nearshore, and marine habitats. The datasets provide information about sensitive estuaries, coastal wetlands and the contribution of freshwater inputs to estuarine and nearshore habitats (i.e., supporting collection of water quality and chemistry).

The existing work in intertidal communities of the EVOS region over the past twenty-five years, including the ShoreZone and Cook Inlet Salt Marsh projects will be used to inform the NWI product development. While the aforementioned products provide a wealth of information about their respective geographies, their coverage is limited in scope and does not include complete watershed information. This project will cross reference existing data and will leverage it to create a comprehensive inventory of not only the intertidal and nearshore habitats but will include the overall terrestrial hydrologic system within the EVOS region.

Development of the NWI, NHD and collection of LiDAR data will be conducted over a four-year period. All funding will be requested in year one in order to establish multi-year contracts with experienced vendors to complete data production. Data production will occur using best available data sources, in accordance with national mapping and classification standards, and reviewed according to national mapping quality assurance and quality control (QA/QC) protocols. The production process will use current mapping approaches that integrate existing datasets with image interpretation, machine learning and field data collection.

Contemporary mapping of wetland and surface waters from headwaters to the ocean will allow managers to better understand inputs, outputs, and overall hydrologic connectivity through the entire region (Walker et al 2012). Hydrologic connectivity is important for modeling water quality and chemistry in the nearshore environments resulting from freshwater hydrologic inputs (Hoem et al 2014). A better understanding of how water moves through the landscape areas can assist with monitoring habitats, predicting sediment transport and minimizing downstream contamination concerns. The recovering resources and services that will most directly benefit from this project will be intertidal communities, avian communities that utilize both inland wetlands, freshwater and nearshore environments, and aquatic species that migrate between freshwater, estuarine, and marine habitats. Alaska is rich in natural resources, all of which provide economic and resource support for recreation, tourism and subsistence activities.

2. PROJECT HISTORY (maximum 400 words)

Is this a new or continuing project? If continuing, please describe the history of the project and what has been accomplished to date. Please include references to any existing work products (i.e., summaries or reports of results, follow-up monitoring).

This is a follow-on to a previously funded EVOSTC project. In 2020 the USFWS, USGS and State of Alaska DNR submitted the proposal, Standardized High-Resolution Wetlands and Hydrography Data across the EVOS Region. The Trustee Council supported the entire project proposal in concept, but only the southern portion of the project area was approved for funding; the Trustees requested the remainder of the project be incorporated into the new, upcoming multi-year Invitation for Proposals (transcript for the October 14, 2020 EVOSTC meeting). The funded project includes concurrent NWI and NHD data production for the Shelikof Strait and Kodiak Island watersheds and is currently in the contract solicitation process and an award is expected near July 1, 2021. Upon award, work will begin immediately, and deliverables will be complete by January 31, 2024 (FY21 project proposal submission). As anticipated by the EVOSTC, this proposal will build on the October 2020 award

and complete updated mapping of NWI and NHD across the entire EVOS region. Adjacent Lower Copper River Delta and Bering Glacier watersheds were added to the project area based on their connection to injured species habitats and the EVOSTC Resolution 21-03 approved on January 19, 2021. In addition, the value of LiDAR for mapping low lying habitats such as the Copper River Delta were illuminated through consultation with USFS and wetland mapping experts and was added to the project as a means of improving map accuracy.

The location of wetlands and hydrologic features are dynamic, so it is important that both are represented with the most recent and accurate landscape conditions, such as elevation and imagery information. NWI data within the EVOS zone was produced using photographs that are in some cases over 40 years old and there have been many documented changes in wetland distribution since that time (figures 5 and 6). Investments and completion of updated statewide elevation and imagery data now provide the opportunity to efficiently move forward with the production of NWI and NHD that will represent current ground conditions.

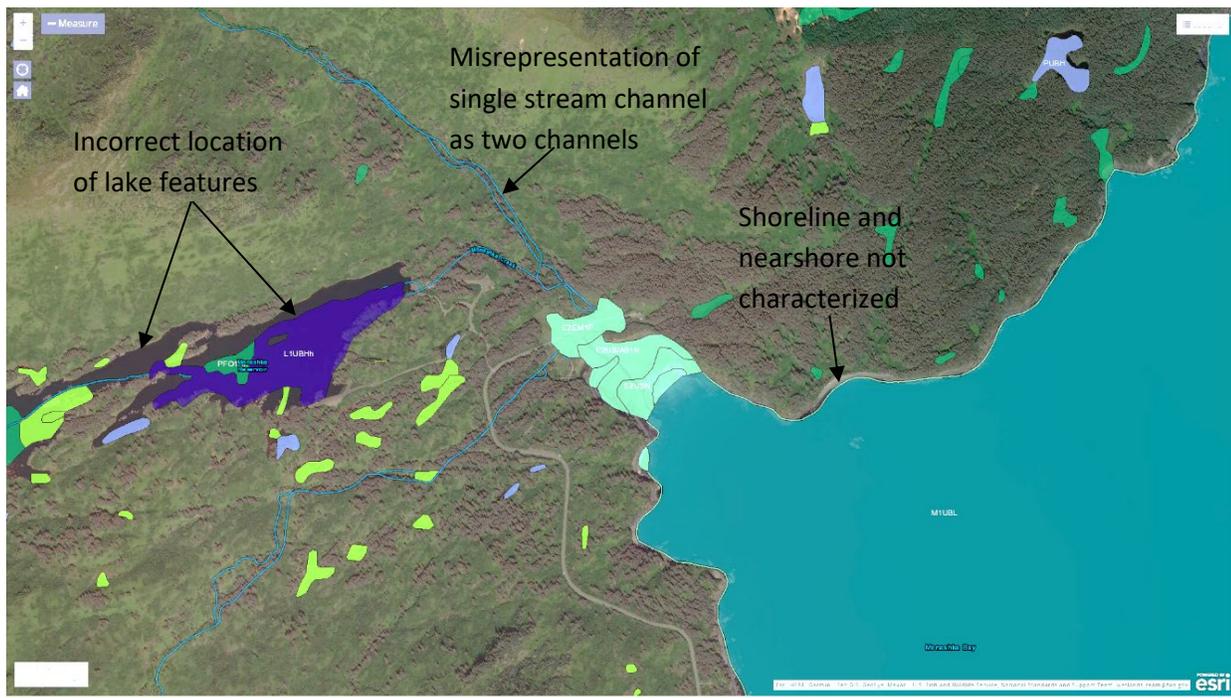


Figure 5 NWI inaccuracies and hydrologic misrepresentation in a portion of the EVOS zone.

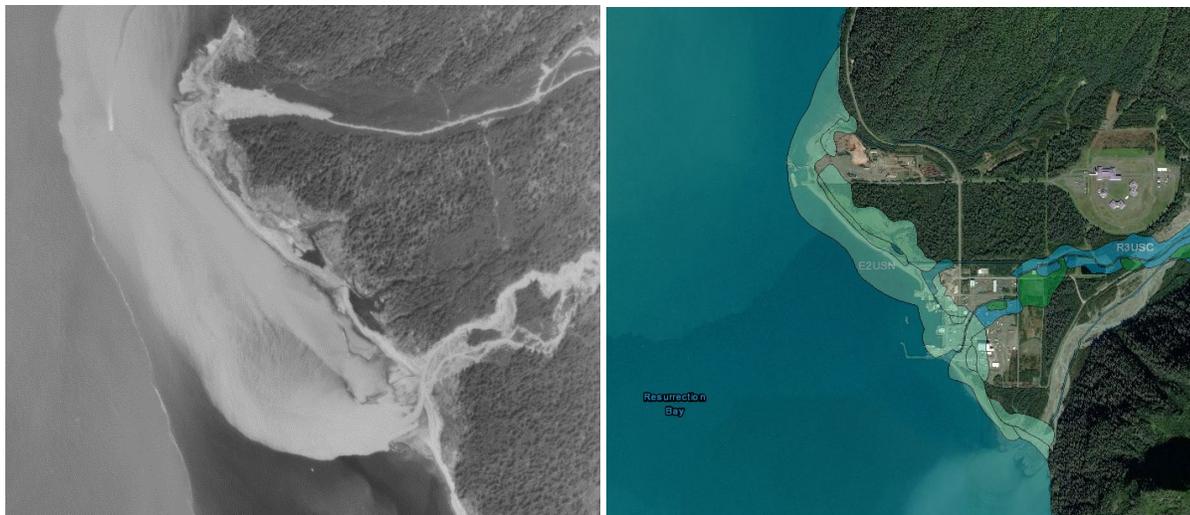


Figure 6 Land use changes are apparent between the creation of the NWI and current status near Seward, AK. The image on the left is from 1976 and represents the conditions used for the original NWI product. The image on the right represents current ground conditions and shows the NWI polygons no longer represent the ground conditions for the area.

3. PROJECT DESIGN

A. Objectives

List the objectives of the proposed project and briefly state why it is important. If your proposed project builds on recent work, provide details on the need for its continuation and whether any changes are proposed. If the proposed project is for new work, explain the benefits of the new project and why it is needed to further the Council's mission of restoring and recovering injured natural resources and services.

The objective of this project is to create publicly available comprehensive and contemporary hydrologic data for the spill region that can be used for injured species and service recovery. The project builds on existing NHD projects in the Prince William Sound and Cook Inlet regions, previous EVOSTC-funded NWI mapping for the Shelikof Strait/Kodiak Island region, previous EVOSTC-funded ShoreZone maps, salt marsh studies, investments from Federal Agencies and the State of Alaska in satellite imagery and elevation and technological advances in both NWI and NHD development over the past decade. The deliverables that will support those objectives include: 1) NWI data for portions of the EVOS region not previously funded; 2) NWI for the Lower Copper River watershed; 3) NWI and NHD for the Bering Glacier watershed; and 4) a small footprint of LiDAR data on the low-lying Copper River Delta.

This project supports an ecosystem approach for recovery of injured resources. It will expand the coverage of NWI and NHD datasets relevant to the EVOS region and will result in higher resolution data than has been previously produced for most of Alaska. Research and land management can be coordinated upstream and downstream to understand the entire ecosystem and support recovery efforts. The production of these publicly available datasets will provide information on hydrologic connectivity of surface water and wetlands from the ocean to the headwater streams. The comprehensive and contemporary products will become tools that can be used by the EVOSTC, as well as all stakeholders in Alaska, to enhance planning, restoration, monitoring and provide support for projects within intertidal zones, fish bearing streams, nearshore marine environments, as well as recreation and tourism.

B. Project Location

Where will the project be undertaken and why was the area chosen? Descriptive maps, photos and figures should be included here, as applicable. Describe the project area's most important features and characteristics as they relate to the spill restoration and recovery benefits of the proposed project.

The study area will encompass the entire EVOS region north of the Shelikof Strait and Kodiak Island watersheds as well as expanded area at the eastern portion of the original EVOS region (Copper River Delta and Bering River/Glacier watersheds) (Figures 1-3). The project area includes all or parts of eleven watersheds (defined below). The LiDAR collection area encompasses 670,000 acres in the eastern portion of the Lower Copper River Delta.

Table one provides the watershed name, Hydrologic Unit Codes (as referenced by the U.S. Geological Survey), and the area of land of each watershed that falls within the project boundaries (Table 1).

Table 1. Watershed labels and size

Watershed Name	HUC8	Terrestrial and Nearshore Acres	Terrestrial and Nearshore Square Miles
Lower Copper River (within EVOS boundary)	19020104	422,908	661
Lower Kenai Peninsula	19020301	1,769,572	2,764
Tuxedni-Kamishak Bays	19020602	1,923,306	3,005
Prince William Sound	19020203	528,594	826
Upper Kenai Peninsula	19020302	1,429,262	2,233
Eastern Prince William Sound	19020201	2,992,385	4,676
Redoubt-Trading Bays	19020601	500,959	783
Cook Inlet	19020800	42,959	67
Resurrection River-Frontal Resurrection Bay	19020202	1,270,340	1,985
Lower Copper River Delta (area added based on EVOSTC resolution 21-03)	19020104	3,437,105	5,370
Bering Glacier (area added based on EVOSTC resolution 21-03)	19010402	3,300,986	5,157

The above project area was selected to maximize the coverage needed to make informed decisions about injured resources related to aquatic habitats. This area is characterized as predominantly coastal forest ecosystems with both snowmelt runoff and warm season glacial melt affecting seasonal water flows. The Kenai Lowlands and Copper River Delta contain vast nutrient rich wetland complexes that support a variety of species habitats including salmon and migratory birds plus support for wetland and surface water recreation and subsistence activities including hunting, boating and bird watching.

C. Procedures and Methods

For each objective listed in A. above, identify the methods and procedures that will be followed to meet the objective and note any prior history and results utilizing the same or similar methods elsewhere. Methods may include appropriate protocols and/or staff expertise or training. Attach any applicable contractors and sub-contractor's names, if available, engineers' or other cost estimates, if applicable, and describe any protocols and cost controls which will be applied to the expenditure of EVOSTC funds.

This project consists of development of high-resolution (one-acre target mapping unit) National Wetlands Inventory and high-resolution National Hydrography Datasets produced at a 1:24,000 mapping scale. The deliverable products include geodatabases that meet all required standards and specifications. The FWS National Wetlands Inventory (NWI) and USGS National Hydrography Dataset (NHD) are publicly available resources that provide detailed information on the abundance, characteristics, and distribution of wetlands and hydrographic features on the landscape. NWI and NHD data are used to understand and manage hydrologic systems and their dependent resources.

In the majority of Prince William Sound and Cook Inlet, the NHD has already been produced, or is in production, to meet current USGS specifications. Therefore, this project targets completion of the NHD in the unmapped portion of the Bering Glacier watershed. In that area, the NHD and NWI products will be produced concurrently

to streamline the data production workflow. In the remainder of the project area, the NWI will be completed using recent NHD updates and other ancillary data sources.

The contractor(s) will identify and map wetlands and hydrography, using current digital imagery and supporting data in a GIS environment at a data resolution of a one-acre target map unit or 1:24,000 scale. The contractor(s) will follow the standards and documents mentioned above and use the custom QA/QC tools and processes provided by the USFWS and USGS. The recipient will conduct 100% internal quality control of all data and field verification of a reasonable number of the field sites, in consultation with project manager, to ensure accurate and consistent imagery interpretation and elevation derivation.

The NWI and NHD datasets have nationally established standards and protocols for data development. Federal Geographic Data Committee, USFWS and USGS oversee the standards and specifications for data production (FGDC 2008, 2009, 2013; USGS 2020; Dahl et. Al 2015). Contractors will be required to deliver NWI data according to those described in: Classification of Wetlands and Deepwater Habitats of the U.S. (Cowardin et al., 1979, revised 2013); Federal Wetlands Mapping Standard (2009). Contractors will be required to deliver NHD data according to those described in the Elevation-Derived Hydrography Acquisition Specifications Chapter 11 of Section B, U.S. Geological Survey Standards, of Book 11, Collection and Delineation of Spatial Data.

Completion of this project is expected to take four years. Contracts are awarded for the mapping deliverables (NWI, NHD, LiDAR) to qualified vendors in the first year of funding. Subsequent to that, contractors work with USGS, USFWS and the State of Alaska on project implementation and deliver final products by January 31, 2025.

The LiDAR contract will be awarded and managed by the State of Alaska Geospatial Information Office. Airborne LiDAR data collection is expected to occur in summer (after snowmelt) 2023. It will undergo internal quality control and review by the State of Alaska then the final deliverable will be ingested into the state of Alaska elevation portal and provided to the contractor completing the National Wetlands Inventory update.

The NWI and NHD contractor(s) will work with stakeholders to obtain base data (imagery and elevation) and ancillary data (historic wetlands and hydrography, vegetation plot information, soils maps) that will be used to inform mapping activities. Contractor(s) reviews the datasets in a GIS environment to identify the photo signatures associated with wetlands types in the study area. Contractor(s) also run various models and artificial intelligence that create draft hydrologic networks. As the contract enters year two, contractors review the available data and begin planning for field activities which includes obtaining permission for data collection from landowners, permits for landing aircraft, and coordinating logistics for land, air and ocean transportation. Field work is expected to occur in year two (summer 2023). The field work involves visiting locations to validate wetland characteristics that have been identified. After the completion of field season, the contractors will synthesize the data they have collected to generate field reports and data packages. Data production involves both photo interpretation, ancillary data review and computer-based modeling activities. LiDAR data will be integrated into the workflow once it is received in order to identify micro-depressions and topographic indices on the Copper River Delta. Contractor(s) will adjust models and mapping workflows to produce draft deliverables. Draft NHD and NWI geodatabases are expected to be complete around July 2024. After the draft deliverables are received, USFWS and USGS engage in quality control and quality assurance processes with the contractor which culminate in data acceptance into the national geodatabases.

The NWI and NHD will characterize river and stream channels, open waterbodies, and wetland features consistent in detail to that established for feature delineation at the 1:24,000 scale for the project area. The

data will be developed and assembled according to national mapping and classification standards and reviewed according to national mapping QA/AC protocols. There are numerous vendors with experience producing these data to required standards in Alaska. A final report will summarize field procedures, outputs and classification for each watershed. Each wetland classification code will be supplemented with photographic examples and general vegetation characteristics including dominant or unique species.

The mapping supported by this funding opportunity requires a unique approach to fully integrate the interpretation of hydrographic and wetland feature types utilizing the best available imagery and elevation sources, integrated mapping protocols and hydrologic modeling tools to characterize all wetland and hydrographic features for representation on 1:24,000 maps. The project will conduct outreach to all major landowners in the project area to identify field data collection sites. All spatial data produced under this funding opportunity will be developed in compliance with Federal Geographic Data Committee, USGS and USFWS standards and protocols.

This project will be fulfilled through the State of Alaska and Federal contracting processes; thus, it is inappropriate to identify specific contractors at this time.

D. Project Reporting

For all EVOSTC-funded projects, the Project Manager shall commit to provide work progress reports annually (or more frequently, if requested by the Executive Director in writing). Reports shall include narrative and specifics on funding received and expended to date, progress made on milestones and tasks, and must explain any variations from the project plan.

We will comply with the 'EVOSTC Procedures for the Preparation and Distribution of Reports' revised January 2018 or a subsequently revised reporting policy.

This project will implement a data management plan coordinated with Axiom Data Science (attached).

4. COORDINATION AND COLLABORATION

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

If applicable, please indicate if the proposed project relates to, complements, or includes any collaborative efforts with past or current projects funded by the EVOSTC. This likely does not apply to many habitat projects.

This project extends the EVOSTC-funded FY2021 project titled: *Standardized, High-Resolution, Geospatial Wetlands and Hydrography Data Across the EVOS Region*. Furthermore, it complements ShoreZone and salt marsh mapping in the region. When NHD, NWI and other datasets are integrated together they will provide a comprehensive picture of the current coastal watershed habitats used by aquatic and wetland reliant species. The NWI and NHD will generate fiduciary returns on previous investments with quantitative, geo-referenced, detailed information on habitat attributes which are critical for quantitative analyses of proposed resource management decisions. For example, the NWI classifies estuarine habitats by different characteristics that certain species prefer; this means distinguishing estuarine-intertidal-herbaceous habitat from estuarine-intertidal-shrub habitat. These specific attributes are commonly used to delineate abundance and distribution of habitat types.

B. With Trustee or Other Management Agencies or Organizations

Please discuss if there are any aspects which may support EVOSTC trust or other agency work, or which has received EVOSTC funding previously. Describe any agency feedback or direction received, including the contact name of the agency staff.

If the proposed project requires or includes collaboration with other agencies or organizations to accomplish the work, such arrangements should be explained, and the names of agency or organization representatives involved in the project should be provided. If your proposal is in conflict with another project or program, note this and explain why.

Due to the complex land ownership mosaic of the region, this proposal requires close collaboration among numerous state and federal agencies as well as major private landowners and interested organizations. Primary landowners include USFS, NPS, USFWS, State of Alaska, Cook Inlet Regional Corporation, and Chugach Corporation.

In crafting this proposal, input was solicited from federal (USFS, USGS, BLM, USFWS, NPS, NOAA, NRCs), State of Alaska (Geospatial Information Office, DEC), Native organization representatives (Chugach Regional Resources Commission (CRRC)) and other stakeholders (Kenai Watershed Forum). The input resulted in a proposal to deliver 1) NWI data for portions of the EVOS region not previously funded; 2) NWI for the Lower Copper River watershed; 3) NWI and NHD for the Bering Glacier watershed; and 4) a small footprint of LiDAR data on the low-lying Copper River Delta.

Project leaders coordinated with USFS, the primary landowner on the Copper River Delta, to develop the area of interest and specifications for LiDAR to support wetlands mapping. Dialogue with USFS including Jacqueline Foss (Watershed/Soils Program Manager) and Dustin Wittwer (Remote Sensing Coordinator) is ongoing. The USFS has provided a letter of support for this project.

Project leaders worked with NOAA representatives from the Office of Coast Survey (Stephen White and Ashley Chappell) to explore opportunities to also include nearshore bathymetry in this project, but it was deemed outside of the scope for supporting NWI and NHD mapping. However, the terrestrial LiDAR proposal will still assist NOAA in implementation of the Alaska Coastal Mapping Strategy by collecting coastal terrestrial elevation data.

The USFWS and USGS are the national data stewards for the NWI and NHD and must be involved in associated mapping activities. This includes responsibility for quality control and quality assurance of data prior to its acceptance into the national databases and hosting the data on their respective server systems. The USGS and USFWS work cooperatively to identify project scope and requirements for contracting and data delivery. The USGS Alaska Map Liaison (Brian Wright), Alaska Mapping Project Manager (Tracy Fuller) and Hydrography Focus Area Coordinator (Steve Aichele) were all involved in crafting the Statement of Work for the FY21 project for NHD and NWI mapping within the EVOS region and developing this proposal.

Letters of support have been received by federal and state agencies that emphasize the value in the NWI, NHD and LiDAR data to inform decision making and continue efforts to restore injured resources. Appendix A includes letters of support from USFS, NPS, State of Alaska-DNR, Kenai Watershed Form CRRC.

C. With Alaska Native and Other Local Communities

Please describe efforts at outreach and to involve local and Alaska Native communities, tribes or Native corporations in the project, as appropriate, and include your plan for communication and coordination as the project advances.

This project will be completed in collaboration with Chugach Regional Resources Commission (CRRC-letter of support attached). CRRC has been working with communities in their region to identify needs for wetlands information and apply for EPA grants to accomplish mapping activities. Their grant applications have been

limited in scope to a few small watersheds closest to community centers. The EVOS proposal seeks to extend mapping work beyond community footprints to provide wetlands information across all watersheds within their region.

The EPA grant notifications were received in May 2021 and CRRC received funding to complete NWI on watersheds near Chenega. The watershed areas have been removed from this funding request, and acreage and financial statements are reflective of their removal.

If funded, the NWI and NHD work will be contracted through the federal contracting system. The LiDAR data would be contracted via the State of Alaska. The selected contractor(s) will work closely with federal partners, the Alaska Geospatial Information Office and CRRC to conduct additional outreach to all communities within the project area. Outreach will include covering the goals and objectives of the project, potential field work activities and integration of the final deliverables into planning activities and habitat management. An example plan for coordination is as follows:

July 1, 2022	Contracts awarded
July 15, 2022	Kickoff meeting invitations sent to primary landowners, tribes, local governments and partners
August 1, 2022	Kickoff meeting (tentative agenda) <ul style="list-style-type: none"> • Explanation of Project • Overview of field activities <ul style="list-style-type: none"> ○ Aviation, ground, ocean-based work • Access needs <ul style="list-style-type: none"> ○ NWI and NHD projects only collect field data on lands with expressly granted permission • Opportunities for involvement <ul style="list-style-type: none"> ○ Lodging, transportation, citizen science, etc.
October 1, 2022	Begin follow-ups with Alaska Native and other communities
May 1, 2023	Webinar to provide field activity plan to interested communities
June 1, 2023	Commence field activities on permitted lands
October 1, 2023	Webinar to summarize field activities to interested communities
July 1, 2024	Webinar to provide overview of preliminary results, opportunities for comments to interested communities and information on integration of data into planning activities
January 31, 2025	Announcement of availability of data in national NWI and NHD databases

5. DELIVERABLES

List and describe expected products that will come from this project. Deliverables may include but are not limited to active restoration results, habitat protection or enhancement obtained, maps, photographs, financial reports and other documentation of projects in progress and completed, and summaries of benefits achieved for spill recovery and restoration objectives. Annual written progress reports are due on March 1 immediately following the end of the EVOSTC fiscal year and a final report is due on March 1 in the year following the last fiscal year of the project. See the Council's [Reporting Policy](#) for details and forms. The Project Manager will be responsible for all deliverables unless otherwise noted below.

This project will have tangible deliverables that will be available for use by land managers, researchers, local governments, Alaska Native communities and other stakeholders.

1. High-resolution National Wetland Inventory database for the entire EVOS region north of Shelikof Strait and Kodiak Watersheds
2. National Hydrography Data for the unmapped portion of the Bering Glacier Watershed
3. QL 1 LiDAR data for 670,000 acres of the Copper River Delta
4. Reports detailing process steps and geodatabase attributes
5. Geospatial and tabular data packages for field data
6. Webinars to educate stakeholders regarding integration of NWI and NHD products into their planning, management, and monitoring workflows
7. Annual progress / financial reports as required by the EVOS Office

NWI, NHD and LiDAR products will be incorporated to the appropriate public delivery systems along with their corresponding metadata. The USFWS hosts the Wetlands Mapper, USGS hosts the National Map and the State of Alaska hosts the Alaska Elevation Portal (LiDAR). Furthermore, the State of Alaska geoportal will be direct users to the appropriate portals to increase discoverability. Professional reports and ancillary field data packages will be provided to the State of Alaska for public distribution through their Alaska Geospatial Office, State of Alaska Geoportal, and Alaska Geospatial Council Wetland Technical Working Group website.

6. STATUS OF SCHEDULED PROJECT ACCOMPLISHMENTS

Milestones are the major steps to meet overall project objectives.

Tasks are intermediate steps to meet milestones (for example, initial project planning, design, engineering and construction phases and schedules, if applicable, due diligence and other necessary steps or stages to complete the project work).

Deliverables are products that will be produced from the project (see section 5 above).

List each project milestone, task, and deliverable in the chart (examples are shown below), and specify by each quarter of each year when these are anticipated to be accomplished. C = completed; X = planned work is underway, but not yet completed. Show project milestones and planned task progress by fiscal year and quarter, beginning February 1, 2022. Fiscal Year Quarters for each year of the project are: 1= Feb. 1-April 30; 2= May 1-July 31; 3= Aug. 1-Oct. 31; 4= Nov. 1-Jan 31.

For multi-year projects, reviewers will use this information in conjunction with project reports to assess whether the project is meeting its objectives and is suitable for continued releases of funding.

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: Lidar																				
Contract Lidar	X	X																		
Collect Lidar			X	C																
Process and Deliver Lidar					X	X	C													
Milestone: NWI and NHD																				
Contract NWI areas	X	X	X	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
Contract NWI/NHD areas	X	X	X	C																
NWI field work					X	X	X	C												
NWI/NHD draft									X	X	X	C								
NWI/NHD QC													X	X	X	C				
NWI/NHD QA														X	X	C				
Reporting:																				
Annual progress report					X				X				X							
FY work plan					X								X							
Final report/Project results													X	X	X	C				
Deliverables:																				
QL1 Lidar								C												
Report on process and attributes																			C	
Field data Package																			C	
NWI Geodatabase																			C	
NHD Geodatabase																			C	
Outreach materials																			C	

7. PROJECT BUDGET

A. Budget Forms (Attach)

Please attach completed budget forms using Excel workbook for each EVOSTC fiscal year (Feb. 1 to Jan. 31) of the project and provide adequate financial details. Projects may be from one to five years in duration. Include 9% GA (General Administration) for each budget item, except for habitat parcel purchase proposals, which do not include GA. Include a narrative to explain the anticipated funds release schedule for multi-year projects, and indicate whether annual releases are requested or a different schedule. Summarize funding for each fiscal year in the Budget Summary Table below, and include a screen shot of the "Summary" budget in the proposal.

Budget Category:	Proposed FY 22	Proposed FY 23	Proposed FY 24	Proposed FY 25	Proposed FY 26	5-YR TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel	\$27,385	\$27,385	\$27,385	\$27,385	\$0	\$109,541	
Travel	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contractual	\$3,316,380	\$0	\$0	\$0	\$0	\$3,316,380	
Commodities	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Indirect Costs (report rate here)	\$2,818	\$2,818	\$2,818	\$2,818	\$0	\$11,271	
SUBTOTAL	\$3,346,583	\$30,203	\$30,203	\$30,203	\$0	\$3,437,192	
General Administration (9% of subtotal)	\$301,192	\$2,718	\$2,718	\$2,718	\$0	\$309,347	N/A
PROJECT TOTAL	\$3,647,776	\$32,921	\$32,921	\$32,921	\$0	\$3,746,540	
Other Resources (In-Kind Funds)	\$25,596	\$25,596	\$25,596	\$25,596	\$0	\$102,384	

As addressed in Section 3, this project requires the majority of funds to be released in year one for a multi-year project. The timeline for completing project does not vary significantly by project size. Data organization, premapping, model calibration, seasonal field work and then data finalization and quality control are part of all

projects and the interconnected nature of the work necessitates developing contracts that cover all parts of the process at one time. Awarding contracts as large project areas or watersheds ensure consistency of the mapping work throughout the area and limits the overhead required for contract development and management and mobilization of resources. In order to establish contracts for development of the NWI, NHD and LiDAR, the fiscal agents must receive all funds that will go into contracts in year one for final deliverable receipt in year 4.

B. Sources of Additional Funding

Please identify any non-EVOSTC sources of funds or in-kind contributions that would be used as cost-share for the project. List each source, the amount of funds from each source, and the purpose for which the funds will be used. Do not include funds that are not directly and specifically related to the work being proposed in this proposal. Please attach documentation from additional project funding sources which confirms and describes matching or other leveraged funds, including date(s) the non-EVOSTC funds are/will be authorized and received, and any conditions on their use.

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:

	FY22	FY23	FY24	FY25	FY26	FY22-26 Total
USFWS (in-kind)	11,731	11,731	11,731	11,731		46,924
USGS (in-kind)	13,865	13,865	13,865	13,865		55,460

USFWS and USGS will each contribute in-kind personnel time to this project. USGS and USFWS will coordinate NEPA requirements, participate in meetings, outreach activities and provide support to contractors to accomplish the work outlined in this project.

8. PROJECT MANAGEMENT AND PERSONNEL

A. Project Management

List names of the Project Manager, the primary fiscal agent for the project and any other key partners associated with the project. List any property owners, businesses, cooperating entities (non-profit or other) and government agency personnel that will be involved and their role on the project.

The Project Manager is Sydney Thielke, USFWS. USFWS will be the fiscal agent for all NWI and NHD project activities. The State of Alaska Geospatial Information Office will be the fiscal agent for Lidar acquisition. Co-Investigators on this project are Dr. Leslie Jones, State of Alaska and Brian Wright, USGS. Mapping contractor(s) will be determined through standard state and federal contracting mechanisms.

The USFWS (Sydney Thielke, Regional Wetlands Coordinator) and State of Alaska (Dr. Leslie Jones, Geospatial Information Officer) will coordinate to produce the required annual and final reporting to the EVOS office. The USFWS will be the lead agency and submit required reports.

The land management and ownership patterns throughout the EVOS region are complex. Initial project scoping has included federal and state agencies, as well as native consortium and private entity participation (referenced in coordination section). There are no known objections to this project and letters of support are included in this funding request.

Once funded and contractors have been selected, the project managers and contractor(s) will work closely with all landowners to identify acceptable field sites for data collection. Only field locations with permission of the landowners will be included in field work activities.

B. Personnel Qualifications

*The Resumes of the lead proposer(s), Project Manager and other senior personnel involved in the proposal must be attached. Each resume is limited to **two** consecutively numbered pages and must include the following information:*

- *A list of present and past employers and affiliations, professional credentials, mailing address, and other contact information (including e-mail addresses and telephone numbers).*
- *A list of prior projects and persons (including their organizational affiliations) including contact information, with whom the lead proposer(s)/Project Manager has collaborated on a project within the last four years. If there have been no collaborators, this should be indicated.*

Note that we may contact the persons listed for additional information.

Resumes attached for the following:

Sydney Thielke
Regional Wetlands Coordinator
U.S. Fish and Wildlife Service
Anchorage, AK
Sydney_thielke@fws.gov
(907)229-6308

Dr. Leslie Jones
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State of Alaska - Department of Natural Resources
Anchorage, AK
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(907) 269-5710

Brian Wright
Alaska National Map Liaison
National Geospatial Program
U.S. Geological Survey
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