

APPLICATIONS



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Habitat Priority Planner → Wind Energy Siting

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Introduction

Efforts to harvest energy from offshore wind and wave resources are increasing. While wind and waves are excellent sustainable sources of energy, it is important to consider an array of ocean uses when identifying the best locations for building energy infrastructure.

This document illustrates an example spatial approach to identify compatible areas for wind energy development off the coast North Carolina. The information and table below show the process steps needed to conduct spatial analysis using the Habitat Priority Planner for the objectives described. Developing a clearly defined goal and objectives helps *spatial analysis* run more smoothly and ensures that the appropriate *datasets* are identified.

Goal

Identify appropriate lease blocks for wind energy development off the coast of North Carolina.

Objectives

- Identify lease blocks with ideal wind speed, depth, and distance to shoreline for wind energy development.
- Identify areas that are not associated with military danger zones, shipping lanes, or important habitat.

Spatial Analysis Steps Using the Habitat Priority Planner

1. Use the Habitat Classification module to run a Unique Classification on the base dataset, Outer Continental Shelf Lease Blocks.
2. Use the Habitat Priority Planner's Habitat Analysis module to select a series of analyses that will help find lease blocks that fit the criteria:
 - Polygon Overlay
 - Lease Blocks that avoid High Ship Traffic Areas
 - Presence/Absence
 - Lease Blocks that do not contain Military Danger Zones
 - Lease Blocks that are not associated with Hard Bottom Habitat
 - Lease Blocks that are within the ideal Depth Zone
 - Distance To
 - Lease Blocks within a compatible distance from the Shoreline

*Note that all lease blocks fall within the recommended wind speed velocity of 7 meters per second or greater; therefore, that analysis has been excluded.

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3. Use the Data Explorer module to narrow down from all available habitats to those that meet the specific criteria:
 - Select lease blocks in which military danger areas are absent.
 - Select lease blocks that have less than 50% overlap with high shipping traffic areas.
 - Select lease blocks that do not contain hard bottom habitat.
 - Select lease blocks that are within 25 miles of the shoreline.
 - Select lease blocks that have a depth of 30 meters or less.

Describe Objectives	Data	Analysis (HPP Module 1 & 2)	Selection Criteria (HPP Module 3)
Identify Lease Blocks	OCS Lease Block	Unique Classification	
Avoid Military Danger Zones	Military Danger Zones	Presence/Absence	False
Avoid High Ship Traffic Areas	Ship Count	Polygon Overlay	0-50%
Avoid important habitat	Hard Bottom	Presence/Absence	False
Ideal distance to Shoreline	Shoreline	Distance To	0-25 miles
Ideal depth 0-30 meters	Depth (Bathymetry)	Presence/Absence (selection)	True

Results

The final output from the Habitat Priority Planner identifies 85 lease blocks from the original 1,261 in the study area that meet all of these criteria and may be ideal for development of offshore wind energy infrastructure.

