

**Appendix E**  
**Essential Fish Habitat Checklist**

**NOAA FISHERIES  
NORTHEAST REGIONAL OFFICE  
EFH ASSESSMENT WORKSHEET FOR  
FEDERAL AGENCIES  
(modified 08/04)**

**Introduction:**

The Magnuson-Stevens Fishery Conservation and Management Act mandates that federal agencies conduct an EFH consultation with NOAA Fisheries regarding any of their actions authorized, funded, or undertaken that may adversely effect essential fish habitat (EFH). An adverse effect means any impact that reduces the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

This worksheet has been designed to assist Federal agencies in determining whether an EFH consultation is necessary, and developing the needed information should a consultation be required. This worksheet will lead you through a series of questions that will provide an initial screening to determine if an EFH consultation is necessary, and help you assemble the needed information for determining the extent of the consultation required. The information provided in this worksheet may also be used to develop the required EFH Assessment.

Consultation through NOAA Fisheries regarding other NOAA-trust resources may also be necessary if a proposed action results in adverse impacts. Part 6 of the worksheet is designed to help assess the effects of the action on other NOAA-trust resources. This helps maintain efficiency in our interagency coordination process. In addition, consultation with NOAA Fisheries may be required if a proposed action impacts marine mammals or threatened and endangered species for which we are responsible. Staff from our Northeast Regional Office, Protected Resources Division should be contacted regarding potential impacts to marine mammals or threatened and endangered species.

**Instructions for Use:**

An EFH Assessment must be submitted by a Federal agency to NOAA Fisheries as part of the EFH consultation. An EFH Assessment must include the following information:

- 1) A description of the proposed action.
- 2) An analysis of the potential adverse effects of the action on EFH, and the managed species.
- 3) The Federal agency's conclusions regarding the effects of the action on EFH.
- 4) Proposed mitigation if applicable.

In some cases, this worksheet can be used as an EFH Assessment. If the Federal agency determines that the action will not cause substantial impacts to EFH, then this worksheet may suffice. If the action may cause substantial adverse effects on EFH, then a more thorough discussion of the action and its

impacts in a separate EFH Assessment will be necessary. The completed worksheet should be forwarded to NOAA Fisheries Northeast Regional Office, Habitat Conservation Division (HCD) for review.

The information contained on the HCD website (<http://www.nero.noaa.gov/hcd/>) will assist you in completing this worksheet. The HCD web site contains information regarding: the EFH consultation process; Guide to EFH Designations which provides a geographic species list; Guide to EFH Species Descriptions which provides the legal description of EFH as well as important ecological information for each species and life stage; and other EFH reference documents including examples of EFH Assessments and EFH Consultations.

## EFH ASSESSMENT WORKSHEET FOR FEDERAL AGENCIES (modified 08/04)

PROJECT NAME: NASA Wallops Flight Facility Alternative Energy Project DATE: February 2010

PROJECT NO.: \_\_\_\_\_ LOCATION: Wallops Island, Accomack County, VA

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**Step 1.** Use the Habitat Conservation Division EFH webpage, Guide to Essential Fish Habitat Designations in the Northeastern United States to generate the list of designated EFH for federally-managed species for the geographic area of interest (<http://www.nero.noaa.gov/hcd/index2a.htm>). Use the species list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. Attach that list to the worksheet because it will be used in later steps. Make a preliminary determination on the need to conduct an EFH Consultation.

<b>1. INITIAL CONSIDERATIONS</b>		
EFH Designations	Yes	No
Is the action located in or adjacent to EFH designated for eggs?	X	
Is the action located in or adjacent to EFH designated for larvae?	X	
Is the action located in or adjacent to EFH designated for juveniles?	X	
Is the action located in or adjacent to EFH designated for adults?	X	
Is the action located in or adjacent to EFH designated for spawning adults?	X	
If you answered no to all questions above, then EFH consultation is not required -go to Section 5. If you answered yes to any of the above questions proceed to Section 2 and complete remainder of the worksheet.		

**Step 2.** In order to assess impacts, it is critical to know the habitat characteristics of the site before the activity is undertaken. Use existing information, to the extent possible, in answering these questions. Please note that, there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts.

<b>2. SITE CHARACTERISTICS</b>	
<b>Site Characteristics</b>	<b>Description</b>
Is the site intertidal, sub-tidal, or water column?	Intertidal
What are the sediment characteristics?	Proposed Project Site: Silt Loam, poorly drained, hydric soils Proposed Compensation Area: Loamy Sand, well drained soils
Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so what type, size, characteristics?	No
Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the spatial extent.	No
What is typical salinity and temperature regime/range?	Salinity: 35 +/- 10 parts per thousand Temperature: 0-30°C
What is the normal frequency of site disturbance, both natural and man-made?	Natural site disturbance may occur during storms and higher than normal tidal cycles, when the site may be inundated with wrack and other debris. The only man-made disturbance is related to noise from nearby activities, including traffic in and out of the U.S. Navy's Surface Combat Systems Center and rocket launches from the Wallops Flight Facility launch range.
What is the area of proposed impact (work footprint & far afield)?	Construction of a permanent access road, crane pad, and turbine foundations would result in a work footprint that would impact 0.71 acres of emergent tidal wetlands. Additionally, 0.14 acres of non-tidal emergent and 0.03 acres of non-tidal scrub-shrub wetlands would be impacted. NASA would provide compensatory mitigation for wetlands affected by the project. It is estimated that approximately 0.71 acres of current upland would be converted into tidal emergent wetlands. Compensatory mitigation for non-tidal wetlands would be accomplished through a combination of creation and restoration on Wallops Mainland.

Step 3. This section is used to describe the anticipated impacts from the proposed action on the physical/chemical/biological environment at the project site and areas adjacent to the site that may be affected.

3. DESCRIPTION OF IMPACTS			
Impacts	Y	N	Description
Nature and duration of activity(s)			NASA is proposing to construct two 2.0-megawatt wind turbine generators on the west side of Wallops Island. Construction would involve building permanent access roads to each turbine, driving foundation pilings, pouring concrete pile caps, and erecting the turbines in sections using a crane. It is expected that construction of both turbines would last approximately 6 months. Following turbine construction, NASA would also construct a wetlands compensation area approximately 2 miles west on Wallops Mainland to mitigate the wetlands lost during construction. A more complete discussion of the project is available in its Environmental Assessment.
Will benthic community be disturbed?	X		Within the footprint of the turbine sites, the benthic community would be covered with the materials described above. During establishment of the compensatory mitigation area, only minor benthic disturbances are anticipated; these impacts would be incidental to the lowering of the ground elevation to match that of an emergent tidal wetland. Incidental effects on the benthic community could occur when establishing the wetland compensation area; however these would be minor and localized.
Will SAV be impacted?		X	
Will sediments be altered and/or sedimentation rates change?	X		Within the roadway, crane pad, and turbine foundation, existing sediments would be permanently altered as they would be covered with coarser clean fill material topped with gravel. Within the compensation area, the coarser, sandy material would be removed to lower the elevation needed for establishing a wetland.
Will turbidity increase?	X		During construction of both the turbine sites and the compensatory mitigation area, turbidity could increase; however with strict adherence to Virginia standards for erosion and sediment control and timely replanting, effects would be localized and temporary.
Will water depth change?	X		Water depths within the project site would change as there would be approximately 6 feet of fill material covering an area that is presently at an approximate elevation of 3 feet above mean sea level. Water depth would increase at the compensation area. The current upland area would be lowered such that it would typically be inundated with water during high tide and dry at low tide.

<p><b>Will contaminants be released into sediments or water column?</b></p>		<p><b>X</b></p>	<p>During construction, the potential exists for small leaks of hydraulic oil and diesel from equipment. However, the construction contractor would be required to regularly maintain and inspect vehicles to ensure that leaks or spills do not occur. Also, in the event that a release occurred, the WFF Integrated Contingency Plan would be implemented to mitigate impacts. During the operational phase, the turbines would have hydraulic oil in their gearboxes. Also, the electrical transformer would contain mineral oil. However, with regular maintenance and inspection, no releases of either material are anticipated.</p>
<p><b>Will tidal flow, currents or wave patterns be altered?</b></p>	<p><b>X</b></p>		<p>Tidal flow would be altered slightly due to the permanent fill. Rather than flowing over the proposed site, tidal waters would flow around the site. This impact would be highly localized. The compensation area would receive inundation from tidal waters when it typically would not have as upland.</p>
<p><b>Will ambient salinity or temperature regime change?</b></p>		<p><b>X</b></p>	<p>It is not expected that the project would affect salinity or temperature regime.</p>
<p><b>Will water quality be altered?</b></p>		<p><b>X</b></p>	<p>It is not expected that more than temporary adverse water quality impacts (increased turbidity) would occur. The project would adhere to Virginia Erosion and Sediment Control requirements and the contractor would re-vegetate disturbed areas once final grade is reached.</p>

Step 4. This section is used to evaluate the consequences of the proposed action on the functions and values of EFH as well as the vulnerability of the EFH species and their life stages. Identify which species from the EFH species list (generated in Step 1) will be adversely impacted from the action. Assessment of EFH impacts should be based upon the site characteristics identified in Step 2 and the nature of the impacts described within Step 3. The Guide to EFH Descriptions webpage (<http://www.nero.noaa.gov/hcd/list.htm>) should be used during this assessment to determine the ecological parameters/preferences associated with each species listed and the potential impact to those parameters.

4. EFH ASSESSMENT			
Functions and Values	Y	N	Describe habitat type, species and life stages to be adversely impacted
Will functions and values of EFH be impacted for:			
Spawning	X		<p><b><u>Turbine and Mitigation Site Construction – Temporary</u></b> Temporary construction noise would likely drive potentially spawning adult red drum from the immediate area.</p> <p><b><u>Turbine Site – Permanent</u></b> Permanent fill of the site would reduce the available area for spawning.</p> <p><b><u>Mitigation Site - Permanent</u></b> Creation of in-kind emergent wetland habitat would provide permanent areas for spawning. As the proposed turbine site is currently dominated by <i>Phragmites</i>, the <i>Spartina</i> wetland that would be created would be of higher ecological value.</p>
Nursery	X		<p><b><u>Turbine and Mitigation Site Construction – Temporary</u></b> Temporary construction noise would likely drive juvenile windowpane flounder, bluefish, summer flounder, scup, black sea bass, cobia, red drum, dusky shark, sandbar shark, and scalloped hammerhead shark from the immediate area, however species would be expected to return once construction activities cease.</p> <p><b><u>Turbine Site – Permanent</u></b> Permanent fill of the site would reduce the available area for nursery for the above listed species.</p> <p><b><u>Mitigation Site - Permanent</u></b> Creation of in-kind emergent wetland habitat would provide permanent areas for nursery of the above listed species. As the proposed turbine site is currently dominated by <i>Phragmites</i>, the <i>Spartina</i> wetland that would be created would be of higher ecological value.</p>
Forage	X		<p><b><u>Turbine and Mitigation Site Construction – Temporary</u></b> Temporary construction noise would likely drive foraging</p>

		<p>predators and their prey species from the immediate area until operations cease. Temporary, direct impacts to adult windowpane flounder, bluefish, summer flounder, scup, black sea bass, cobia, red drum, sand tiger shark, Atlantic sharpnose shark, dusky shark, sandbar shark, and scalloped hammerhead shark (juvenile only) would be expected, however both predator and prey species would return once construction is complete.</p> <p><b><u>Turbine Site – Permanent</u></b> Permanent impacts to the above species may result from displacement of habitat that may be frequented by prey fishes and crustaceans.</p> <p><b><u>Mitigation Site - Permanent</u></b> Creation of in-kind wetland habitat would provide suitable habitat for prey species and permanent areas for foraging. As the proposed turbine site is currently dominated by <i>Phragmites</i>, the <i>Spartina</i> wetland that would be created would be of higher ecological value.</p>
Shelter	X	<p><b><u>Turbine and Mitigation Site Construction – Temporary</u></b> Temporary construction noise would likely drive species from the immediate area until operations cease. Impacts to adult and juvenile windowpane flounder, bluefish, summer flounder, scup, black sea bass, cobia, red drum, sand tiger shark, Atlantic sharpnose shark, dusky shark, sandbar shark, and scalloped hammerhead shark (juvenile only) are possible. Impacts to juvenile scalloped hammerhead shark are possible.</p> <p><b><u>Turbine Site – Permanent</u></b> Permanent impacts to the above species may result from displacement of habitat that may be utilized for shelter.</p> <p><b><u>Mitigation Site - Permanent</u></b> Creation of in-kind wetland habitat would provide permanent areas for shelter. As the proposed turbine site is currently dominated by <i>Phragmites</i>, the <i>Spartina</i> wetland that would be created would be of higher ecological value.</p>
Will impacts be temporary or permanent?		Temporary and Permanent
Will compensatory mitigation be used?	X	NASA would provide compensatory wetland mitigation to ensure no net loss of wetlands. It is estimated that 1:1 compensation would be required for intertidal emergent impacts.

