

“MINI” STATEMENT OF WORK

Collecting Fisheries Ecological Knowledge (FEK) for Use in the Gulf of Maine Offshore Wind Energy Planning

The Environmental Studies Program (ESP) of the Bureau of Ocean Energy Management (BOEM) is offering a cooperative agreement opportunity to conduct research that documents Fisheries Ecological Knowledge (FEK) in the Gulf of Maine (GOME) to support decision making about Offshore Wind (OSW) development. BOEM’s mission is to manage the exploration and development of the nation’s offshore resources in a way that balances economic development, energy independence, and environmental protection through oil and gas leases, renewable energy, and marine minerals development. The decision-making behind the management of the nation’s offshore resources is supported through environmental reviews and associated studies.

AUTHORITIES

The Outer Continental Shelf Lands Act (OCSLA), Section 1346, mandates the conduct of environmental studies that improve the assessment and management of environmental impacts on the human, marine, and coastal environments, which may be affected by oil and gas or other mineral development. OCSLA, Section 1345, authorizes the use of cooperative agreements with affected States to meet the requirements of OCSLA, including sharing of information, joint utilization of available expertise, and the formation of joint monitoring agreements to carry out applicable Federal and State laws, regulations, and stipulations relevant to outer continental shelf operations both onshore and offshore. The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. BOEM is the federal agency established to review and permit lease sales on the outer continental shelf (OCS), as well as assess the environmental, social, and economic impacts of OCS activities.

PURPOSE

BOEM envisions project proposals that demonstrate an ability to characterize important insights gained from social science and participatory methods that recognize the wisdom and insight of fishermen, as well as the importance of using their knowledge to effectively manage the changing socio-ecological environment in the GOME. This research aims to enhance our understanding the socio-cultural, historical, and spatial temporal aspects of the region’s fisheries.

The purpose of this agreement is to conduct cooperative social science research, in the context of offshore wind (OSW) planning and permitting, in the GOME emphasizing fisheries ecological knowledge (FEK). FEK is the information fishermen accumulate over time, especially through daily interaction with the ecosystem, supplemented with knowledge passed on by previous generations and fellow fishermen (Hall-Arber, 2008). FEK -- a type of traditional ecological knowledge--can be defined as “a cumulative body of knowledge, practice and belief evolving by adaptive processes and handed down through generations by cultural transmission, about the

relationship of living beings (including humans) with one another and with their environment” (Berkes et al. 2000).

This study will enhance the State’s and BOEM’s understanding of how changing ocean and climate conditions have affected fisheries in the region and how the natural and human dimensions (e.g., harvest practices, fisheries management plans, population dynamics) of fisheries are adapting to changing environmental conditions. This information will support OSW planning and assessment activities in carrying out its mandated mission to manage development of U.S. OCS resources in an environmentally and economically responsible way by providing enhanced data and context on fisheries activities, including baseline conditions (e.g., grounds, population dynamics, social aspects), trends and potential future outcomes.

BACKGROUND

BOEM relies on existing information about the use of the ocean by fishers that is collected through monitoring such as vessel management system (VMS), vessel trip reporting (VTR), and automatic identification system (AIS) data. BOEM uses this information in the analysis of impacts to fishers and to identify appropriate mitigation measures. These methods do not capture the totality of fishing activity and have the potential to miss important fishing patterns on the OCS. Accessing and incorporating FEK into BOEMs practices and processes can help fill this knowledge gap. In a more recent study, DeCelles et al. (2017) found that combining FEK with more traditional fisheries research relying on secondary harvest data improved the spatial and temporal resolution of information related to cod spawning activities on Georges Bank.

Researchers in the GOME have acknowledged the importance of collecting FEK to fill in data gaps and to provide context on population trends and habitat associations. An effort to collect, verify, and incorporate FEK in the GOME will improve our information base in support of BOEM decision-making. An effort to collect FEK solicits information from (Tribal, artisanal, historic, etc.) fishers. This information will enhance BOEM’s spatial planning efforts to develop and manage OSW lease areas in the GOME.

The GOME is a complex ecosystem that supports a rich and dynamic fishing economy. While the region is extensively studied for fisheries management, there are many unknowns regarding these fisheries. Past efforts to collect FEK in the GOME have provided some indications of the challenges and benefits to engaging these communities. St. Martin and Hall-Arber (2008) found that in their efforts to engage with fishers, individuals withheld fishing location information from each other and federal resource managers to protect their interests.

The rapidly changing GOME ecosystem, including ocean warming and changing distributions of key marine species necessitate updated fisheries information for equitable and effective offshore wind development that minimizes and avoids marine spatial conflicts. A greater understanding of the marine ecosystem in the GOME and fisher activities is needed to contextualize scientific data both spatially and temporally for an improved understanding of ocean use. A key aspect missing is the ecological knowledge gained by fishers who have been using this area for generations and recognize the changes that are occurring.

FUNDING AND ELIGIBILITY

The Bureau anticipates a total project allocation of \$400,000 administered through a competitive cooperative agreement. Matching contributions from the applicant are not required but strongly recommended. Eligible institutions are limited to state academic institutions and nonprofit organizations adjacent to current project areas along the U.S. Atlantic coast from Maine to Massachusetts.

OBJECTIVES

This goal of this project is to enhance BOEM's understanding of the interplay between changing ocean and climate conditions, the region's fisheries (i.e., biological aspects) and the associated human dimensions (e.g., fisher activity, fisheries management). The encompassing objective of this study is to enhance BOEM's understanding of GOME's culturally and historically important fishing habitats and fisheries ecology through the collection of FEK. The study awarded under this program must address the following objectives:

- Enhance the cultural and geographic understanding of the GOME's fisheries (e.g., fish populations dynamics, fleet workings/dynamics, ecosystem change, and the spatial/temporal characteristics of harvesting and spawning) and fishing grounds (i.e., species, gear type, bottom-type, and season).
- Improve the understanding of the region's fisheries, specifically regarding ecosystem connectivity (e.g., recruitment, spawning and food web) and fisheries biology (biomass, distribution, and abundance and diversity).
- Advance the scientific understanding of how the GOME's marine ecosystem (e.g., species distribution shifts) and concomitant resource management and fishing patterns have adapted over time (e.g., spatial and temporal changes in fishing grounds, changes in access to grounds, changes in gear, other employment, broadening target species, etc.).
- Convey the enhanced and improved understanding of GOME fisheries using various educational and outreach tools (e.g., presentations, reports, geospatial data, etc.) that can be used for marine planning and effective stakeholder engagement.
- Provide guidance and regular updates to fishermen regarding the spatial planning process, data needs in the Gulf of Maine, and available spatial data tools like "MarineCadastre.gov" or the Regional Ocean Portals (e.g., Northeast Regional Ocean Council, data portal).
- Protect proprietary and personal fishing information of all individuals involved in providing fisheries data and contextual information.

The above objectives support BOEM's mission to manage the development of OCS resources in an environmentally responsible manner and align with BOEM values for environmental stewardship. The results of this study will enhance the understanding of the potential interactions between offshore construction and operation activities on fisheries (i.e., fishers, fish, and fish habitat), in support of science-informed decision making.

METHODS

BOEM proposes a participatory research approach within the cooperative agreement framework. Ideally working with regional Principal Investigators (PIs) and a group of fishers to document

FEK on regional fisheries which may include commercial, subsistence, artisanal, and recreational sectors. BOEM solicits proposals that will accomplish the objectives listed above and emphasize social science and participatory methods to harness fisheries ecological knowledge. While existing data on fishing locations, effort, and value (e.g., VTR, VMS, landings data) are an important source of information, FEK can provide rich information about ecological and socioeconomic dynamics.

The Bureau seeks to understand the historical, cultural, and social context of these fisheries and how these are intertwined with the regional economy. It also aims to garner insights on the future of these fisheries (e.g., changes in species distribution, changes in fishing methods). BOEM also seeks information on fishing grounds, the characteristics of fisheries (e.g., species, populations, fleet behavior, fisher behavior, grounds, gear), changes in fisheries through space and time and changes in GOME ecosystem.

The Bureau envisions the use of primary and secondary data collection and analyses to elicit, collect, and document the characteristics of the fisheries and ecosystem changes, as well as fishers' observations of these changes and their responses. This solicitation defines primary data collection, such as one-on-one discussions, focus groups, observations, participatory mapping methods, and other techniques frequently used in FEK. Secondary data will likely consist of relevant literature pertinent to the region (e.g., FEK, fisheries specific) and fisheries/marine data as appropriate from federal, state, and other sources, (e.g., VMS).

Although BOEM will have an influence on the specifics of the research design and research implementation, PIs are encouraged to offer innovative research approaches that are rooted in and expand upon FEK and GOME fisheries literature. Importantly, a research plan for documenting, validating, and analyzing primary FEK and secondary data must be explained, established, and executed. To ensure the information can be incorporated into planning and resource management decisions, data collection and analysis, as well as project reporting must be synthesized and documented following BOEM's format guidelines described in the deliverables section below and in the front matter of the Notice of Funding Opportunities (NOFO) for details

Additionally, BOEM foresees that a proposed research plan may request considerations for honorariums and a data management plan (DMP) that ensures confidentiality and protects human subjects' information collected for this study are not misused. It is very important to develop and maintain trust and rapport with the fishers, not just for mutually beneficial data collection and project results, but also to honor and value fishers' contributions, and to foster positive long-term relationships between the Bureau/Federal Government and GOME fishers.

TASKS

1 – Project Administration: Kick-off meeting, progress reports, and progress meetings, with agendas and meeting notes provided. Administrative tasks will include the development of a Project Management Plan and Data Management Plan

2 – Secondary/Primary Data Collection, Analysis and Synthesis: Research planning meetings, meeting agendas, literature review, synthesis of fisheries data (i.e., VMS, FOSS, NCCOS, etc.), Field Plan, and draft and final deliverables.

3 – Project Report: Outline, sample Findings/Results chapter draft, draft, and final project report.

4 – Technical Summary: Draft and final technical summaries.

5 – Outreach and Education. Cultivate relationships, create a record of contact with fishing associations, facilitate stakeholder meetings or conferences (i.e., Field Plan), and disseminate findings through various mechanisms for lay and expert audiences.

DELIVERABLES

All deliverables must comply with BOEM's guidance described in the ESP Desk Reference under Section 9, Procurement Package Requirements and Language for All Acquisition Types. ESP specifications and templates are available at:

<https://www.boem.gov/environment/environmental-studies/report-specifications/esp-report-and-footprint-specifications>. Furthermore, the Recipient shall adhere to the ethical standards for human subjects' research (HSR) in the collection of data, including confidentiality, informed consent, and voluntary participation. All HSR materials will be reviewed and approved by BOEM prior to implementation. In situations, where the Recipient's institution has codified HSR review and practices, these shall be communicated to the Bureau for review and approval. It is generally anticipated that projects will not be longer than 30 months in duration. Deliverable products shall be submitted to the e-mail addresses shown below. Schedule of deliverables will be determined based upon the award date.

A. Kick-off Meeting, Meeting Agendas, and Summaries

The Recipient shall hold a post-award kick-off meeting with BOEM by teleconference/webinar, no later than 3 weeks after award at a time that is mutually agreeable to the Recipient and BOEM. The purpose of this meeting is to discuss roles, responsibilities, working relationships, major milestones, and deliverables. At a minimum, the post-award meeting shall include: 1) directions from the Contracting Officer (CO) and identification of the Project Officer (PO), the Environmental Studies Program Representative (ESPR), the Contractor's Inspector (CI) (the BOEM Team), and other pertinent BOEM personnel; 2) a draft of the Project Management Plan (PMP; see Deliverable B below) from the Recipient; 3) the proposed Schedule from the Recipient; and 4) an introduction and identification of any key collaborators by the Recipient. In addition, the Recipient will present the PMP, which includes the purpose of the project, the scope, roles and responsibilities of the project team, the deliverables, the risks, the assumptions, the planned effort, and the deadline. During the post-award meeting, any outstanding issues will be addressed. No changes to the terms or conditions are authorized unless approved in writing by the CO via a modification to the agreement. The Recipient shall provide an agenda to participants at least one week prior to the kick-off meeting and provide a meeting summary to BOEM for review and approval within two (2) weeks after the meeting.

The Recipient shall organize and host regular monthly status meetings via teleconference/webinar with the BOEM Team (as available) to discuss the status of the project, any issues that have arisen regarding the specific tasks or other requirements in this Statement of Work, quality control, changes in personnel, budget, invoices, deliverables, or schedule for deliverables. These meetings shall allow for efficient communication of any relevant issues and shall ensure that the project is proceeding according to BOEM's requirement. The Recipient shall be responsible for documenting the call discussion, including all BOEM decisions and action items for the project team. The call notes should not be a verbatim of the call, but instead capture high-level discussions via bullets. Meeting summaries shall be submitted within three (3) calendar days of each meeting.

B. Project Management

The Recipient shall provide a draft Project Management Plan (PMP) one (1) week prior to the kick-off meeting to allow for review by all involved. At the kick-off meeting, participants shall discuss the draft PMP, which should cover major tasks, timelines, and formats for delivering and managing data and reports. The PMP shall clearly and concisely describe project responsibilities, any proposed subcontracting arrangements, communication and coordination, record keeping, and scheduling of all tasks, subtasks, meetings, and deliverables. It shall also identify Key Personnel, including the Project Manager (PM) and discuss the plans for ensuring successful completion of individual tasks on time, on budget, and of the highest quality. The Recipient shall submit and the revised final PMP within two weeks after the kick-off meeting. Any changes that might affect the agreement are subject to approval in writing by the CO.

The Recipient's PM shall have sufficient authority to serve as the point of contact with BOEM and to provide leadership to the project team. The PM shall coordinate the execution of all tasks in the project and will be responsible for all deliverables, budget control and quality assurance for all products, compliance, and adherence with the schedule of the task order, in addition to ensuring that all personnel work cooperatively to achieve the goals of the requirement.

C. Quarterly Progress Reports, Progress Meetings and Agendas

The Recipient shall submit quarterly progress reports to the PO as email or email attachment. Progress reports shall be used by the Recipient to describe problems encountered or anticipated, budget and scheduling impacts, proposed remedies, and lessons learned. The Recipient shall submit Progress Reports to the BOEM project team: the Contracting Officer (CO), Project Officer (PO), Environmental Studies Program Representative (ESPR) and the Contract Inspector (CI) as an email attachment every 90 days beginning 7 days after the award date. Progress meetings should be held virtually within 7 days following submittal of the report and should follow a standard agenda (provided in the PMP) which should be fitted to each meeting. All BOEM project team members should be invited to progress meetings. The progress reports shall at a minimum include:

- A summary of all work performed during the preceding quarter and overall progress made against the schedule.
- A summary of significant technical, schedule, or cost problems encountered during the preceding quarter, including an assessment of their probable effects on meeting provisions of this agreement.
- A summary of any resolutions agreed to by the PO and CO regarding these problems; and
- A list of all significant meetings held, or other contacts made in connection with the agreement during the preceding quarter, including a brief summary of the participants and subject, date, location, and outcome of each such contact or meeting.
- Summary of expenses incurred during the reporting period.
- An updated project schedule, if applicable.

D. Research Planning Meeting and Data Management Plan

The Recipient shall hold a Research Planning Meeting, no later than 45 days from award. This meeting will address the specifics of research implementation related to the collection and review of secondary data (i.e., FEK literature and fisheries data), and analysis, as well as draft plans for the primary data collection and analysis, including team members and specific roles, field logistics, the selection of participants (e.g., fishers), including protocol for human subjects' research (for BOEM approval).

The Recipient shall develop a Data Management Plan (DMP) to be implemented by a designated Data Manager. The DMP is a high-level summary of all data management activities that are needed throughout the data lifecycle, including a record of contact with fishing associations and stakeholder meetings or conferences.

The DMP shall include a description of planned procedures for data collection, data processing, metadata development, quality assurance/quality control (QA/QC), electronic file inventory, storage and backup, dissemination, and distribution (including method and timeline of making the finalized data products publicly available and protocols for handling/withholding sensitive information such as the location of known/potential archaeological sites), and final archiving. These procedures must be described sufficiently to allow repeatability.

The Recipient shall provide a draft DMP to the BOEM Team one (1) week prior to Research Planning Meeting. At the Research Planning Meeting, the Recipient and BOEM shall discuss the DMP in detail and resolve any outstanding questions or concerns. The final DMP shall be submitted to the BOEM Team by email within two (2) weeks of the Research Planning Meeting and shall be updated as necessary throughout the period of performance. For more information about how to develop a DMP, please see the U.S. Geological Survey website for an example at: <https://www.usgs.gov/data-management/data-management-plans>.

E. Literature Synthesis and Field Plan

The Recipient shall prepare and submit a draft Literature Synthesis and Field Plan to the BOEM Team no later than (NLT) 5 Months from the award date. BOEM will review these documents and provide comments during a the soonest regularly scheduled meeting (noted in following narrative). The Recipient shall prepare and submit a final Literature Synthesis and Field Plan to the BOEM Team no later than NLT 1 Month after receiving BOEM comments and edits of the draft documents.

The Literature Synthesis will enhance understanding of GOME fisheries and provide context and direction for refining FEK methodology and the awardees Field Plan. The report should contain a synthesis of relevant FEK research, describe its use in resource management (e.g., fisheries and elsewhere), identify gaps in knowledge of GOME fisheries and discuss relevant topics that address primary data collection and analysis concerns.

The awardee shall catalog all references (information and data) collected during the study using standard bibliographic reference format fields and include the corresponding attached references (PDF is preferable and in a format compatible with EndNote®.). The references shall contain all available information collected during the data and literature search including the following: *Reference Type, Author, Primary Title, Journal Name, Cover Date, Publisher, International Standard Serial Number, Subject, Start Page, End Page, Volume, Issue, URL, Date of Issuance, Abstract, etc.*

The Field Plan will address the specifics of research implementation related to the collection and analysis of FEK (i.e., primary research), including team members and specific roles, field logistics, the selection of human subjects (e.g., fishers), interview templates or participation research agendas/outcomes, and the protocol for conducting ethical human subjects' research (for BOEM approval). The Recipient shall schedule a discussion of the Field Plan during a routine progress meeting. The report will be finalized upon BOEM approval and Recipient revisions.

F. Secondary Data Report and Primary Data Report:

The Recipient shall prepare and submit a draft Secondary Data Report to the BOEM Team within 14 Months from the award date. BOEM will review these documents and provide comments during a the soonest regularly scheduled monthly meeting. The Recipient shall prepare and submit a final Secondary Data Report to the BOEM Team within 18 Months from the award date.

The Secondary Data Report will synthesize biological, ecological, and socioeconomic data on relevant fisheries (e.g., landings, location, gear, species, homeports, employment); it will provide context and clarity for primary data collection and the Field Plan. The Recipient shall schedule a discussion of the Secondary Data Report during a routine progress meeting. The report will be finalized upon BOEM approval and Recipient revisions.

The Recipient shall prepare and submit a draft Primary Data Report on the information collected directly from fishers to the BOEM Team within NLT 6 months after the Field Plan is implemented. The Recipient shall prepare and submit a final Primary Data Report on the information collected directly from fishers to the BOEM Team within NLT 9 months after the Field Plan is implemented. The report will capture knowledge on fishing grounds, spawning areas, general marine ecology, relations between fishers (within and between gear groups) and change through time. The Recipient shall schedule a discussion of the Primary Data Report during a routine progress meeting (i.e., bi-monthly preceding text). The report will be finalized upon BOEM approval and Recipient revisions.

All report files generated by this agreement shall be prepared in electronic format and be submitted according to the schedule and requirements described in the deliverable schedule and as agreed upon at the post-award meeting. Text files shall be submitted in formats compatible with Microsoft (MS) Word® and Adobe Acrobat® (i.e., PDF); database files shall be submitted in a format compatible with MS Excel®; and geographic data files shall be submitted using an ArcGIS file geodatabase (see Data Submission section below for more detail). Bibliographic references shall be submitted in a format compatible with EndNote®. Any DVDs and/or hard drives submitted shall be formatted with a system (e.g., New Technology File System [NTFS]) that is writeable by the current MS Windows® operating system.

If photographs, videos, or audio recordings are to be included with the reports, they shall be credited and free of copyright restrictions and suitable for copying. These figures shall have a minimum resolution of 300 dpi. This digital requirement includes all tables, charts, graphs, and figures that were not prepared in Microsoft Word, as well as photographs from other sources. No originals shall be mailed without prior backups.

If practicable, BOEM will store a copy of the data and/or data products and associated software on external hard drives or using other appropriate media depending on the nature and size of the products, as agreed to by the PM and the BOEM PO.

G. Final Report (Outline, Sample Chapter, Draft and Final)

A Draft Report Outline of the report will be provided to BOEM for review and comment 24 months after the award.

The Draft Report will highlight salient findings and provide their significance to OSW planning and with regard to mitigation and avoidance measures. The Recipient shall prepare a Draft report which compiles and synthesizes findings from primary and secondary data collection (i.e., draft Results/Finding Chapter). The Sample Chapter shall provide a comparative assessment between FEK information on fishing grounds through time (past, present, and potential futures) and VMS data (and other complementary sources as appropriate). The sample chapter will be in a format as specified at the BOEM website: <http://www.boem.gov/Environmental-Studies-Program-Report-Specifications/>.

The Recipient shall complete and submit a Draft Report to BOEM for review, 28 months after award. The draft final report should include all the information required in [BOEM's ESPIS report specifications](#). It should include progress completed, milestones reached, timeline of upcoming milestones, and any potential challenges which may impede both the schedule and successful outcome of any tasks. It should be submitted in MS word format for BOEM comments. BOEM will have two (2) weeks to review and provide comments.

If the Draft Report is considered an acceptable draft, BOEM will have thirty (30) days to review the report, and notify the Recipient of any required changes, corrections, or additions. The Recipient shall incorporate BOEM's changes, corrections, and additions. Questions regarding reviewer comments on the scientific and technical content and interpretation shall be discussed with the PO. In those cases where the Recipient disagrees with the suggested changes, corrections, or additions, the Recipient shall submit a letter of explanation to the PO explaining the rationale for the disagreement. Formatting standards are not subject to discussion of alternatives.

The Final Report should include everything in the draft annual report, including addressing comments from BOEM, and be submitted in both MS Word and PDF formats two (2) weeks after receiving comments from BOEM. A cover correspondence on how comments were or were not accommodated should also be included. This report may be combined with the concurrent quarterly report.

The following language must be included in the draft and final reports (on the disclaimer page):

"This report has been technically reviewed by BOEM, and it has been approved for publication. The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government, nor does mention of trade names or commercial products constitute endorsement or recommendation for use."

H. Technical Summary (Draft and Final):

The Recipient shall complete and submit a draft Technical Summary to BOEM for review. The Technical Summary is a brief summary (see ESP format guidelines, typically 2 to 3 pages) and cover all technical tasks. Upon delivery of the draft Technical Summary, BOEM will have 30 days to review them and provide comments to the Recipient. The Recipient will have 30 days from the delivery of BOEM's comments to revise and finalize the Technical Summary and deliver them to BOEM.

The Recipient shall revise the draft Technical Summary and complete as per BOEM comments. The Recipient shall provide the rationale in a letter accompanying the revised Technical Summary for any review comments not accommodated. Copies of the revised Technical Summary, high-quality physical master copies, and searchable-text MS Word and PDF digital copies shall be provided to BOEM per the deliverable schedule. Bibliographic citations for the Final Report shall be provided to BOEM in EndNote® compatible format.

The disclaimer page in the draft and revised Final Report shall contain the following language:

“Study collaboration and funding were provided by the U.S. Department of the Interior, Bureau of Ocean Energy Management, Environmental Studies Program, Washington, D.C., under Agreement Number _____. This report has been technically reviewed by BOEM, and it has been approved for publication. The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the US Government, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.”

The Draft and Final Technical Summary shall be submitted to BOEM, in accordance with the Schedule of Deliverables, for scientific and editorial review in a format as specified on the BOEM website below. The Recipient shall prepare a draft technical summary in MS Word of the Recipient’s contributions to the overall study that is approximately two (2) pages in length and conforms to the technical summary specifications found at our website: <https://www.boem.gov/environment/environmental-studies/report-specifications/esp-report-and-footprint-specifications>.

The draft technical summary shall be submitted concurrently with the draft final report. The draft technical summary shall be reviewed for technical content by BOEM. BOEM will submit any necessary edits or revisions to the Recipient for incorporation into the Final Technical Summary. The draft technical summary shall be submitted to the BOEM PO and others in accordance with the schedule of deliverables.

I. Geospatial Database:

The Recipient shall submit all geographic data and data products with detailed metadata conforming to either Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata, or the International Organization for Standards (ISO) Geographic Information – Metadata Standard 19115. Metadata will include detailed explanation of how the data were collected and analyzed. Physical or biological data products will be archived in their appropriate format at the National Centers for Environmental Information (NCEI) or Integrated Ocean Observing System (IOOS).

Where applicable, derived geographic data products will be delivered in geodatabases (ArcGIS 10.2 or newer) on an external hard drive or other media acceptable to both parties. At a minimum, the geodatabases will include feature classes for polygons (shapefiles) and grids (raster files) displaying data and the results of analyses and models. All detection feature classes will be in the WGS_1984 Geographic Coordinate System. Raster files will be created in an appropriate Projected Coordinate System for the area displayed, such as UTM zones 4, 5, 9, 10, or 11. (BOEM needs to select appropriate projection for larger geographic areas.)

The Recipient shall also submit a study footprint that geographically references the study area will be delivered. The footprint should be developed in accordance with BOEM's [ESP Data And Information Specifications](#) and [ESP Study Footprint Guidance](#).

The **metadata** records submitted by the Recipient shall also conform to the Content Standards for Digital Geospatial Metadata (ISO 19115-1) or to any format that supersedes it as determined by the FGDC. Profiles and extensions to the standard that have been endorsed by the FGDC shall be used if they are applicable to the data or data products. The metadata records shall contain any and all elements, including those that are considered optional, wherever applicable to the data or data product. The metadata record shall contain sufficient detail to ensure the data or data product can be fully understood for future use and for posterity. The metadata records shall be delivered free of errors in both content and format. The metadata and records will be subject to review and approval prior to final acceptance by the Government.

J. Presentations:

The Recipient shall deliver (at least) one presentation of findings to fishers, at an appropriate venue for fisher participation (e.g., consider event piggybacking, etc.). This task shall be completed before the end of the period of performance of the agreement. Presentations at public meetings are encouraged and must include a description of the research process and findings, as well as participant acknowledgements, in a format that is appropriate for a lay audience.

The Recipient shall require all investigators to review all abstracts or summaries prepared for oral/poster presentations based on this study to be submitted to BOEM for review and comment prior to conference/public venue submission, as well as incorporate any of BOEM's comments to the extent practical. The focuses and contents of the presentations should be determined through consultation with BOEM.

All oral/poster presentations shall contain an acknowledgement of BOEM's support that reads:

"Study collaboration and funding were provided by the U.S. Department of the Interior, Bureau of Ocean Energy Management, Environmental Studies Program, Washington, D.C., under Agreement Number ____."

SCIENTIFIC INTEGRITY POLICY

Scientific integrity is vital to Department of the Interior (DOI) activities under which scientific research, data, summaries, syntheses, interpretations, presentations, and/or publications are developed and used. Failure to uphold the highest degree of scientific integrity will result not only in potentially flawed scientific results, interpretations, and applications, but will damage DOI's reputation and ability to uphold the public's trust. All work performed must comply with the DOI Scientific Integrity Policy posted at <http://www.doi.gov> or its equivalent as provided by their organization or State law.

SECTION 508 OF THE REHABILITATION ACT

Section 508 of the Rehabilitation Act of 1973 (found at 29 U.S.C. 794d) requires access to and use of information by individuals with disabilities. A deliverable such as electronic reports (e.g., PDF files) to be placed on the web (either on the agency's web server or the company's), video footage, or other electronic data such as CD-ROMs to be distributed, are subject to Section 508 guidelines. Simplified, this means that PDF files need to be formatted so that they are "readable" by assistive technology devices such as screen readers. Video footage must be closed captioned. CD-ROMs which contain HTML, PDF, or word processor files must be accessible. Any/all electronic information technology procured through this effort must meet the applicable accessibility standards at 36 CFR 1194. 36 CFR 1194 implements Section 508 of the Rehabilitation Act of 1973, as amended, and is viewable at <http://www.section508.gov>.

DELIVERABLES: DISTRIBUTION AND SCHEDULE

Deliverables shall be submitted in accordance with the following schedule.

	Deliverable	Distribution	Due Date
A	Kick-off Meeting, Meeting Agendas, Meeting Summaries, and Project Management Plan	Chief, DES – One (1) electronic copy CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy	Kick-off meeting within 3 weeks of award. --- Meeting summary NLT 1 week after the Kick-off Meeting Format: MS Word or PDF
B	Project Management, Draft and Final PMP	CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy	Draft PMP 1 week prior to kick-off meeting. --- Final PMP 2 weeks after kick-off meeting. Format: MS Word or PDF
C	Quarterly Progress Reports, Progress Meetings and Agendas	CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy	First Quarterly Progress Report – ninety (90) days after award, and every 3 months after that. Format: MS Word or PDF.

	Deliverable	Distribution	Due Date
D	Research Planning Meeting and Data Management Plan	CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy	Research planning meeting within 45 days of award. --- Draft DMP NLT 1 week prior to the kick-off meeting after the Research Planning Meeting. Final DMP NLT 2 weeks following the Research Planning Meeting. Format: MS Word or PDF.
E	Literature Synthesis and Field Plan	CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy	Draft Literature Synthesis and Field Plan documents 5 months after award. Literature Synthesis and Field Plan documents 6 months after award. Format: MS Word or PDF.
F	Secondary Data Report --- Primary Data Report --- Digital data products including ArcGIS, GPS, and electronic photographs, videos, or audio recordings	CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy --- PO – One (1) electronic copy Electronic copies of raw data and video footage shall also be provided on 2 USB/ hard drives via mail to: PO	Draft Secondary Data Report – 14 months after award. Final Secondary Data Report – 18 months after award. ---- Draft Primary Data Report - 12 months after the award (NLT 6

	Deliverable	Distribution	Due Date
	(in accordance with Human Subject Research protocols)		months after the Field Plan is implemented). Final Primary Data Report - 15 months after the award (NLT 9 months after the Field Plan is implemented). Format: MS Word or PDF. --- Electronic Raw Data Format: Original format and a format that can be easily read by a computer. Video Format: MP4 or AVI
G	Final Report (Outline) --- Final Report (Sample Chapter)	Chief, DES – One (1) electronic copy CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy --- Final Report (Final) all the above and include Chief, DES - One (1) electronic copy PO – Two (2) hard copies	Final Report (Outline) – 22 months after award. --- Final Report (Sample Chapter) – 22 months after award. --- Final Report (Draft) – 26 months after award. --- Final Report (Final) – 29 months after award.
H	Final Report (Draft) and Technical Summary (Draft) --- Final Report (Final) and Technical Summary (Final)	Chief, DES – One (1) electronic copy CO – One (1) electronic copy PO – One (1) electronic copy ESPR – One (1) electronic copy CI – One (1) electronic copy	Technical Summary (Draft) – 26 months after award. --- Technical Summary (Final) – 29 months after award.

	Deliverable	Distribution	Due Date
I	Geospatial Database and Study Footprint	Chief, DES – One (1) electronic copy of transmittal letter only ESPR – One (1) electronic copy of transmittal letter only PO – Two (2) copies on BOEM-approved media or approved data archive. CO – One (1) electronic copy of transmittal letter only	Concurrent with the submission of the Final Report.
J	Presentations	Chief, DES – One (1) electronic copy CO – One (1) electronic copy PO – One (1) electronic copy	Draft oral presentation abstract(s) or draft manuscript(s) including associated tables and figures to be sent to PO for courtesy review prior to formal submission and may be done at any point in the contract, or at the conclusion.

ADDRESSES FOR DELIVERABLES

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- Berkes F, Colding J, Folke C. 2000. Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications* 10:1251–1262.
- DeCelles GR, Martins D, Zemeckis DR, Cadrin SX. 2017. Using fishermen’s ecological knowledge to map Atlantic cod spawning grounds on Georges Bank. *ICES Journal of Marine Science* 74:1587–1601.
- St. Martin K, Hall-Arber M. 2008. Creating a place for community in New England fisheries. *Human Ecology Review* 15(2):161–170.