

## Environmental Studies Program: Studies Development Plan | FY 2021–2022

Title	Modeling Support for the Center for Marine Acoustics
Administered by	Headquarters
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Conducting Organization(s)	TBD
Total BOEM Cost	TBD
Performance Period	FY 2021–2023
Final Report Due	TBD
Date Revised	March 6, 2020
PICOC Summary	
<i><u>Problem</u></i>	The Center for Marine Acoustics (CMA), a BOEM Centers of Excellence (COEs) “First in Class” requires external assistance in establishing this capability. Multiple specific and highly specialized models, databases and algorithms need to be acquired and, in some cases, reported on in order to create this capability.
<i><u>Intervention</u></i>	To identify and acquire these needed components and knowledge. The ultimate metric is self-defined in the goal of establishing a peer-reviewed and certified, state-of-the-art, acoustic impact modelling capability at BOEM within three years.
<i><u>Comparison</u></i>	This effort is not a standard ESP study. It is the essential acquisition of components and knowledge necessary to establish this acoustic modelling capability. Without these essentials, the modelling capability would be second rate, at best. They are essential.
<i><u>Outcome</u></i>	The modelling capability described above, within three years.
<i><u>Context</u></i>	This is a capability that would predominantly reside in the BOEM Sterling office, but some components and personnel might also be in multiple BOEM regional offices. The analyses and modelling capability, when completed, could and will be applied to all BOEM Programs and the entire outer continental shelf.

**BOEM Information Need(s):** BOEM is currently in the process of establishing several Centers of Excellence (COEs)/“ First in Class”, including the Center for Marine Acoustics (CMA). As the name implies, the CMA will focus on the acoustic-focused aspects of the technical and environmental issues pertinent to BOEM and its three program areas (O&G, Minerals and Renewables). The purpose behind this effort is to establish, internal to BOEM, a capability to address four of the Strategic Science Questions, numbers 1, 2, 8 and 9 for underwater acoustic issues (e.g., 1. Cumulative effect for environmental assessments, 2 acute and chronic effects, 8 better using emerging technologies to achieve scientific results, and 9 best affected resources ,

measurements and systems for long-term monitoring). Additionally, the CMA will ultimately be tasked to produce the technical/numeric acoustic modelling and risk assessment results that will be included in all BOEM environmental compliance documents, specifically all NEPA, MMPA and ESA documents, petitions or authorization requests, as well as the supporting technical documents for various consultations. Also, the CMA will provide the technical background and support necessary for BOEM to proactively engage NOAA/NMFS, FWS and the Army Corp of Engineers, and others in future discussions concerning acoustic thresholds guidance, and the development of regulatory approaches and policy.

**Background:** This project is not a standard or typical ESP study. It is designed to support the creation of an acoustic modelling capability at BOEM. The CMA is envisioned as serving as the centralized BOEM asset that is capable of addressing all acoustic technical analyses and acoustic impact modelling requirements necessary to support the three BOEM programmatic areas. Essentially, the CMA will serve as the BOEM subject matter expert (SME) for acoustics, an SME which is capable of producing definitive analytical and modelling results of sufficient quality, as recognized external to BOEM, that they can be readily used by BOEM during interactions with all external entities and organizations. In order to develop this capability, the CMA will need to build a capability in all areas of acoustic impact modelling and the numerous modelling sub-specialties including, but not limited to, acoustic sources, propagation, animal movement and risk assessment modelling. BOEM will need to acquire a suite of state-of-the-art models and databases in each of these modelling sub-specialties, as well as the knowledge/experience to properly use them.

**Objectives:** The ultimate object of this study is the development of a complete and certified acoustic and risk assessment modelling capability at BOEM. The details of exactly which models, databases and briefing is not completely known at this time but will be determined and specified during the next few months (e.g., March – September 2020), as the personnel acquisitions for the CMA and the operational plan is developed. Specific sub-objectives and the pathways to accomplishing them will be identified during FY 20, and refined during the two years of this study, as needed.

**Methods:** The development of BOEM's acoustic modelling capability is envisioned as a three-year process. In the first year, a basic acoustic modelling capability will be established, and the details of a technical specification plan will be generated. During the second year the acquisition of models/databases, personnel and technical knowledge as specified in the specification plan will be enacted. It should be noted that there will be a continued need to reassess and refine the needs and required actions as personnel are hired, trained and problems are encountered with integrating the modelling capability. The third year will include the refining of the individual sub-models, their integration via developed code into a coherent and streamlined whole, and the preparations for completing the certification process. Historically, many of these components change and improve frequently (i.e., better databases and analytical techniques are discovered, policy and acoustic threshold guidance changes, etc.) and this requires a continuous refinement of the goals and modelling processes.

**Specific Research Question(s):** Although the development of this modelling capability at BOEM is a practical application and answers to numerous scientific questions in itself, the utility of developing this capability beyond the practical application to completing required environmental documents, will be the ability to anticipate and actually proactively drive the direction of research and policy for future acoustic impacts associated with BOEM related Outer Continental Shelf (OCS) activities.

**Current Status:** N/A

**Publications Completed:** N/A

**Affiliated WWW Sites:** N/A

**References:**