Providence River and Harbor Federal Navigation Project
Rhode Island Dredged Material Management Plan
And Environmental Assessment
EAXX-202-00-E6P-1737974837

Appendix H
Environmental Appendix
(IPAC analysis, EFH Assessment, Coastal Zone Management Consistency Determination, Benthic Report, Clean Water Act Section 404(b)(1) Checklist)

Appendix H
Environmental Appendix

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 05/13/2025 13:46:30 UTC
Project Code: 2025-0094639
Project Name: Providence DMMP

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (**Updated 4/12/2023**) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List
- Coastal Barriers

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

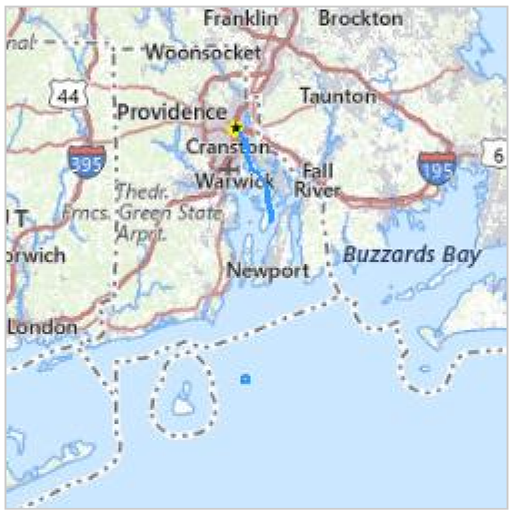
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2025-0094639
Project Name: Providence DMMP
Project Type: Disposal Dredge Material
Project Description: Dredged Material Management Plan for Providence, RI for immediate and future dredging needs. The DMMP presents a plan for the Providence River and Harbor FNP (Providence FNP) along with three adjacent shallow-draft FNPs (Pawtuxet Cove, Bullocks Point Cove, and Apponaug Cove) all located in the Providence River Estuary in southern Rhode Island.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.2267958,-71.38029070287723,14z



Counties: Rhode Island

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

COASTAL BARRIERS

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

SYSTEM UNIT (SU)

Most new Federal expenditures and financial assistance, including Federal flood insurance, are prohibited within System Units. ***Federally-funded projects within System Units require consultation with the Service.*** *Consultation is not required for projects using private, state, or local funds.*

UNIT	NAME	TYPE	SYSTEM UNIT ESTABLISHMENT DATE	FLOOD INSURANCE PROHIBITION DATE
D02B	Prudence Island	SU	11/16/1990	11/16/1990

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers
Name: Christine San Antonio
Address: 696 Virginia Road
City: Concord
State: MA
Zip: 01742
Email christine.sanantonio@usace.army.mil
Phone: 9783188621

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 05/09/2025 19:06:53 UTC
Project code: 2025-0094639
Project Name: Providence DMMP

Federal Nexus: yes
Federal Action Agency (if applicable): Army Corps of Engineers

Subject: Record of project representative's no effect determination for 'Providence DMMP'

Dear Christine San Antonio:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on May 09, 2025, for 'Providence DMMP' (here forward, Project). This project has been assigned Project Code 2025-0094639 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No effect

Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	No effect

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Roseate Tern *Sterna dougallii dougallii* Endangered

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2025-0094639 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

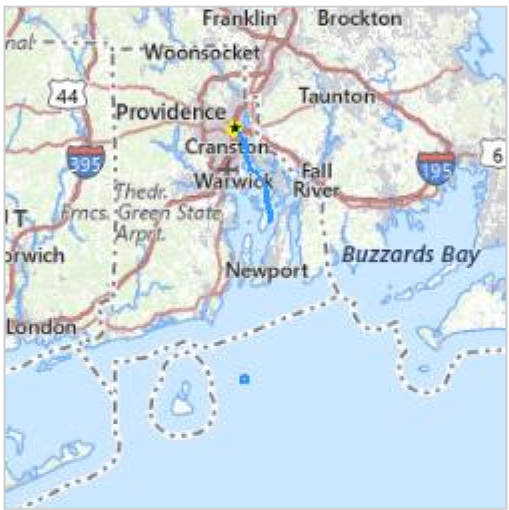
Providence DMMP

2. Description

The following description was provided for the project 'Providence DMMP':

> Dredged Material Management Plan for Providence, RI for immediate and future dredging needs. The DMMP presents a plan for the Providence River and Harbor FNP (Providence FNP) along with three adjacent shallow-draft FNPs (Pawtuxet Cove, Bullocks Point Cove, and Apponaug Cove) all located in the Providence River Estuary in southern Rhode Island.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.2267958,-71.38029070287723,14z



DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the species covered by this determination key. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No
2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No
3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No
4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No
5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes
6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes
8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No
9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No
10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No
11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

    No
12. Does the action area contain (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

    No
13. Will the action cause effects to a bridge?

    Note: Covered bridges should be considered as bridges in this question.

    No
14. Will the action result in effects to a culvert or tunnel at any time of year?

    No

15. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

16. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

17. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

18. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

20. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

21. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

22. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

23. Will the action include drilling or blasting?

    No

24. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

25. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

26. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

27. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

28. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

29. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

30. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

31. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Automatically answered
    No

32. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

33. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

34. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

35. Does the action area intersect the tricolored bat species list area?

    Automatically answered
    Yes

36. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

37. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
    (If unsure, answer ""Yes."")

    Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (Tillandsia usneoides), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    Yes

38. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers
Name: Christine San Antonio
Address: 696 Virginia Road
City: Concord
State: MA
Zip: 01742
Email christine.sanantonio@usace.army.mil
Phone: 9783188621

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 05/13/2025 14:32:50 UTC
Project code: 2025-0094639
Project Name: Providence DMMP

Federal Nexus: yes
Federal Action Agency (if applicable): Army Corps of Engineers

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Providence DMMP'

Dear Christine San Antonio:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on May 13, 2025, for “Providence DMMP” (here forward, Project). This project has been assigned Project Code 2025-0094639 and all future correspondence should clearly reference this number.

The Service developed the IPaC system and associated species’ determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northeast Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative effect(s)), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17). Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no further consultation with, or concurrence from, the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13]).

The IPaC results indicated the following species is (are) potentially present in your project area and, based on your responses to the Service’s Northeast DKey, you determined the proposed Project will have the following effect determinations:

Species	**Listing Status**	**Determination**
Roseate Tern (*Sterna dougallii dougallii*)	Endangered	No effect

Conclusion If there are no updates on listed species, no further consultation/coordination for this project is required for the species identified above. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project implements any changes which are final or commits additional resources.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and are not covered by this conclusion:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Northern Long-eared Bat *Myotis septentrionalis* Endangered
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

To complete consultation for species that have reached a “May Affect” determination and/or species may occur in your project area and are not covered by this conclusion, please visit the “New England Field Office Endangered Species Project Review and Consultation” website for step-by-step instructions on how to consider effects on these listed species and/or critical habitats, avoid and minimize potential adverse effects, and prepare and submit a project review package if necessary: https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

Please Note: If the Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) by the prospective permittee may be required. Please contact the Migratory Birds Permit Office, (413) 253-8643, or PermitsR5MB@fws.gov, with any questions regarding potential impacts to Eagles.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference the Project Code associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

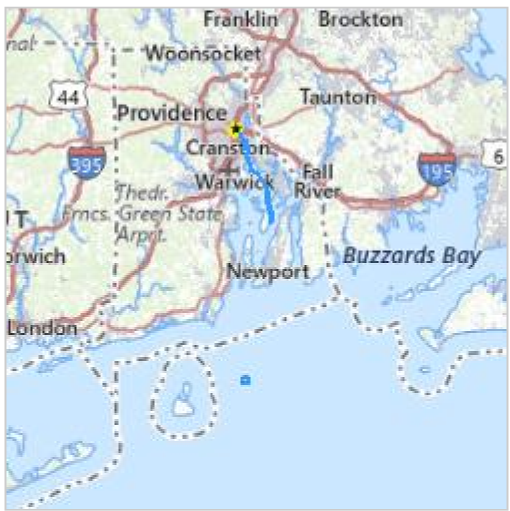
Providence DMMP

2. Description

The following description was provided for the project 'Providence DMMP':

> Dredged Material Management Plan for Providence, RI for immediate and future dredging needs. The DMMP presents a plan for the Providence River and Harbor FNP (Providence FNP) along with three adjacent shallow-draft FNPs (Pawtuxet Cove, Bullocks Point Cove, and Apponaug Cove) all located in the Providence River Estuary in southern Rhode Island.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.2267958,-71.38029070287723,14z



QUALIFICATION INTERVIEW

1. As a representative of this project, do you agree that all items submitted represent the complete scope of the project details and you will answer questions truthfully?

   Yes

2. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed species?

   Note: This question could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered, or proposed species.

   No

3. Is the action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

4. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead agency for this project?

   No

5. Are you including in this analysis all impacts to federally listed species that may result from the entirety of the project (not just the activities under federal jurisdiction)?

   Note: If there are project activities that will impact listed species that are considered to be outside of the jurisdiction of the federal action agency submitting this key, contact your local Ecological Services Field Office to determine whether it is appropriate to use this key. If your Ecological Services Field Office agrees that impacts to listed species that are outside the federal action agency's jurisdiction will be addressed through a separate process, you can answer yes to this question and continue through the key.

   Yes

6. Are you the lead federal action agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

   Yes

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)?

   No

8. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

9. Is the lead federal action agency the Natural Resources Conservation Service?

   No

10. Will the proposed project involve the use of herbicide where listed species are present?

    No

11. Are there any caves or anthropogenic features suitable for hibernating or roosting bats within the area expected to be impacted by the project?

    No

12. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **birds** (e.g., plane-based surveys, land-based or offshore wind turbines, communication towers, high voltage transmission lines, any type of towers with or without guy wires)?

    Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

    No

13. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **bats** (e.g., plane-based surveys, land-based or offshore wind turbines)?

    Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

    No

14. Will the proposed project result in permanent changes to water quantity in a stream or temporary changes that would be sufficient to result in impacts to listed species?

    For example, will the proposed project include any activities that would alter stream flow, such as water withdrawal, hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines? Projects that include temporary and limited water reductions that will not displace listed species or appreciably change water availability for listed species (e.g. listed species will experience no changes to feeding, breeding or sheltering) can answer "No". Note: This question refers only to the amount of water present in a stream, other water quality factors, including sedimentation and turbidity, will be addressed in following questions.

    No

15. Will the proposed project affect wetlands where listed species are present?

    This includes, for example, project activities within wetlands, project activities within 300 feet of wetlands that may have impacts on wetlands, water withdrawals and/or discharge of contaminants (even with a NPDES).

    No

16. Will the proposed project activities (including upland project activities) occur within 0.125 miles of the water's edge of a stream or tributary of a stream where listed species may be present?

    Yes

17. Will the proposed project directly affect a streambed (below ordinary high water mark (OHWM)) of the stream or tributary where listed species may be present?

    Yes

18. Will the proposed project bore underneath (directional bore or horizontal directional drill) a stream where listed species may be present?

    No

19. Will the proposed project involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds) where listed species may be present?

    No

20. Will the proposed project involve the removal of excess sediment or debris, dredging or in-stream gravel mining where listed species may be present?

    Yes

21. Will the proposed project involve the creation of a new water-borne contaminant source where listed species may be present?

    Note New water-borne contaminant sources occur through improper storage, usage, or creation of chemicals. For example: leachate ponds and pits containing chemicals that are not NSF/ANSI 60 compliant have contaminated waterways. Sedimentation will be addressed in a separate question.

    No

22. Will the proposed project involve perennial stream loss, in a stream of tributary of a stream where listed species may be present, that would require an individual permit under 404 of the Clean Water Act?

    No

23. Will the proposed project involve blasting where listed species may be present?

    No

24. Will the proposed project include activities that could negatively affect fish movement temporarily or permanently (including fish stocking, harvesting, or creation of barriers to fish passage).

    No

25. Will the proposed project involve earth moving that could cause erosion and sedimentation, and/or contamination along a stream or tributary of a stream where listed species may be present?

    Note: Answer "Yes" to this question if erosion and sediment control measures will be used to protect the stream.

    No

26. Will the proposed project impact streams or tributaries of streams where listed species may be present through activities such as, but not limited to, valley fills, large-scale vegetation removal, and/or change in site topography?

    No

27. Will the proposed project involve vegetation removal within 200 feet of a perennial stream bank where aquatic listed species may be present?

    No

28. Will erosion and sedimentation control Best Management Practices (BMPs) associated with applicable state and/or Federal permits, be applied to the project? If BMPs have been provided by and/or coordinated with and approved by the appropriate Ecological Services Field Office, answer "Yes" to this question.

    No

29. Is the project being funded, lead, or managed in whole or in part by U.S Fish and Wildlife Restoration and Recovery Program (e.g., Partners, Coastal, Fisheries, Wildlife and Sport Fish Restoration, Refuges)?

    No

30. Will the proposed project result in changes to beach dynamics that may modify formation of habitat over time?

    Note: Examples of projects that result in changes to beach dynamics include 1) construction of offshore breakwaters and groins; 2) mining of sand from an updrift ebb tidal delta; 3) removing or adding beach sands; and 4) projects that stabilize dunes (including placement of sand fences or planting vegetation).

    No

31. [Hidden Semantic] Is the project area located within the roseate tern AOI?

    Automatically answered
    Yes

32. If you have determined that the roseate tern is unlikely to occur within your project's action area or that your project is unlikely to have any potential effects on the roseate tern, you may wish to make a "no effect" determination for the roseate tern. Additional guidance on how to make this decision can be found in the project review section of your local Ecological Services Field Office's website. CBFO: https://www.fws.gov/office/chesapeake-bay-ecological-services/project-review ; MEFO: https://www.fws.gov/office/maine-ecological-services ; NJFO: https://www.fws.gov/office/new-jersey-ecological-services/new-jersey-field-office-project-review-guide ; NEFO: https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review#Step5 ; WVFO: https://www.fws.gov/office/west-virginia-ecological-services/project-planning. If you are unsure, answer "No" and continue through the key.

    Would you like to make a no effect determination for the roseate tern?

    No

33. Is this an aquaculture project?

    No

34. Is this a coastal project that has an action area that is less than one-half acre?

    Note: These projects may include marker buoys, moorings, navigational structures, docks, piers, floats, boat ramps, private dredging, boat houses, lobster pound, or shoreline work.

    No

35. Will project activities be conducted during the time of year when roseate terns are likely to be present?

    Note: roseate terns a likely to be present in Maine May 1 through Sept. 1; and in Connecticut, Massachusetts, New Hampshire, and Rhode Island April 15 through Oct. 15.

    Yes

36. Will the proposed project affect suitable habitat for roseate terns nesting (barrier islands with dense vegetation or rocks to serve as shelter)?

    No

37. Will the proposed project affect suitable habitat for roseate terns foraging (nearshore shallow waters, shoals and shoals in offshore waters)?

    No

38. Will the proposed project affect suitable habitat for roseate terns roosting (rocky habitat on coastal islands)?

    No

39. Will the proposed project affect suitable habitat for roseate terns staging (sandy barrier beaches, often on distal tips, primarily in NY and NE)?

    No

40. Will the proposed project involve ground disturbance (e.g., vehicles, tracked equipment, excavating, grading, placing fill material, etc.) in roseate tern foraging, nesting, roosting or staging habitat while terns are likely to be present (April1 - September 30)?

    No

41. Does the action area include suitable habitat for migrating roseate terns (sandy beaches, coastal islands)?

    No

42. [Semantic] Does the project intersect the Virginia big-eared bat critical habitat?

    Automatically answered
    No

43. [Semantic] Does the project intersect the Indiana bat critical habitat?

    Automatically answered
    No

44. [Semantic] Does the project intersect the candy darter critical habitat?

    Automatically answered
    No

45. [Semantic] Does the project intersect the diamond darter critical habitat?

    Automatically answered

    No

46. [Semantic] Does the project intersect the Big Sandy crayfish critical habitat?

    Automatically answered

    No

47. [Hidden Semantic] Does the project intersect the Guyandotte River crayfish critical habitat?

    Automatically answered

    No

48. Do you have any other documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

1. Approximately how many acres of trees would the proposed project remove?

   0

2. Approximately how many total acres of disturbance are within the disturbance/ construction limits of the proposed project?

   0

3. Briefly describe the habitat within the construction/disturbance limits of the project site.

   Providence River FNP, CAD Cells, and RISDS - below MLLW

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers
Name: Christine San Antonio
Address: 696 Virginia Road
City: Concord
State: MA
Zip: 01742
Email christine.sanantonio@usace.army.mil
Phone: 9783188621

This page intentionally left blank.

ESSENTIAL FISH HABITAT ASSESSMENT
FOR MAINTENANCE DREDGING OF THE
PROVIDENCE RIVER AND HARBOR FEDERAL NAVIGATION PROJECT

January 2026

Prepared by

U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, Massachusetts 01742

Table of Contents

1. General Project Information

Date Prepared:	January 2026
Project/ Application Number:	N/A
Project Name:	Providence River and Harbor Maintenance Dredging
Project Applicant:	U.S. Army Corps of Engineers, New England District
Federal Action Agency:	U.S. Army Corps of Engineers, New England District
Fast-41:	No
Action Agency Contact Name:	Matthew Mroczka
Contact Phone:	978-318-8537
Contact Email:	matthew.e.mroczka@usace.army.mil : U.S. Army Corps of Engineers New England District 696 Virginia Road Concord, Massachusetts 01742-2751

2. Project Description

Location (Approximate - WGS 84): Narragansett Bay: 41.6000/-71.3500
Rhode Island Sound Disposal Site:
41.238918/-71.369543

Body of Water (HUC-12): Narragansett Bay – Frontal Rhode Island Sound (0109000409)

Project Purpose:

The purpose of dredging the Providence River and Harbor Federal Navigation Project (FNP) is to restore and maintain the projects navigation efficiency and safety for the for deep draft vessel traffic entering and leaving the Port of Providence. Navigation in the Providence FNP along with three adjacent shallow-draft Federal Navigation Projects (FNPs), Pawtuxet Cove, Bullocks Point Cove, and Apponaug Cove is required to be maintained by USACE by periodic dredging of the channel and facilities in order to meet channel utilization requirements. Recent utilization analysis and engineering specifications for existing and expected commercial vessel use in the Providence FNP show that dredging is required to full congressionally authorized depths of -40 feet MLLW, along with full channel and turning basin dimensions. The Providence FNP constitutes the principal commercial waterway in Rhode Island, providing navigation to the Port of Providence (Figure 1). Deep-draft traffic in the FNP Channel consists mainly of tankers, barges, and general cargo vessels, typically with drafts in excess of 39 ft fully loaded.

The last significant dredging in the Federal Navigation Channel was completed in 2005, in which 4.3-million cy of sediment was dredged to remove shoaling and maintain the channel back to the authorized depth of -40 feet MLLW. The full width of turning basin was not dredged.

Sedimentation in the channel over the last 18 years has resulted in significant reductions in channel water depth and channel width. A current condition survey (conducted in 2020) of the Providence FNP shows that shoaling up to several feet deep has occurred in many locations of FNP (Figures 2 and 3), resulting in the shallowing and narrowing of the projects dimensions. To bring the FNP back to federally authorized dimensions, over 2,000,000 cubic yards (cy) of shoaled material will need to be dredged and placed in several suitable placement locations. The remaining open capacity of the existing dredged material disposal sites cannot accommodate this quantity (2,000,000 cy) of dredged material from this maintenance dredging and from future periodic maintenance dredging's that will take place over the next 20 years.

A Dredged Material Management Plan (DMMP) which identifies multiple placement locations for the dredged material, has been developed. The recent channel utilization analysis provides evidence that the proposed O&M dredging of the FNP will eliminate the existing safety hazards associated with the shoaling of the channel and result in cost efficiencies for shippers to the port. Without dredging, navigation conditions in the channel will continue to deteriorate, resulting in greater restricted access for large vessels entering the Port of Providence. Eventually, this loss of access will result in decreasing the ports economic value to the region.

Project Description:

The U.S. Army Corps of Engineers (USACE), New England District proposes maintenance dredging of the Providence River and Harbor Federal Navigation Project (Providence FNP) in Providence, Rhode Island. Hydrographic surveys identified shoaling of the FNP channel, which creates unsafe navigation conditions since shallow conditions increase the risk of vessel groundings. Maintenance dredging of the Providence FNP is required to restore the channel to its full authorized depth, plus allowable overdepth, and provide safe navigation. Per regulations, USACE has completed a Dredged Material Management Plan (DMMP) which serves as the decision document for the planned maintenance dredging and the placement of the dredged material from the 16.8-mile-long Providence FNP. An Environmental Assessment (EA) has also been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. This evaluation of the Clean Water Act Section 404(b)(1) guidelines is being performed for the placement of sediments associated with the project.

The Providence River and Harbor FNP was originally adopted in 1852 and was modified by 17 subsequent authorizations. The existing project was authorized by the River and Harbor Act of 1965, in accordance with reports printed in Senate Document #93, 88th Congress, 2d Session, dated August 18, 1964. This project authorized deepening the main channel and turning basin in the Providence River to 40 feet. A complete list of authorizations is included in the DMMP.

The proposed project described in the DMMP involves two complete maintenance dredging cycles Providence FNP over a 20-year period. Cycle-One is expected to be constructed in 2027-2029 and Cycle-Two is expected to be constructed in 2047-2049. Each dredging cycle will require the construction of an access channel confined aquatic disposal (CAD) cell for the placement of unsuitable dredged material generated from the maintenance dredging. The CAD cells have been sized to also receive unsuitable material from three adjacent shallow-draft Federal navigation projects (FNPs) (Bullocks Cove, Pawtuxet Cove, and Apponaug Cove) and receive additional dredged material from local non-Federal sources (at full non-Federal expense).

The CAD cells will be located in the Edgewood Shoals area of Narragansett Bay adjacent to the Fuller Rock Reach of the Providence FNP. For Cycle One, the Edgewood Shoals North (ESN) CAD cell will be constructed in 2027, and will be sized for the placement of 2,072,933CY of unsuitable material from Providence

FNP, 65,240 CY of unsuitable material from the three adjacent FNPs, 300,000 CY for additional material from non-Federal dredging sources, future starter cell materials from a Cycle-Two CAD cell, and a final three-foot cap of suitable material for restoration and closeout. The ESN CAD cell construction will cover a 55-acre area and generate approximately 37,000 CY of unsuitable material and 3,300,000 CY of suitable material.

The suitable material generated from the ESN CAD cell construction can be beneficially used. Approximately 389,000 CY of material (37,000 CY unsuitable, capped by 352,000 CY suitable) from ESN CAD cell will be placed for beneficial use in the adjacent Port Edgewood Basin, a former Department of Defense navigation port. Material placed at Port Edgewood Basin will cover existing unsuitable sediments in the basin as well as change the bathymetry which will alleviate water circulation and water quality issues in the basin. Approximately 1,825,000 CY of suitable material will be placed beneficially at the previously used Prudence Island Disposal Site to cover dredged material mounds at the site that contain unsuitable material. Additionally, approximately 113,000 CY of suitable material will be used to cap and restore bottom bathymetry at five open CAD cells in the Fox Point Reach of the FNP that were constructed for prior maintenance dredging activity in 2005. The remaining 1,000,000 CY of suitable material from the ESN CAD cell will be placed at the Rhode Island Sound Disposal Site (RISDS).

Following the construction of the ESN CAD cell, the Providence FNP will be dredged in the year 2028. The ESN CAD cell will remain open for approximately 20 years for placement of additional Federal and non-Federal dredging placement needs and then be closed out and capped with suitable material excavated from the Cycle-Two CAD cell in 2047.

Maintenance dredging Cycle Two is expected to be implemented in 2047-2048. Based upon shoaling rate calculations, approximately 1,990,000 CY will be dredged from the Providence FNP in Cycle Two. To place this material, the Edgewood Shoals South (ESS) CAD cell will be constructed south of the ESN CAD cell. The ESS CAD cell will cover a 55-acre area and be large enough to accommodate the predicted dredging needs of the Providence FNP in 2048, 44,320 CY estimated capacity for maintenance dredging of the three adjacent shallow-draft FNPs, 300,000 CY of non-Federal dredging projects, capacity for future starter cell placement, and final capping with three feet of clean material. The ESS CAD cell will remain open for approximately 20 years before capping and closeout.

The construction of the ESS CAD cell will generate approximately 3,000,000 CY of dredged material. The approximately 38,000 CY of unsuitable material from the ESS CAD cell will be placed in the Cycle-One (ESN) CAD cell, followed by capping and closure of the ESN CAD cell with approximately 300,000 CY of suitable material from the ESS CAD cell construction. Additionally, approximately 130,000 CY of suitable material could be placed to cap and close out the remaining two open CAD cells at Fox Point Reach. The remaining suitable material will be placed at the RISDS if no additional beneficial use alternatives can be found in 2047-2048. Following the construction of the ESS CAD cell, the Providence FNP will be dredged in the year 2048. The ESS CAD cell will remain open for approximately 20 years for placement of additional Federal and non-Federal dredging placement needs and then be capped and closed out in the year 2067.

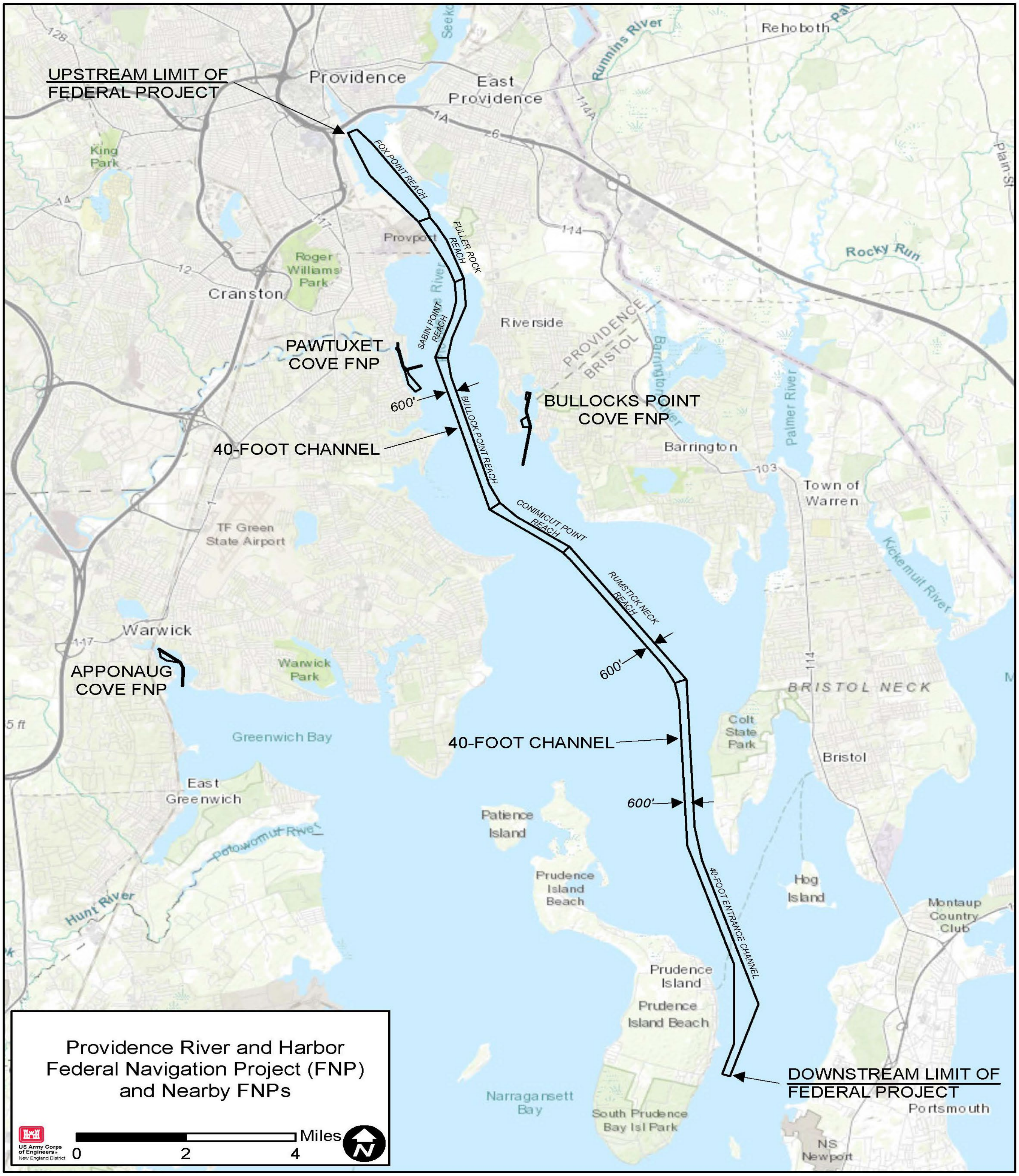


Figure 1. Providence River and Harbor Federal Navigation Project Features and Nearby Federal Navigation Projects.

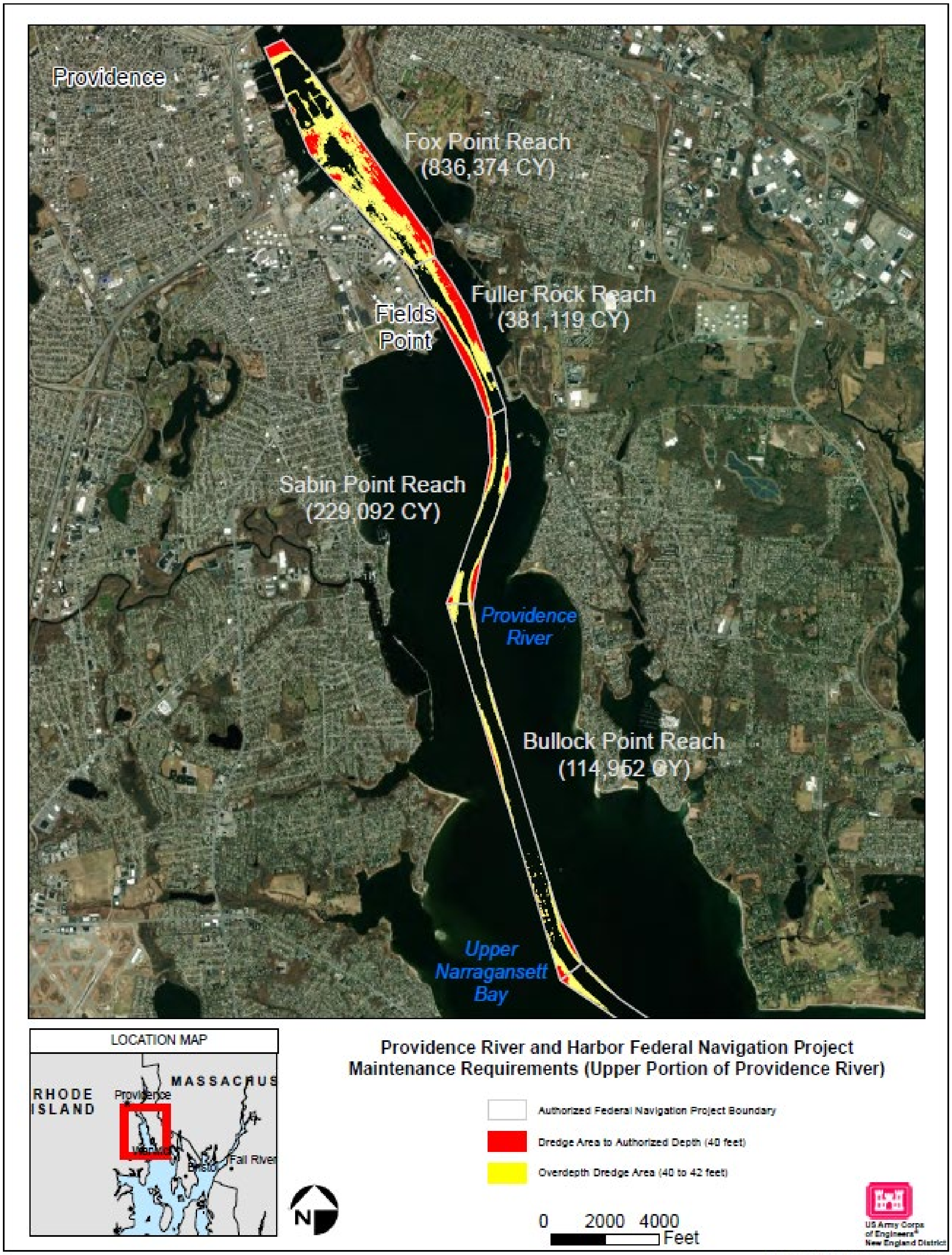


Figure 2. Shoaled areas of Providence River and Harbor FNP (northern reaches).

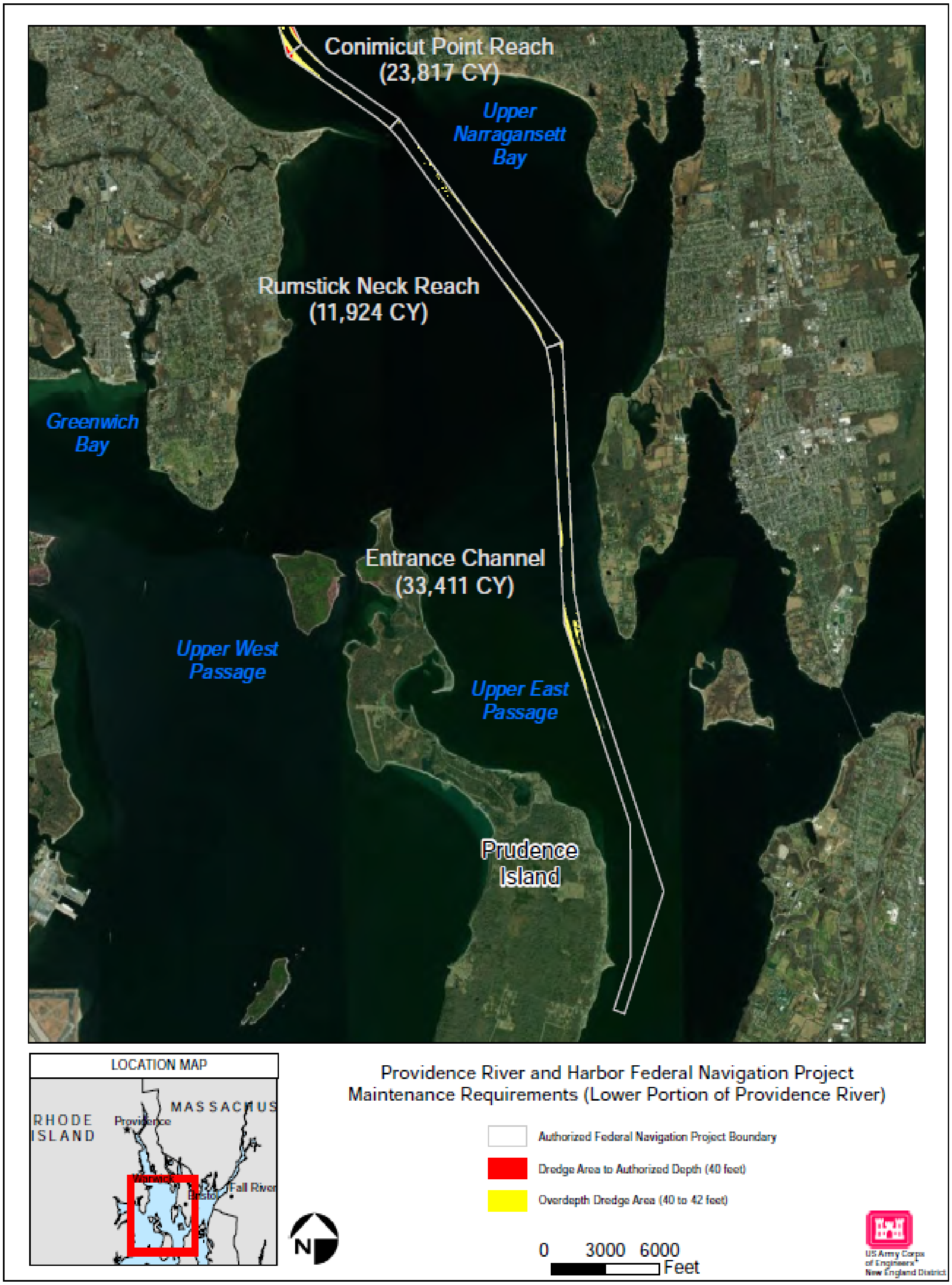
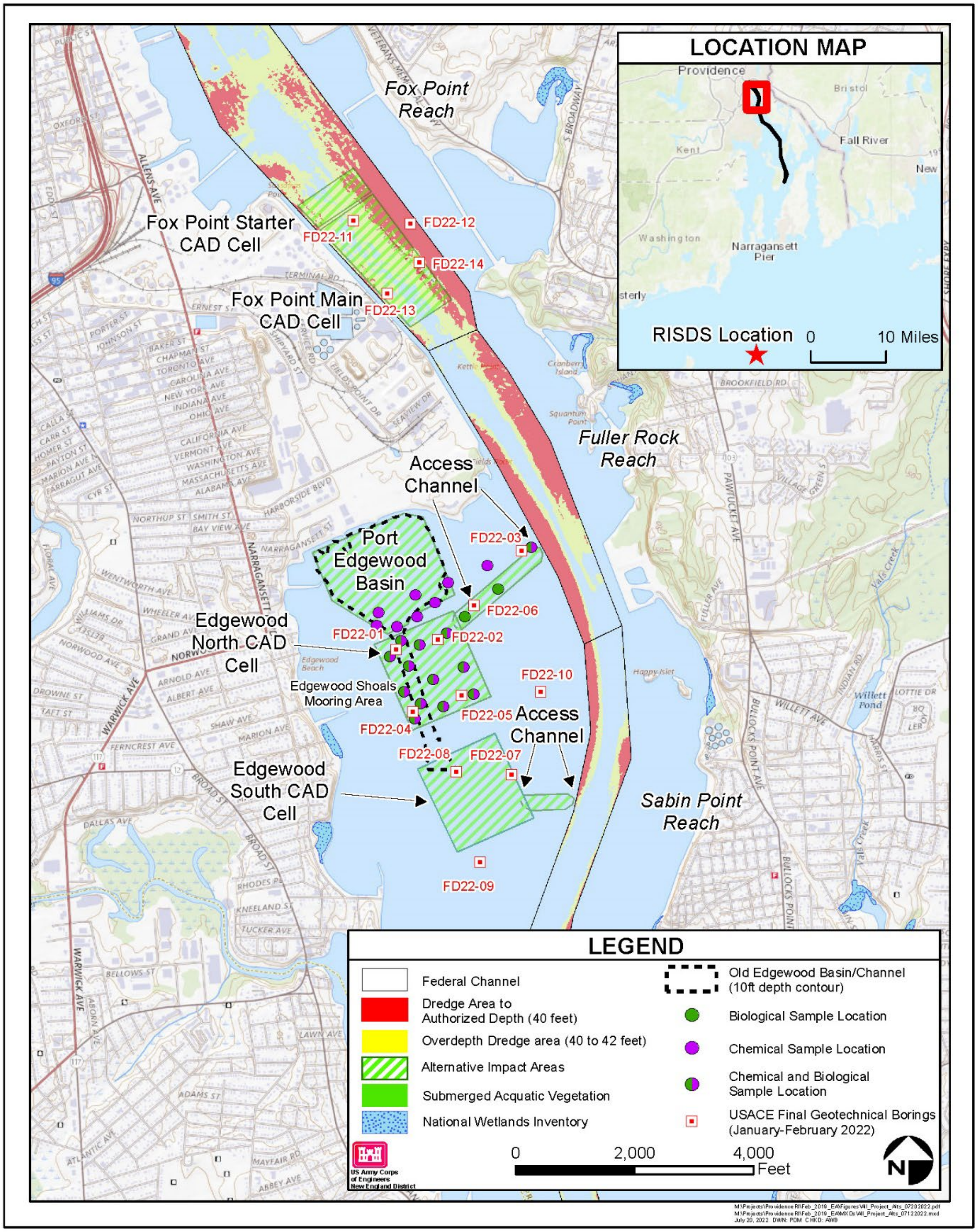


Figure 3. Shoaled areas of Providence River and Harbor FNP (southern reaches).



CAD Cell Alternative Impact Areas Providence DMMP

Figure 4. Edgewood Shoals North CAD cell, Edgewood Shoals South CAD cell, access channels, and Port Edgewood Basin.

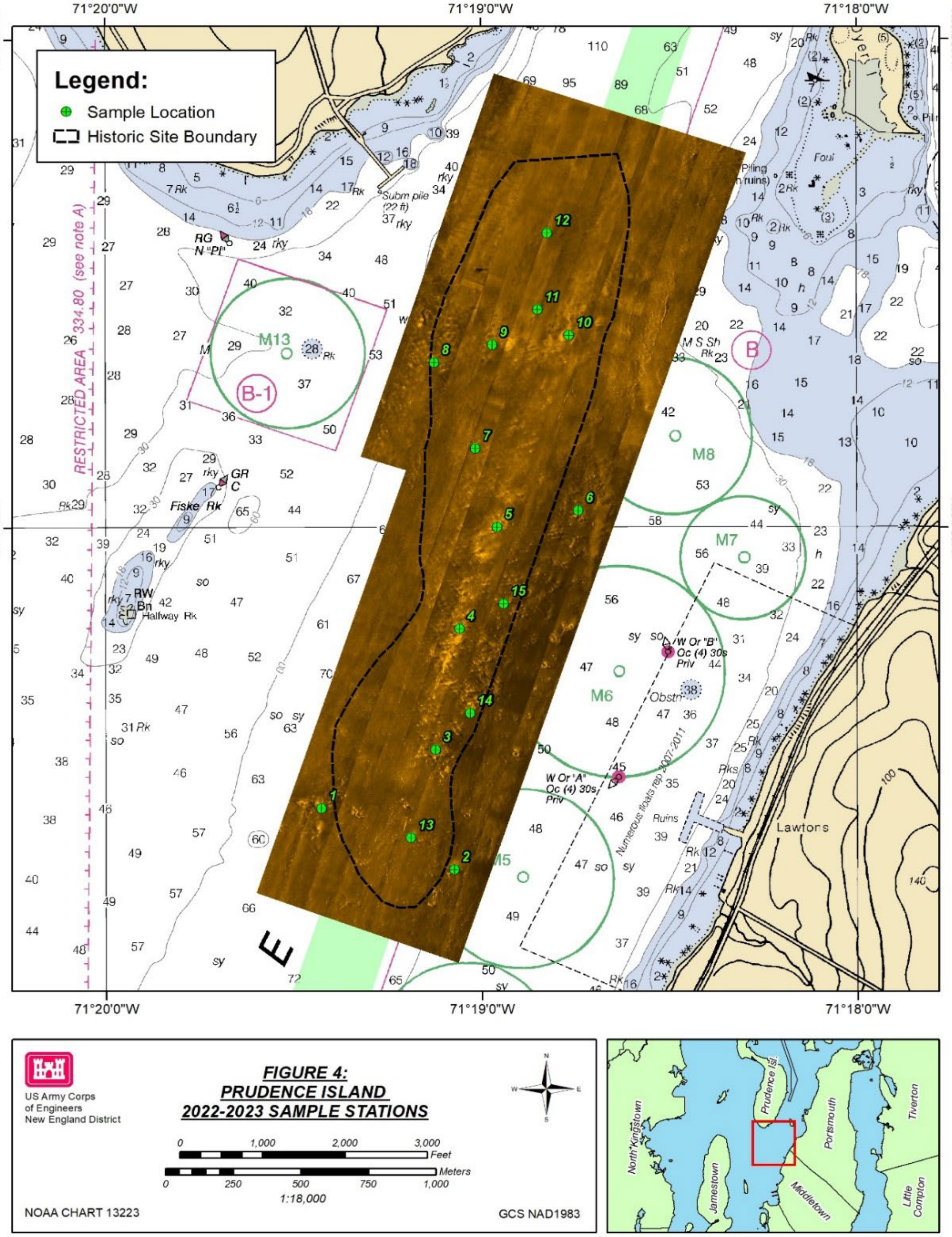


Figure 5. Prudence Island Disposal Site Side Scan Sonar Image.

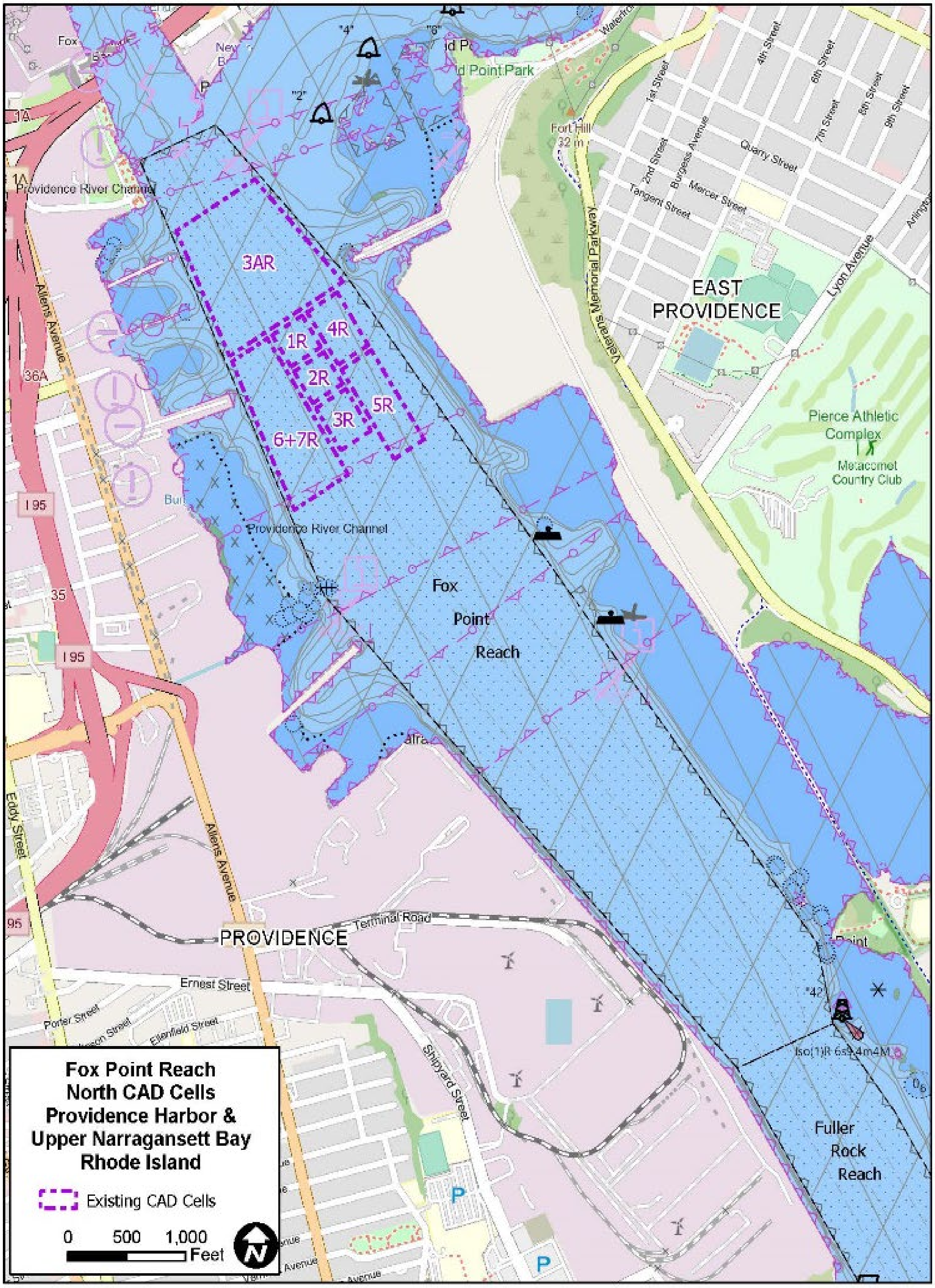
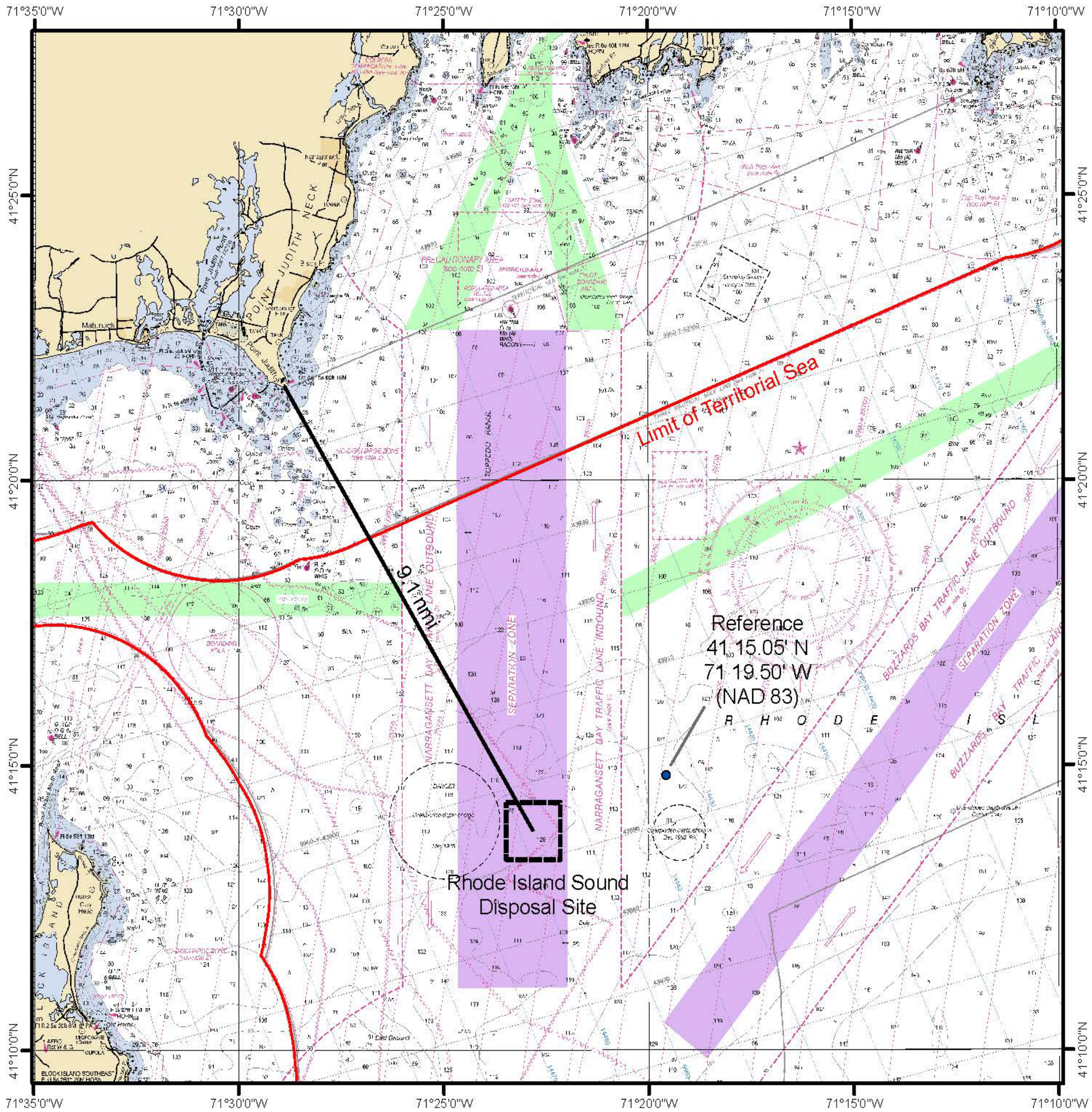


Figure 6. Fox Point Reach North Confined Aquatic Disposal Cells Location.



RHODE ISLAND SOUND DISPOSAL SITE

Description: The Rhode Island Sound Disposal Site (RISDS) was designated in December 2004. This 3.24 km^2 (1 nautical mi^2) site is centered at 41° 13.850' N, 71° 22.817' W (NAD 83). It is located approximately 9.1 nmi (16.8 km) south-southeast of Point Judith, Rhode Island, and approximately 11.3 nmi (21 km) south of the entrance to Narragansett Bay. It is situated within the Separation Zone for the Narragansett Bay Inbound and Outbound Traffic Lanes and lies within a topographic depression, with water depths from 36 to 39 m. The authorized disposal point (within the overall disposal area) is specified for each dredging project in other project documents.

D A M O S

DISPOSAL AREA MONITORING SYSTEM

SCALE 1:195,000

Kilometers

1 0 1 2 3 4 5 6 7 8 9

1 0 1 2 3 4

Nautical Miles

NOTE: This chart is not intended for use in navigation.

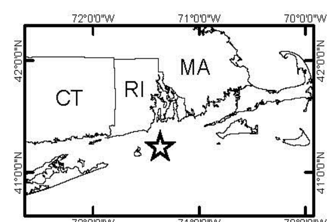


Figure 7. Rhode Island Sound Disposal Site Location

Anticipated Duration of In-Water Work including planned Start/End Dates, and any seasonal restrictions proposed to be included in the schedule:

The anticipated work to perform dredging within the FNP reaches and the CAD cells in Edgewood Shoals areas will use the time of year restrictions stated below in Table 1.

Table 1. Time of Year Restrictions for Dredging the Providence River and Harbor Federal Navigation Project Reaches and for Material Placement at Disposal Sites.

Location	Restriction Description	Time of Year Restriction											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fox Point Reach	Winter Flounder larvae												
	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												
Fuller Rock Reach	Winter Flounder larvae												
	585-foot buffer between FNP & Watchemoket Rock Nesting species of State Concern				X	X	X	X	X	X			
	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												
Sabin Point Reach	Avoid quahog spawning areas (between Sabin Point and Conimicut Point)						X	X					
	Winter Flounder larvae												
	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												
Bullock Point Reach	Winter Flounder larvae												
	Avoid quahog spawning areas (between Sabin Point and Conimicut Point)						X	X					
	Avoid quahog commercial shellfishing activities			X	X	X	X	X	X	X	X		
	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												
Conimicut Point Reach	Winter Flounder larvae												
	Avoid quahog spawning areas (between Sabin Point and Conimicut Point)						X	X					
	Avoid quahog commercial shellfishing activities			X	X	X	X	X	X	X	X		
	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												
Rumstick Neck Reach	Conditional Shellfishing Area (only work April 1 to April 30)	X	X	X		X	X	X	X	X	X	X	X
	Winter Flounder larvae												
	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												
Entrance Channel	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												
	Winter Flounder larvae												
Prudence Island Disposal Site	No restrictions												
Rhode Island Sound Disposal Site	No restrictions												
Edgewood Shoals (CAD cells & Access Channels)	Winter Flounder larvae												
	Horseshoe crabs moving to/from spawning beaches Maintain 750-foot buffer from shore												

Legend	
Dredging and Material Placement Prohibited	X
Dredging and Material Placement Prohibited if bottom elevation shallower than -5-meter MLLW	
Dredging and Material Placement Allowed	
Dredging with Restrictions	

3. Site Description

Is the project in designated EFH?	Yes
Is the project in designated HAPC?	Yes
Does the project contain any Special Aquatic Sites?	No
Is this coordination under FWCA only?	No

Total area of impact to EFH:

According to the latest bathymetry survey conducted by USACE in 2020, the total shoaled areas to be dredged (allowed plus overdepth) within the FNP is 373 acres. The area to be dredged at the Edgewood Shoals North CAD is 22 acres, and the access channel is 5 acres, for a total dredge area of 400 acres.

The placement areas (Port Edgewood Basin, Edgewood Shoals North CAD, RISDS and PIDS) are 65 acres, 22 acres, 140 acres, and 377 acres respectively, for a total placement area of 604 acres.

Therefore, the maximum total area of impact to EFH is 1,004 acres.

Total area of impact to HAPC:

The Providence River FNP, Edgewood Shoals Basin, Edgewood Shoals North CAD cell, and access channel fall within the Inshore 20m Juvenile Cod and summer flounder HAPC. Therefore, the maximum total area of potential impact to HAPC is 465 acres.

Current range of water depths:

The FNP in the Providence River consists of a 16.8-mile-long channel that is 40 feet deep at MLLW beginning at the head of Providence Harbor and following the river on a southerly course to deep water in Narragansett Bay near Prudence Island. The channel is generally 600 feet wide except for the Providence Harbor reach located between Fox Point and Fields Point (near the Providence-Cranston city line), where it has varying widths up to 1,700 ft.

Edgewood Shoals is a natural shallow area in the Providence River located between Fields Point and the mouth of the Pawtuxet River. The eastern edge of the shoal abuts the 40-foot FNP channel. A 13-foot channel and basin was dredged through the shoal in the early 1940s to provide access to a shipyard commissioned by the U.S. Maritime Commission as part of the Nation’s Emergency Shipbuilding Program. This existing channel has been allowed to shoal in and recent nautical charts indicate a reported depth of 8 feet (USACE, 2021a).

The ambient seafloor at RISDS is approximately 37 m (121 ft) deep. A berm was observed in 2020 sampling efforts along the western side of the site, curling northeast to connect to a large mound centered along the northern edge of the site. The berm was approximately 1.6 km (1 mile) in length, varied in width, and rose 1 to 2 m (3 to 6 ft) above the seafloor. RISDS seafloor features, including the berm and individual mounds were formed by dredged material placement. For more detailed information, please see DAMOS Monitoring Survey at the Rhode Island Sound Disposal Site May/June 2020 (USACE, 2021b).

Salinity range:

The concentration of salts in estuarine water reflects the volume of freshwater that is mixing with the saltwater that moves into Narragansett Bay from the ocean. The flows of freshwater from surface runoff, rivers, and wastewater discharges can carry pollutants into the Bay. Stations near the rivers that flow into upper Narragansett Bay tend to report lower salinity than those in lower Narragansett Bay. The mixing of freshwater inputs with seawater results in salinities in Narragansett Bay that range between 24 ppt in the Providence River and 32 ppt at the mouth of the Bay (Kremer and Nixon, 1978; Raposa, 2016).

Water temperature range:

In Narragansett Bay and the FNP, the warmest water temperature is in August with an average around 70°F / 21.1°C. The coldest month is February with an average water temperature of 37.9°F / 3.3°C (seatemperature.org, 2022a). For Rhode Island Sound (the ocean off of Newport, RI), temperatures range from 36°F / 2°C to 70°F / 21°C (seatemperature.org, 2022b).

4. Habitat Types

Substrate Volumes

Table 2. Substrate Volumes to be Dredged and Placed

Habitat Location	Habitat Type	Approx. Total Impacts (cy)	Temporary Impacts (cy)	Approx. Permanent Impacts (cy)
DREDGE				
Estuarine (dredged from FNP)	Substrate (silt)	2M	0	2M
Estuarine (dredged from Edgewood Shoals North CAD)	Substrate (silt)	3M	0	3M
Estuarine (dredged from access channel)	Substrate (silt)	250k	0	250k
PLACEMENT				
Estuarine (placed in Port Edgewood Basin)	Substrate (silt)	400k	0	400k
Estuarine (placed in Edgewood Shoals North CAD)	Substrate (silt)	2.6M	0	2.6M
Marine (placed at RISDS)	Substrate (silt)	2.8M	0	2.8M
Estuarine (Placed at PIDS)	Substrate (silt)	1.8M	0	1.8M

Submerged Aquatic Vegetation (SAV)

SAV Present? No

Details:

No SAV present within any of the project areas.

Sediment Characteristics

General Description of the Sediment Composition for the Providence River FNP:

In 2013, sediment samples from 24 individual stations in the Providence River were analyzed for grain size, total solids, and percent moisture (Table 3). Sediment samples were collected to project depth (authorized depth plus two feet of overdepth) or refusal from 24 stations using an SDI VibeCore-D electric vibracorer.

Water depths at the sample stations ranged from 37.5 to 39.2 feet MLLW. Sediments collected throughout the FNP consisted of poorly graded medium to fine sand with silt. Samples collected and analyzed for sediment grain size indicated that these sediments contain between and between 66% and 97% coarse grained material (cobble, gravel, sand) and between 3 and 34% fines (*i.e.*, silt and clay). A noticeable petroleum odor was observed in sediments from multiple stations in the upper portion of the FNP (B, G, E, F, J, N, O, P, Q, R). In addition, sediments collected from station V smelled strongly of sewage (USACE, 2013).

Table 3. Summary of Grain Size and Moisture Content Results for Providence River FNP

Sample ID	% Cobble	% Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Total Fines	% Moisture
B	0.1(U)	2.19	12.5	36.6	33.6	15.1	66.4
D	0.1(U)	2.44	8.45	31.3	36.9	20.9	62.4
E	0.1(U)	0.1(U)	1.52	34.1	38.3	26.1	67.3
F	0.1(U)	0.1(U)	2.8	41.1	51.6	4.45	70.8
G	0.1(U)	2.58	16.3	49.4	28.8	2.88	68.2
H	0.1(U)	0.46	7.28	43.6	27.4	21.3	69.4
I	0.1(U)	0.91	5.21	47.3	36.2	10.4	63.8
J	0.1(U)	0.99	11.1	46.2	37.4	4.29	67.1
K	0.1(U)	0.1(U)	7.57	43.6	34.3	14.5	68.4
L	0.1(U)	0.32	10.4	45.1	30.9	13.3	66.5
M	0.1(U)	0.1(U)	3.5	42.9	33.7	19.9	66.1
N	0.1(U)	0.46	9.59	41.5	28	20.5	65.4
O	0.1(U)	0.1(U)	2.52	40.8	29.8	27	69.6
P	0.1(U)	0.1(U)	1.9	34.7	29.3	34.1	63.8
Q	0.1(U)	2.46	12.8	43.2	23.1	18.4	63.9
R	0.1(U)	0.1(U)	9.45	43.6	27.3	19.6	66.5
S	0.1(U)	3.71	14.6	40.3	24.1	17.4	65.1
T	0.1(U)	0.62	11	39.2	28.8	20.4	65.2
U	0.1(U)	5.7	22.2	42.8	24.2	5.09	63.3
V	0.1(U)	0.1(U)	8.48	45.8	42.8	2.87	67.6
W	0.1(U)	1.03	19.9	42.8	27.2	9.11	61.2
X	0.1(U)	1.6	20.3	39.7	24.3	14.1	64.7
Y	0.1(U)	5.18	18	35.4	28.1	13.3	42.9
Z	0.1(U)	6.11	16.4	35.6	23.6	18.3	44.2

General Description of the Sediment Composition for Edgewood Shoals:

Table 4. Summary of Grain Size and Moisture Content Results for Edgewood Shoals

Substrate Type:	Present at Site?	Approx. percentage of Total Substrate at Site:
Silt/Mud (<0.063mm)	Yes	51%
Sand (0.063-2mm)	Yes	35%
Granule/ Pebble (2-64mm)	Yes	14%
Cobble (64-256mm)	No	0%
Rocky: Boulder (>4096mm)	No	0%
Rocky: Coral	No	0%
Bedrock	No	0%

General Description of the Sediment Composition for RISDS:

Rhode Island Sound is a complex area including depositional and non-depositional environments, which dictate the structure, stability, and nature of the benthic community. Some areas may reflect a combination of erosional and depositional processes (textural patchiness; Knebel et al., 1982), which provides a variety of substrate types for benthic habitat. The bottom types in Rhode Island Sound range from silty sand (unconsolidated/depositional), to sand-rippled (reworked/sorted sediments), to hard stone and rock cobble (erosional/high energy/ non-depositional).

Sediments at the RISDS are mainly comprised of fine sands (45 percent to 96 percent sand), with some areas of coarse material such as cobbles or pebbles (USACE, 2004). Concentrations of TOC (Total Organic Carbon) were relatively low (<0.8 percent) in surface sediments and were strongly correlated with grain size. Concentrations of organic contaminants (i.e., total PAH - polycyclic aromatic hydrocarbons) and most metals correlated well with TOC but not with grain size. For example, lower chemical concentrations were found in sediments with low TOC and higher chemical concentrations were found in sediments with higher TOC. However, sediments contained slightly higher chemical concentrations than expected for sediments with small amounts of fine material (<15 percent fines; USACE, 2004).

General Description of the Sediment Composition for PIDS:

Placement of clean material from the construction of the Edgewood Shoals CAD cell at PIDS will cover the historic unsuitable dredged material and improve sediment quality at the site by sequestering the elevated metals and organic compounds in the existing material from the environment. The PIDS restoration effort will isolate the contaminated sediment from the biologically active zone and improve benthic habitat quality for this portion of Narragansett Bay. The material to be placed at PIDS is predominately silt, which is similar to existing conditions at the site. Therefore, the surficial sediments at PIDS will remain silt following dredged material placement.

Anadromous Fish Migratory or Spawning Habitat

In addition to the various species that use the Providence River as spawning and nursery habitat, several anadromous fish runs are located in the Providence River/Upper Bay system. These populations are believed to be self-sustaining RIDEM, personal communication, as reported in USACE, 2001. River herring (*Alosa aestivalis* and *A. psuedoharengus*) spawn at the base of the Omega Pond dam in the Ten Mile River system and Woonasquatucket River. River herring have historically been stocked in Brickyard Pond and Echo Lake in the Mussachuck Creek system. Spring Green Brook and Old Mill Creek (particularly Buckeye Brook and Warwick Pond) also appear to support self-sustaining populations of river herring. Both American shad (*Alosa sapidissima*) and river herring have been reported in the Warren River (USACE, 2001). The Blackstone River also serves as a spawning location (USACE, 2001). These locations are not within the dredge or placement areas and no impact to EFH, or spawning habitat is anticipated.

5. EFH and HAPC Designations

The following table provides a summary of Essential Fish Habitat Designations in the Providence River, Upper Narragansett Bay, Edgewood Shoals, Prudence Island and RISDS. The source of information included is the National Marine Fisheries Service (NMFS) EFH Mapper.

Table 5. Species and their respective life stages having designated Essential Fish Habitat in the:

(P) Providence River FNP including Edgewood Shoals Disposal Sites (ESDS)
(N) Narragansett Bay including Prudence Island Disposal Site (PIDS)
(R) Rhode Island Sound Disposal Site (RISDS).

Species	**Eggs**	**Larvae**	**Juveniles**	**Adults**
Albacore Tuna (*Thunnus alalunga)*			R	R
Atlantic Butterfish (*Peprilus triacanthus)*	P, N	P, N, R	P, N, R	P, N, R
Atlantic Cod (*Gadus morhua)*	P, N, R	P, N, R	P, N, R	R
Atlantic Herring (*Clupea harengus)*		P, N	P, N, R	P, N
Atlantic Mackerel (*Scomber scrombrus)*	P, N, R	P, N, R	P, N	P, N
Atlantic Sea Scallop *(Placopecten magellanicus)*	R	R	R	R
Basking Shark (*Cetorhinus maximus)*			R	R
Black Sea Bass (*Centropristis striatus)*			P, N, R	P, N, R
Bluefin Tuna (*Thunnus thunnus)*			R	R
Bluefish (*Pomatomus saltatrix)*		R	P, N, R	P, N, R
Common Thresher Shark (*Alopias vulpinus)*			R	R
Haddock *(Melanogrammus aeglefinus)*		R		

Little Skate (*Leucoraja erinacea)*			P, N, R	P, N, R
Longfin Inshore Squid (*Doryteuthis pealeii)*	R		P, N	P, N
Monkfish (*Lophius americanus)*	R	R		
Ocean Pout (*Zoarces americanus)*	N, R		R	N, R
Pollock (*Pollachius virens*)			P, N, R	
Red Hake (*Urophycis chuss)*	P, N, R	P, N, R	P, N, R	P, N
Sand Tiger Shark (*Carcharias taurus)*			P, N, R	
Sandbar Shark *(Carcharhinus plumbeus)*			R	R
Scup (*Stenotomus chrysops)*	P, N	P, N	P, N, R	P, N, R
Shortfin Mako Shark *(Isurus oxyrinchus)*			R	R
Silver Hake (*Merluccius bilinearis)*	P, N, R	P, N, R		R
Skipjack Tuna (*Katsuwonus pelamis)*				R
Smooth Dogfish (*Mustelus canis)*			R	R
Spiny Dogfish (*Squalus acanthias)*			R	R
Summer Flounder (*Paralichthys dentatus)*	R	P, N, R	P, N	P, N, R
White Hake (*Urophycis tenuis)*		R	R	
White Shark (*Carcharodon carcharias)*			P, N, R	R
Windowpane Flounder (*Scophthalmus aquosus)*	P, N, R	P, N, R	P, N, R	P, N, R
Winter Flounder (*Pseudopleuronectes americanus)*	P, N	P, N, R	P, N, R	P, N, R
Winter Skate (*Leucoraja ocellata)*			P, N, R	P, N, R
Witch Flounder *(Glyptocephalus cynoglossus)*		R		
Yellowfin Tuna (*Thunnus albacares)*			N, R	
Yellowtail Flounder (*Limanda ferruginea)*	R	R	R	R

6. Habitat Areas of Particular Concern (HAPCs)

Select all that apply	HAPC Designation	Select all that apply	HAPC Designation
X	Summer flounder: SAV		Alvin & Atlantis Canyons
	Sandbar shark		Baltimore Canyon
	Sand Tiger Shark (Delaware Bay)		Bear Seamount
	Sand Tiger Shark (Plymouth-Duxbury-Kingston Bay)		Heezen Canyon
X	Inshore 20m Juvenile Cod		Hudson Canyon
	Great South Channel Juvenile Cod		Hydrographer Canyon
	Northern Edge Juvenile Cod		Jeffreys & Stellwagen
	Lydonia Canyon		Lydonia, Gilbert & Oceanographer Canyons
	Norfolk Canyon (Mid-Atlantic)		Norfolk Canyon (New England)
	Oceanographer Canyon		Retriever Seamount
	Veatch Canyon (Mid-Atlantic)		Toms, Middle Toms & Hendrickson Canyons

Select all that apply	HAPC Designation	Select all that apply	HAPC Designation
	Veatch Canyon (New England)		Washington Canyon
	Cashes Ledge		Wilmington Canyon
	Atlantic Salmon		

The Providence River FNP and Narragansett Bay are located within the HAPC for Atlantic cod juveniles (inshore, 20 m). The HAPC for Atlantic cod juvenile recognizes the importance of structurally complex rocky-bottom habitat in inshore areas. These habitats contain emergent epifauna and benthic invertebrates that provide prey for Atlantic cod, the structural complexity is used as refuge areas from predators. The Providence River FNP and Edgewood Shoals do not contain any complex rocky habitat preferred by Atlantic cod juveniles. Consequently, there will be no significant impact to the HAPC for Atlantic cod.

The Providence River FNP and Narragansett Bay fall within the regional HAPC for summer flounder. Summer flounder HAPC consists of areas with Submerged Aquatic Vegetation (SAV). However, as there is no SAV present within or adjacent to the dredge or placement areas, there will be no impact to the HAPC for summer flounder.

Activity Details

Select all that apply	Project Type/Category
	Agriculture
	Aquaculture
	Bank/shoreline stabilization (e.g., living shoreline, groin, breakwater, bulkhead)
	Beach renourishment
X	Dredging/excavation
	Energy development/use e.g., hydropower, oil and gas, pipeline, transmission line, tidal or wave power, wind
	Fill
	Forestry
	Infrastructure/transportation (e.g., culvert construction, bridge repair, highway, port, railroad)
	Intake/outfall
	Military (e.g., acoustic testing, training exercises)
	Mining (e.g., sand, gravel)
X	Overboard dredged material placement
	Piers, ramps, floats, and other structures
	Restoration or fish/wildlife enhancement (e.g., fish passage, wetlands, mitigation bank/ILF creation)

Select all that apply	Project Type/Category
	Survey (e.g., geotechnical, geophysical, habitat, fisheries)
	Water quality (e.g., storm water drainage, NPDES, TMDL, wastewater, sediment remediation)
X	Other: Beneficial use of dredged material

7. Effects Evaluation

Potential Stressors

Select all that apply	Potential Stressors Caused by the Activity
	Underwater noise
X	Water quality/turbidity/contaminant release
X	Vessel traffic/barge grounding
X	Impingement/entrainment
	Prevent fish passage/spawning
X	Benthic community disturbance
X	Impacts to prey species

Select all that apply		Potential Stressors Caused by the Activity
Temp	Perm	
X	X	Water depth change
		Tidal flow change
X	X	Fill
		Habitat type conversion

Project Impacts and Mitigation

Project Impacts to EFH by Species

Key to abbreviations of project sites with designated Essential Fish Habitat

Providence River FNP
Edgewood Shoals Disposal Sites (ESDS)
Narragansett Bay
Prudence Island Disposal Site (PIDS)
Rhode Island Sound Disposal Site (RISDS)

Albacore tuna (*Thunnus alalunga*)

EFH for juvenile and adult albacore tuna is designated at Rhode Island Sound Disposal Site (RISDS) only. Albacore tuna are highly migratory, fast-moving species that would likely be in the project area as transient residents in the summer months only. They feed near the top of the food chain on fish, squid, and pelagic crustaceans (NOAA, 2017).

Effects. Because of their rarity in the area, their highly migratory nature, and the fact that there will be no impacts to their prey items we anticipate no effects to albacore tuna EFH from this project.

Atlantic butterfish *(Peprilus triacanthus)*

EFH for Atlantic butterfish eggs, larvae, juveniles, and adults is designated at Providence River FNP, ESDS, Narragansett Bay, and PIDS and for larvae and juveniles only at RISDS.

Butterfish are short-lived and grow rapidly. Spawning occurs during June and July. They are semi-pelagic and form loose schools that feed upon small invertebrates. They have a high natural mortality rate and are preyed upon by many species of fish, marine mammals, and seabirds. Few live to more than 3 years of age, and most are sexually mature at age 1.

In Rhode Island Sound, butterfish eggs are found from June to August. Butterfish have a seasonal inshore-offshore migration dependent on water temperature. In summer, they move north and inshore to feed on planktonic fish, squid, crustaceans, and jellyfish and are typically found at depths between 70 and 180 feet deep, however, they do occasionally venture inshore to shallow flats or sheltered bays and estuaries. In the winter, they move south and offshore in deep water at depths typically greater than 650 feet (NMFS and NEFMC, 2017).

EFH for Atlantic butterfish eggs includes pelagic habitats in inshore estuaries and embayment's from Massachusetts Bay to the south shore of Long Island, New York, in

Chesapeake Bay, and on the Continental Shelf and slope, primarily from Georges Bank to Cape Hatteras, North Carolina. EFH for Atlantic butterfish eggs is generally found over bottom depths of 1,500 meters or less where average temperatures in the upper 200 meters of the water column are 6.5-21.5°C (NMFS and NEFMC, 2017).

EFH for Atlantic butterfish larvae includes pelagic habitats in inshore estuaries and embayment's in Boston harbor, from the south shore of Cape Cod to the Hudson River, and in Delaware and Chesapeake bays, and on the Continental Shelf from the Great South Channel (western Georges Bank) to Cape Hatteras, North Carolina. EFH for Atlantic butterfish larvae is generally found over bottom depths between 41 and 350 meters where average temperatures in the upper 200 meters of the water column are 8.5-21.5°C. NOAA has designated EFH for this life stage in the Study Area (NMFS and NEFMC 2017).

Effects. Butterfish eggs and larvae were found in ichthyoplankton samples in northern Rhode Island Sound by Bourne and Govoni (1988) and Keller et al., (1999). Juvenile and adult butterfish have been observed in NMFS trawls in Rhode Island Sound near RISDS. Since butterfish adults are present and are likely to spawn there, eggs and larvae are also likely to be present in the area. Eggs and larvae of the butterfish may be impacted by disposal of dredged material if they are present in the water column during the time of disposal. The act of dredging is not a continuous 24 hour per day activity. There are many stops that would allow turbidity to clear. Crew changes, break downs, repositioning of the dredge and scows and exchanging full scows for empty ones all provide breaks in the active dredging and disposal process that would allow for any turbidity to dissipate. Impacts from the dredging and disposal operations to butterfish EFH are expected to be minimal. Butterfish EFH at the project areas will not change. Juvenile and adult butterfish are likely to move from the project area during active dredging and disposal activities. They would most likely return once project activities have concluded, resulting in only minimal impacts.

Atlantic Cod *(Gadus morhua)*

EFH has been designated for Atlantic cod eggs, larvae, and juveniles at Providence River FNP and ESDS and Narragansett Bay and (PIDS). EFH for adults at RISDS only.

Atlantic cod can live more than 20 years. They can grow up to 51 inches and 77 pounds. They are capable of reproducing at 2 to 3 years old, when they are between 12 and 16 inches long. Cod spawn near the ocean floor from winter to early spring. Larger females can produce 3 to 9 million eggs when they spawn. They are top predators in the bottom ocean community, feeding on a variety of invertebrates and fish (NMFS and NEFMC, 2017).

EFH for cod eggs includes the surface waters over the continental shelf where water temperatures are below 12ºC, salinities are around 32-33 ppt., and water depths are less than 110 meters (361 ft). Cod eggs are most often observed in the fall with peaks in winter and spring, while larvae are most abundant in spring. EFH for cod larvae in include the pelagic waters over the continental shelf in waters below 10ºC, salinities around 32-33 ppt., and water depths between 30 and 70 meters (98 and 230 ft) (NMFS and NEFMC, 2017).

EFH for juvenile Atlantic cod includes bottom habitats with substrates of cobble or gravel. Generally, juveniles are found where water temperatures are below 20ºC, salinities range from 30 to 35 ppt, and water depths are between 25 and 75 meters. EFH for adult Atlantic cod includes bottom habitats with a substrate of rocks, pebble, or gravel. Adults are found at oceanic salinities, depths ranging from 10 to 150 meters, and water temperatures below 10ºC (NMFS and NEFMC, 2017).

Effects. Impacts to Atlantic cod eggs and larvae EFH will be minimal as their EFH is pelagic. Atlantic cod eggs and larvae may be impacted during disposal of dredge material if eggs and larvae are in the water column over the disposal site during the disposal operation. Eggs and larvae near the surface are less likely to be impacted than eggs and larvae deeper in the water column. Juvenile and adult cod have a very low likelihood of occurrence considering that juvenile and adult cod prefer substrates of rocks, pebble, and gravel. The substrates at these project sites are silt/sand, therefore, few juveniles and adults should be present and minimal impact to their EFH from dredging or disposal of dredged material is expected Those present are likely to actively move away. Because adult cod appear to be unlikely in this region, the presence of eggs and larvae may also be low resulting in minimal potential for effects for this species.

Atlantic Herring *(Clupea harengus)*

EFH has been designated for Atlantic sea herring larvae, juveniles, and adults in Providence River FNP, ESDS, Narragansett Bay and PIDS and EFH for juveniles only in RISDS. Atlantic herring are one of nearly 200 herring species in the family Clupeidae. They grow quickly, up to 14 inches. They can live up to 15 years. They can reproduce when they reach age 4. Atlantic herring migrate in schools to areas where they feed, spawn, and spend the winter. They spawn from October through November in the southern Gulf of Maine, Georges Bank, and Nantucket Shoals. Female herring can produce 30,000 to 200,000 eggs. They deposit their eggs on rock, gravel, or sand ocean bottom. Schools of herring can produce so many eggs that they cover the ocean bottom in a dense carpet of eggs several centimeters thick. The eggs usually hatch in 7 to 10 days, depending on temperature. By late spring, larvae grow into juvenile herring, which form large schools in coastal waters during the summer. Atlantic herring is an important species in the food web of the northwest Atlantic Ocean. A variety of bottom-dwelling fish such as winter flounder, cod, haddock, and red hake feed on herring eggs. Juvenile herring are heavily preyed upon due to their abundance and small size. A number of fish, sharks, skates, marine mammals, and seabirds prey on herring. Atlantic herring feed on zooplankton (tiny floating animals), krill, and fish larvae (NMFS and NEFMC, 2017).

EFH for Atlantic herring eggs and larvae are inshore and offshore benthic habitats in the Gulf of Maine and on Georges Bank and Nantucket Shoals in depths of 5 to 90 meters on coarse sand, pebbles, cobbles, and boulders and/or macroalgae. Eggs adhere to the bottom, often in areas with strong bottom currents, forming egg “beds” that may be many layers deep. Atlantic herring have a very long larval stage, lasting 4-8 months, and are transported long distances to inshore and estuarine waters where they metamorphose into early-stage juveniles in the spring (NMFS and NEFMC, 2017).

EFH for Atlantic herring juveniles and adults are intertidal and sub-tidal pelagic habitats to 300 meters throughout the region. Young-of-the-year juveniles can tolerate low salinities, but older juveniles avoid brackish water. One and two-year old juveniles form large schools and make limited seasonal inshore-offshore migrations. Older juveniles are usually found in water temperatures of 3 to 15°C in the northern part of their range and as high as 22°C in the Mid-Atlantic. Adults make extensive seasonal migrations between summer and fall spawning grounds on Georges Bank and the Gulf of Maine and overwintering areas in southern New England and the Mid-Atlantic region. They seldom migrate beyond a depth of about 100 meters unless they are preparing to spawn. They generally avoid water temperatures above 10°C and low salinities. Spawning takes place on the bottom, generally in depths of 5 to 90 meters on a variety of substrates (NMFS and NEFMC, 2017).

EFH for Atlantic herring adults are sub-tidal pelagic habitats with maximum depths of 300 meters throughout the region.

Effects. Because the Atlantic sea herring is a pelagic fish, EFH impacts due to dredging activities will be limited to effects on larvae and small juveniles floating in the plankton in the vicinity of the turbidity plume during dredging and disposal activities. The act of actively dredging is not a continuous 24 hour per day activity. There are many stops that would allow turbidity to clear. Crew changes, break downs, repositioning of the dredge and scows and exchanging full scows for empty ones all provide breaks in the active dredging and disposal process that would allow for any turbidity to dissipate. Larger juveniles and adult herring are likely to move out of the area. Impacts to Atlantic sea herring EFH in the project areas are expected to be minimal.

Atlantic Mackerel *(Scomber scrombrus)*

EFH has been designated for Atlantic mackerel eggs, larvae, juveniles, and adults in Providence River FNP, ESDS, Narragansett Bay, PIDS and for eggs and larvae only in RISDS.

There are two major spawning groups of Atlantic mackerel in the western Atlantic. The southern group spawns primarily in the Mid-Atlantic Bight from April to May and the northern group spawns in the Gulf of St. Lawrence in June and July. Both groups typically spawn 10 to 30 miles offshore. Depending on their size, females can spawn between 285,000 and almost 2 million eggs. They release their eggs in batches, between five and seven times throughout the spawning season. Eggs generally float in the surface water and hatch in 4 to 7 ½ days, depending on water temperature. Atlantic mackerel grow fast, up to 16 ½ inches and 2.2 pounds. They can live up to 20 years and are able to reproduce by the time they reach age 2 to 3. Atlantic mackerel feed heavily on crustaceans such as copepods, krill, and shrimp. They also eat squid, as well as some fish and ascidians (sac-like marine invertebrate filter feeders). Several species of fish and marine mammals eat Atlantic mackerel (NMFS and NEFMC, 2017).

EFH for Atlantic mackerel eggs and larvae is pelagic habitats in inshore estuaries and embayment's from Great Bay, New Hampshire to the south shore of Long Island, New York, inshore and offshore waters of the Gulf of Maine, and on the continental shelf from Georges Bank to Cape Hatteras, North Carolina. EFH for Atlantic mackerel eggs and larvae is generally found over bottom depths of 100 meters or less with average water temperatures of 5.5-12.5°C (NMFS and NEFMC, 2017).

EFH for juvenile and adult Atlantic mackerel is pelagic habitats in inshore estuaries and embayment's from Passamaquoddy Bay and Penobscot Bay, Maine to the Hudson River, in the Gulf of Maine, and on the continental shelf from Georges Bank to Cape Hatteras, North Carolina. EFH for juvenile and adult Atlantic mackerel is generally found over bottom depths less than 170 meters and in water temperatures of 5 to 20°C. Juvenile Atlantic mackerel feed primarily on small crustaceans, larval fish, and other pelagic organisms while Adult Atlantic mackerel are opportunistic predators feeding primarily on a wider range and larger individuals of pelagic crustaceans than juveniles, but also on fish and squid (NMFS and NEFMC, 2017).

Effects. Because the Atlantic mackerel is a fast-swimming pelagic fish, impacts to EFH due to dredging activities would be limited to effects on eggs and larvae floating in the water column in the vicinity of the turbidity plume during dredging or disposal activities. The act of dredging is not a continuous 24 hour per day activity. There are many stops that would allow turbidity to clear. Crew changes, break downs, repositioning of the dredge and scows and exchanging full scows for empty ones all provide breaks in the active dredging and disposal process that would allow for any turbidity to dissipate. Impacts to Atlantic mackerel eggs or larvae are expected to be minimal. Any juvenile and adult mackerels in the area are likely to leave. Although Bourne and Govoni (1988) found Atlantic mackerel eggs and larvae at their sampling stations in northern Rhode Island Sound, Atlantic mackerel were not highlighted as abundant by Keller et al. (1999).

Atlantic Sea Scallop *(Placopecten magellanicus)*

EFH is designated for all four Atlantic sea scallop life stages at RISDS.

Atlantic sea scallops can live up to 20 years. They grow quickly for the first few years of their life. The largest scallop ever reported was about 9 inches in shell height, but they typically don't grow larger than 6 inches. Sea scallops can reproduce by age 2, but don't produce many eggs or sperm until they are about 4 years old. They are very fertile; a female sea scallop can produce hundreds of millions of eggs per year. For this reason, scallops may respond more rapidly to management actions than species that reproduce slowly and in small numbers. Sea scallops usually spawn in late summer or early fall. They also may spawn in the spring, especially in the Mid-Atlantic Bight. After hatching, scallop larvae remain in the water column for 4 to 6 weeks before settling on the ocean floor. Sea scallops feed by filtering phytoplankton or other small organisms out of the water column, which can help to improve water quality by removing suspended materials. Many kinds of pelagic fish and invertebrates eat scallop larvae. Cod, wolffish, eel pout, flounder, crabs, lobster, sea turtles, and sea stars feed on juvenile and adult scallops. Using its adductor muscle to snap its top and bottom shells open and shut, a sea scallop can propel itself through the water. This helps them escape predators, such as sea stars, that other bivalves like mussels, clams, and oysters can't avoid (NMFS and NEFMC, 2017).

EFH for Atlantic sea scallop eggs are benthic habitats in inshore areas and on the continental shelf, in the vicinity of adult scallops. Eggs are heavier than seawater and remain on the seafloor until they develop into the first free-swimming larval stage (NMFS and NEFMC, 2017).

EFH for Atlantic sea scallop larvae are benthic and water column habitats in inshore and offshore areas throughout the region. Any hard surface can provide an essential habitat for settling pelagic larvae ("spat"), including shells, pebbles, and gravel. They also attach to macroalgae and other benthic organisms such as hydroids. Spat attached to sedentary branching organisms, or any hard surface have greater survival rates; spat that settle on shifting sand do not survive (NMFS and NEFMC, 2017).

EFH for Atlantic sea scallop juveniles and adults are benthic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic in depths of 18 to 110 meters. Juveniles (5-12 mm shell height) leave the original substrate on which they settle and attach themselves by byssal threads to shells, gravel, and small rocks, preferring gravel. As they grow older, they lose their byssal attachment. Juvenile scallops are relatively active and swim to escape predation. While swimming, they can be carried long distances by currents. On Georges Bank, age 1 juveniles are less dispersed than older juveniles and adults and are mainly associated with gravel-pebble deposits. Essential habitats for older juvenile scallops are gravel and sand. Adults are also found in shallower water and as deep as 180 meters in the Gulf of Maine. In the Mid-Atlantic they are found primarily between 45 and 75 meters and on Georges Bank they are more abundant between 60 and 90 meters. They often occur in aggregations called beds which may be sporadic or permanent, depending on how suitable the habitat conditions are (temperature, food availability, and substrate) and whether oceanographic features (fronts, currents) keep larval stages in the vicinity of the spawning population. Bottom currents stronger than 25 cm/sec inhibit feeding. Growth of adult scallops is optimal between 10 and 15°C and they prefer full strength seawater (NMFS and NEFMC, 2017).

Effects The proposed dredge areas are shallow and not considered EFH for any Atlantic sea scallop life stage. The placement site RISDS is EFH habitat for all life stages of Atlantic sea scallop. However, the bottom substrates at RISDS are mainly muds, not ideal scallop habitat. Placement of material at RISDS will temporarily disturb benthic resources. However, monitoring has shown that benthic recovery at placement sites can be expected (USACE, 2021b). The impacts of material placement at RISDS are not anticipated to significantly affect sea scallop EFH.

<u>Basking Shark (*Cetorhinus maximus*)</u>.

EFH is designated for juvenile and adult basking shark at RISDS only. These sharks are highly migratory species that would be present in Rhode Island Sound during the summer months only. Basking sharks are filter feeders.

***Effects*.** Based on this species diet and time of year it will be in the project area, no effects to its EFH are anticipated.

<u>Black Sea Bass (*Centropristis striata*)</u>

EFH is designated for juvenile and adult black sea bass at all project locations.

Black sea bass grow slowly, up to 2 feet and 9 pounds. They can reproduce when they reach 1 to 3 years old. They are protogynous hermaphrodites—most black sea bass start out as females, and as they mature and grow, they become males. Researchers aren't sure why this happens, but one hypothesis suggests the relative scarcity of males in a spawning group may be the stimulus for a female to switch sex. Black sea bass spawn in coastal areas from January through July. Males gather a group of females to mate with and aggressively defend their territory. Depending on their size, females can produce between 30,000 and 500,000 eggs in a spawning season. Females can live up to 8 years; males live up to 12. Black sea bass are associated with structured hard bottom communities such as shellfish beds, pilings, wharves, or wrecks, offshore banks, ledges, and rocky or reef communities. Black sea bass eat whatever prey is available, but they especially like crabs, shrimp, worms, small fish, and clams. Little skate, spiny dogfish, monkfish, spotted hake, and summer flounder all feed on black sea bass (NMFS and NEFMC, 2017).

Black sea bass EFH for juveniles and adults in Rhode Island Sound includes demersal waters over the continental shelf. Generally, juveniles are found in waters warmer than 6ºC with salinities greater than 18 ppt. Additionally, juveniles and adults both inshore and offshore are found in association with rough bottom, shellfish and eelgrass beds, and natural and man-made structures in sandy areas. (NMFS and NEFMC, 2017).

***Effects**.* Impacts to juvenile and adult black sea bass due to dredging activities in project areas will be minor, as juveniles and adults are likely to actively avoid areas where dredging is occurring and disturbances from dredging would not affect their preferred habitats (i.e., structured/hard substrates). Impacts to juveniles and adults in Rhode Island Sound due to dredged material disposal activities are also likely to be minimal since the substrate is mostly silt and sand, rather than the preferred structured bottom. Minimal impacts from dredging and disposal of dredged material are expected.

<u>Bluefin Tuna (*Thunnus thynnus*)</u>

EFH is designated for juvenile and adults at RISDS only.

The bluefin tuna is distributed in many regions including the warmer parts of the Atlantic, Pacific, and Indian oceans, as well as the Mediterranean Sea. In the western Atlantic, the bluefin tuna ranges from Labrador south along the U.S. coast into the Gulf of Mexico and the Caribbean and from Venezuela to Brazil. Bluefin tuna are a strong swift swimming migratory pelagic species. They school by size and are common in the Gulf Stream. In July through October, bluefin tuna will congregate on the continental shelf off New England. Spawning is believed to occur in May and June in the Straits of Florida and does not appear to occur north of this along the U.S. coast. Bluefin tuna eggs and larvae are pelagic and drift in the currents. Small juveniles arrive to feed in the northwestern Atlantic (Virginia to Cape Cod) in mid-June to July and will spend the winter above the 36ºN in offshore waters warmer than 16 to 17ºC (NMFS and NEFMC, 2017).

EFH for juveniles and adults includes pelagic waters from 50 m (164 ft) to the Exclusive Economic Zone (EEZ) boundary and from Northern Maine to the central Gulf of Mexico (NMFS and NEFMC, 2017).

Effects. Impacts to bluefin tuna EFH will be minimal as their EFH is pelagic and wide ranging. If bluefin tuna are present at RISDS they will actively move from the area.

<u>Bluefish (*Pomatomus saltatrix*)</u>

EFH has been designated for juvenile and adult bluefish at all project locations and for larvae only at RISDS. Bluefish are distributed in the northwest Atlantic along the coast from Maine to Florida. Bluefish are a migratory pelagic species which migrates north in the spring and south in the fall. The species forms large schools, often as large as 6 to 8 km (4 to 5 miles) long. Bluefish are found at least 148 km (92 miles) offshore at depths to 100 meters (328 ft) but will occasionally move into brackish portions of rivers. They are voracious predators that feed on a wide variety of fish and invertebrates. Bluefish spawn during the summer months in the Mid Atlantic Bight region. Spawning generally occurs over the outer half of the continental shelf in water temperatures between 18 and 26ºC and salinities ranging from 27 to 35 ppt. Eggs are pelagic and float at the surface. Larvae are also pelagic and are generally found offshore in water temperatures around 21ºC. Juvenile bluefish are found both inshore and offshore. Inshore, juveniles can be found along beaches, inlets, estuaries, creeks, rivers, clear and turbid water over bottoms of sand and gravel. They may also move considerable distances upstream in estuaries (NMFS and NEFMC, 2017).

Juvenile and adult bluefish EFH is found from Cape Hatteras to Cape Cod Bay, Massachusetts in pelagic waters over the continental shelf from the coast out to the limits of the EEZ (NMFS and NEFMC, 2017).

Effects*.* Impacts from the dredging and disposal operations to bluefish EFH are expected to be minimal. The physical and chemical characteristics of bluefish EFH at the project areas will not change. Juvenile and adult bluefish will actively avoid those areas where dredging is occurring. Impacts to bluefish larvae may occur during disposal at RISDS if larvae are in the water column at the time of the disposal. Impacts to juveniles and adults due to disposal activities are not expected since juveniles and adults will actively avoid the area during disposal.

Haddock (*Melanogrammus aeglefinus*)

EFH has been described for Haddock larvae only at RISDS. Haddock are a demersal species distributed in the western Atlantic from Greenland to Cape Hatteras, North Carolina. Adult haddock are generally more common in water depths from 45 to 135 meters (148 to 443 ft) and temperatures ranging from 2 to 10ºC. They are found in bottom habitats with substrates of sand, rock, pebbles, gravel, or broken shell. Spawning occurs between January and June, peaking during March and April. Eggs are pelagic and are generally concentrated within the upper 10 meters (33 ft) of the water column. Larvae are also pelagic and are typically oceanic although they may be found in estuaries. Juveniles are found initially in the water column but will descend to the bottom as they get older. Juvenile haddock tend to remain in more shallow water on banks and shoals, moving to deeper areas as adults (NMFS and NEFMC, 2017).

EFH for haddock larvae in RISDS includes surface waters where water depths are 30 to 90 meters (98 to 295 ft). In general, haddock larvae are most often observed when water temperatures are below 14ºC, and salinities range from 34 to 36 ppt (NMFS and NEFMC, 2017).

Effects. No juvenile or adult haddock EFH were reported in Rhode Island Sound near the disposal site. Therefore, it is unlikely that haddock larvae would be present in large numbers. The impact to haddock larvae from disposal of dredged material at RISDS is expected to be minimal to non-existent.

Little Skate (*Leucoraja erinacea)*

EFH has been described for little skate juveniles and adults at all project areas. This species ranges from Nova Scotia, Canada to Cape Hatteras. The little skate is most abundant in the northern section of the Mid-Atlantic Bight (MAB) and on the northeastern part of Georges Bank. Little skate exhibit seasonal movements. Adult and juvenile little skate move inshore during spring and autumn, and offshore in mid to late summer, and midwinter. They also move north and south with seasonal temperature changes along the southern fringe of their range. They may leave some estuaries for deeper water during warmer months. Little skates are common on sandy or gravelly substrates but may occur on mud as well. They tend to bury themselves in depressions during the day and become active at night (NMFS and NEFMC, 2017).

EFH for juvenile and adult little skate ranges from intertidal and sub-tidal benthic habitats in coastal waters of the Gulf of Maine and in the Mid-Atlantic region as far south as Delaware Bay, and on Georges Bank, extending to a maximum depth of 100 meters. EFH for juvenile and adult little skates occurs on sand and gravel substrates, but they are also found on mud (NMFS and NEFMC, 2017).

***Effects*.** EFH for juvenile and adult skates will only have minor impacts. Little skate prefer harder bottoms than the project areas provide so the majority of their EFH will remain unimpacted. During the project soft bottom areas will be disturbed temporarily during dredge and disposal activities but will regrow their benthic invertebrate communities quickly. As both life stages of this species are motile, they can leave or avoid project areas during periods of disturbance. No significant impacts to little skate and their associated EFH are expected.

Longfin Inshore Squid (*Doryteuthis pealeii*)

EFH has been described for juveniles and adults at Providence River FNP, ESDS, Narragansett Bay, and PIDS. EFH for eggs has been described at RISDS only.

The longfin inshore squid EFH can be found between Newfoundland to the Gulf of Venezuela dispersed in continental shelf and slope waters. Spawning occurs year-round with peaks occurring from the spring to summer near Georges Bank at shallow coastal areas. The eggs attach to fixed objects like rocks, small boulders, and aquatic vegetation in masses, or fall as clusters on sand or mud bottoms in shallow waters less than 50 m in depth. Unlike the eggs, juveniles remain near surface waters at a depth of 10 m or less, until reaching 45 mm in length where they transition to a more demersal lifestyle at depths between 50 and 100 m, looking and migrating like adults. Adults often migrate offshore to the shelf edge and slope at around 400 m for the winter and inshore at 180 m for the summer. Additionally, as adults these animals make a diel vertical migration into the water column at night (Jacobson, 2005; Northeast Fisheries Science Center, 2011; (NMFS and NEFMC, 2017).

Effects. Juvenile and adult life stages of this species may occur with the project area during summer months as they often inhabit waters within the range that dredging, and disposal activities will occur. Squids are highly mobile and would leave the area if disturbed by dredging or disposal activities. Impacts to eggs at RISDS may occur during disposal operations if the eggs are located under the disposal plume. These squids prefer to attach their eggs to nearly any structure. RISDS is nearly devoid of structure, which is one of the reasons it was chosen as a disposal site. Therefore, impacts to squid eggs and EFH from the disposal of dredged material at RISDS is expected to be minimal.

Monkfish (*Lophius americanus*)

EFH has been designated for eggs and larvae of monkfish at RISDS. Monkfish, also known as goosefish, are distributed in the northwest Atlantic from the Gulf of St. Lawrence to Cape Hatteras, North Carolina. Adult monkfish are found in bottom habitats with various substrates including hard sand, sand-shell mix, mud, gravel, and algae covered rocks along the continental shelf in waters from 70 to 100 meters (230 to 328 ft) in depth but may also be found at depths of 800 meters (2625 ft). Spawning occurs in these habitats at water depths of 25 to 200 meters (82 to 656 ft), water temperatures below 13ºC, and salinities ranging from 29.9 to 36.7 ppt. Eggs are shed in a continuous ribbon-like sheet of gelatinous mucus which can be as large as 12 meters (39 ft) long and 1.5 meters (5 ft) wide. These egg "veils" float in the water column, generally close to the surface. Larvae and juveniles spend several months in a pelagic phase before juveniles settle to the bottom (NMFS and NEFMC, 2017).

EFH for monkfish eggs in Rhode Island Sound includes surface waters with temperatures below 18ºC in depths from 15 to 1000 meters. The egg veils are most common from March through September. EFH for monkfish larvae includes pelagic waters below 15ºC in depths from 25 to 1000 meters (82 to 3280 ft). Like eggs, larvae are most common from March through September (NMFS and NEFMC, 2017).

Effects. No information was obtained regarding the presence of monkfish larvae near the disposal site in Rhode Island Sound. Juvenile/adult monkfish were observed in NMFS trawls in Rhode Island Sound near the disposal site. Bourne and Govoni (1988) reported that monkfish larvae were present in surveys of Narragansett Bay and northern Rhode Island Sound, but not at high densities. The more recent survey by Keller et al. (1999) found no monkfish eggs or larvae in northern Rhode Island Sound. Based on this information, it is unlikely that monkfish larvae will be present in large numbers at the disposal site in Rhode Island Sound and impacts from disposal of dredged material are expected to be minimal.

Ocean Pout (*Macrozoarces americanus*)

EFH has been designated for eggs and adults in Narragansett Bay, PIDS and RISDS. EFH has been designated for juveniles at RISDS only.

Juvenile and adult ocean pout are demersal eel-like fish that are distributed in the northwest Atlantic from Labrador to Delaware. This species does not make extensive migrations but does move to different habitats when seasons change. During winter and spring, ocean pout are commonly found feeding in areas over bottom substrates of sand and sand-gravel. Feeding ceases in summer and ocean pout move to rocky areas where they spawn. Spawning occurs in September and October. Demersal eggs are guarded by adult fish until eggs hatch (NMFS and NEFMC, 2017).

EFH for ocean pout eggs includes hard bottom sheltered nests, holes, or crevices. Generally, ocean pout eggs are found in water temperatures below 10ºC, salinities ranging from 32 to 34 ppt, and water depths less than 50 meters (164 ft). EFH for juvenile ocean pout includes smooth bottom habitats near rocks or algae. Juveniles are most often found in waters with salinities greater than 25 ppt, temperatures below 14ºC, and depths less than 80 meters (262 ft). EFH for adult ocean pout includes bottom habitats in water depths less than 110 meters (361 ft) with water temperatures less than 15ºC and salinities ranging from 32 to 34 ppt. Spawning adults are found on hard bottom substrates, including artificial reefs, shipwrecks etc. in water temperatures less than 10ºC, depths less than 50 meters (164 ft) and salinities ranging from 32 to 34 ppt. Spawning occurs from late summer through early winter with peaks in September and October (NMFS and NEFMC, 2017).

Effects. No information was obtained regarding the presence of ocean pout eggs and larvae near RISDS. No ocean pout eggs and larvae were found in ichthyoplankton surveys by Bourne and Govoni (1988) or Keller et al. (1999) that included northern Rhode Island Sound. Juvenile and adult ocean pout were observed in NMFS trawls in Rhode Island Sound near the disposal site. However, because eggs and larvae are demersal and prefer rocky crevices or holes in the benthic substrate, and juvenile and adults prefer sand and sand-gravel substrates, they are not likely to be abundant, or even common, in the disposal areas. Those juvenile and adult ocean pout that are present are likely to move from the area while dredged material is being disposed, resulting in only minimal impacts to the juvenile and adult EFH.

Pollock (*Pollachius virens*)

Pollock EFH for juveniles is designated for all project areas. Pollock spawn from November to February, peaking in December over hard, stony, or rocky bottom. No consistently present hard bottom exists at any of the project locations, thus egg and larvae EFH will not likely be impacted by dredging and disposal. EFH for juvenile pollock consists of rocky bottom habitats with attached macroalgae (rockweed and kelp) that provide refuge from predators. Shallow water eelgrass beds are also essential habitats for young-of-the year pollock. Essential habitats for adult pollock are the tops and edges of offshore banks and shoals with mixed rocky substrates, often with attached macro algae (NMFS and NEFMC, 2017).

Effects. Given these habitat requirements, dredge and disposal areas are unlikely to provide EFH for juvenile pollock. Eelgrass beds are not present in the project area. therefore, no impacts to juvenile pollock EFH will occur.

Red Hake (*Urophycis chuss*)

EFH has been described for red hake eggs, larvae, and juveniles for all project areas. EFH for adult red Hake has been described for the Providence River, ESDS, Narragansett Bay, and the PIDS.

The red hake is distributed in the northwest Atlantic from the Gulf of St. Lawrence to North Carolina. This species undergoes extensive seasonal migrations, moving into shallow waters in the spring and summer to spawn and moving offshore to overwinter in deeper waters of the outer continental shelf and slope, particularly the area south and southwest of Georges Bank. Spawning occurs from May through November, with Southern New England a primary spawning area. Red hake spawn in coastal waters over the continental shelf in water 46.8 to 108 meters (154 to 354 ft) in depth and temperatures between 5 and 10ºC. Red hake eggs are pelagic, and float in plankton. Larvae also drift at the surface in the plankton often under eelgrass and rockweed. Young juvenile red hake are found initially at the surface, but as they grow (approximately 27 – 49 mm length) they descend to the bottom and are often found in the mantle cavity of shellfish (*i.e.*, scallops) under sponges, or in other benthic litter. Juveniles will remain in the vicinity of shellfish beds for 2 years if temperatures remain above 4ºC. If temperatures fall below 4ºC, juveniles will migrate to warmer, deeper water. Adult red hake stay close to objects on the bottom (*i.e*., shellfish beds) and can be found over soft mud or silt substrates and less frequently over sand and shell, and never rocky bottoms (NMFS and NEFMC, 2017).

EFH for red hake eggs in the project area are its surface waters. Red hake eggs are generally found in sea surface temperatures below 10ºC, and salinities less than 25 ppt. Red hake eggs are most often observed from May through November with peaks in June and July. EFH for red hake larvae in the Providence River, Narragansett Bay, and Rhode Island Sound includes surface waters with temperatures below 19ºC, salinities greater than 0.5 ppt, and water depths less than 200 meters (656 ft). Red hake larvae are most often observed from May through December with peaks in September and October. EFH for red hake juveniles in the Providence River, Narragansett Bay, and Rhode Island Sound includes bottom habitats with substrates of shell fragments, particularly areas containing live scallops. Juvenile red hake are generally found in water temperatures below 16ºC, salinities of 31 to 33 ppt, and water depths less than 100 meters (328 ft). EFH for adult red hake includes bottom habitats in depressions with substrates of sand and mud. Red hake adults generally occur in water temperatures below 12ºC, salinities of 33 to 34 ppt, and water depths of 10 to 130 meters (33 to 427 ft). Adults spawn in the same types of bottom habitats (depressions with sand and mud substrates) in waters less than 100 meters (328 ft) in depth, and when water temperatures are below 10ºC, and salinities are less than 25 ppt. Adult red hake are most often observed spawning from May through November with peaks in June and July (NMFS and NEFMC, 2017).

Effects. Red hake eggs were collected in recent ichthyoplankton surveys from the Providence River (MRI Inc., 1998) and eggs and larvae were collected in ichthyoplankton surveys from Narragansett Bay in December 1989 through November 1990 (Keller *et al*., 1999). Impacts to red hake egg and larvae EFH are likely to occur if eggs and larvae are present in the water column during dredging or disposal activities. Those eggs and larvae deeper in the water column are likely to be more heavily impacted than eggs and larvae closer to the surface. Impacts to juvenile EFH will be minor since most of the bottom habitat in the project areas are mud that is devoid of structure which juveniles prefer. Adult EFH will remain mostly unchanged since adults prefer demersal mud and sand habitats. Adults and larger juveniles are mobile and would likely move from the area when disturbed.

Sand Tiger Shark (*Carcharias taurus*)

EFH has been designated for sand tiger shark neonates/early juveniles in all project sites. The sand tiger shark is often found in tropical and warm temperate waters worldwide in very shallow waters ranging in temperatures from 19 to 25 °C, in salinities from 23 to 30 ppt, and in depth from 2.8 to 7.0 meters. The mating period of this species extends from late winter to early spring off Florida, and during autumn off North Carolina. Juveniles have been known to occur between Cape Cod and Cape Hatteras with extensive use of Delaware Bay by all life stages of sand tigers. Juveniles have also been shown to migrate extensively during the seasons, inhabiting waters in Maine to Delaware Bay during the summer and Cape Hatteras to central Florida during the winter (NMFS and NEFMC, 2017).

Effects. Impacts to the sand tiger shark EFH from dredging and dredged material disposal activities in the project areas are likely to be minimal. Because of the shark's mobility, it will likely avoid locations where dredging and dredged material disposal activities are being conducted.

Sandbar Shark *(Carcharhinus plumbeus)*

EFH has been designated for juveniles and adult sandbar sharks at RISDS only. The sandbar shark is a coastal pelagic shark. Juvenile sandbar sharks are found offshore in all coastal and pelagic waters north of 40ºN and west of 70ºW. Adults are found in shallow coastal areas from the coast out to 50 m (164 ft) (NMFS and NEFMC, 2017).

***Effects*.** Impacts to the sandbar shark EFH from dredging and dredged material disposal activities in Rhode Island Sound are unlikely. The shark has a wide range of EFH habitats to rely on in the area. Because of the shark's high mobility, it will likely avoid locations where dredging and dredged material disposal activities are being conducted.

Scup (*Stenotomus chrysops*)

EFH has been designated for scup eggs, larvae, juveniles, and adults at the Providence River FNP, ESDS, Narragansett Bay, and PIDS. EFH has been designated for scup juveniles and adults only at RISDS. Scup are distributed in the northwest Atlantic throughout the Mid-Atlantic Bight from Cape Cod, Massachusetts to Cape Hatteras, North Carolina. Scup make seasonal inshore-offshore migrations, moving inshore during spring and summer and offshore to overwinter in waters ranging from 70 to 180 meters (230 to 590 ft) in depth. While inshore, scup are generally found over rocky bottoms schooling at depths between 1.8 and 36 meters (6 and 118 ft). Spawning occurs during the summer months. Scup eggs and larvae are pelagic and drift with currents. Scup eggs and larvae are found in waters between 12 and 23ºC and salinities greater than 15 ppt. Eggs are most often found from May through August and larvae are most abundant from May through September. Juvenile scup are often found in association with various sands, mud, mussel, and eelgrass bed type substrates in water temperatures greater than 7ºC. Juveniles and adults are found in the Providence River and Narragansett Bay and Rhode Island Sound in the spring and summer and move offshore in the winter (NMFS and NEFMC, 2017).

Effects. Scup eggs were collected in ichthyoplankton surveys from the Providence River (MRI Inc., 1998), and eggs and larvae were collected ichthyoplankton surveys from Narragansett Bay in December 1989 through November 1990 (Keller *et al*., 1999). There will likely be minimal impacts to eggs and larvae EFH during dredging and disposal activities since eggs and larvae are pelagic. Impacts may occur if eggs and larvae are present in the water column during dredging or disposal activities. Those eggs and larvae deeper in the water column are likely to be more heavily impacted than eggs and larvae closer to the surface. Juvenile and adult EFH's are not likely to be impacted in the vicinity of dredging or disposal areas since their EFH consists of rockier habitats which are not found in project areas. Any juvenile or adult scup, if present, would likely move out of the area if disturbed.

Shortfin Mako Shark *(Isurus oxyrinchus)*

EFH has been designated for juvenile shortfin mako sharks at RISDS. Shortfin mako sharks are pelagic and are more common in tropical and warm temperate waters, although stray individuals may visit Southern New England waters during summer months (NMFS and NEFMC, 2017).

Effects. Impacts to juvenile shortfin makos pelagic EFH from dredged material disposal activities in Rhode Island Sound are unlikely. Because of the shark's high mobility, it will likely avoid locations where dredged material disposal activities are being conducted.

Silver Hake (*Merluccius bilinearis*)

EFH has been designated for eggs and larvae at all project areas and for adults only in Narragansett Bay.

Silver hake are distributed in the northwest Atlantic from Newfoundland to South Carolina. This species is both a benthic and pelagic species, generally resting near the bottom by day and observed up in the water column at night. Adult benthic habitat includes bottoms of all substrate types. Silver hake are strong, swift swimmers and important predators. Their vertical movements are primarily governed by pursuit of prey. Whiting also make inshore-offshore migrations, moving inshore to more shallow water in the spring and moving offshore in autumn to overwinter in waters 200 meters (656 ft) in depth over the continental shelf and slope. Spawning generally occurs along the continental shelf in waters 30 to 325 meters (98 to 1066 ft) in depth during the late spring and early summer (May and June in Southern New England waters) in water temperatures below 13ºC (55ºF). Whiting egg and larval stages are pelagic and float at the surface and are carried by currents (NMFS and NEFMC, 2017).

EFH for silver hake eggs and larvae includes surface waters in temperatures below 20ºC (68ºF) and water depths between 50 and 150 meters (164 to 492 ft). Eggs are present all year, but peaks are seen from June through October. Peaks in larval abundance are seen in July through October. EFH for adult silver hake includes bottoms of all substrate types (NMFS and NEFMC, 2017).

Effects. Whiting eggs and larvae were present in ichthyoplankton surveys that included northern Rhode Island Sound (Bourne and Govoni, 1988; Keller et al., 1999). Therefore, eggs and larvae may be present near RISDS. Eggs and larvae may be impacted during disposal operations if they are present in the water column. No impacts to adult EFH are expected.

Skipjack Tuna (*Katsuwonus pelamis)*

EFH has been designated for adult skipjack tuna at RISDS. Skipjack tuna spawn opportunistically in equatorial waters throughout the year and in subtropical waters from spring to early fall (Collette and Nauen 1983). The maximum size of skipjack tuna is reported at 108 cm FL and a weight of 34.5 kg. Size at sexual maturity is 45 cm (18 inches) for males and 42 cm for females. This size is believed to correspond to about 1 to 1.5 years of age, although significant variability in interannual growth rates makes size-to-age relationships difficult to estimate (Collette and Nauen, 1983).

Effects. Skipjack tuna are infrequent summer visitors to the project area. No impacts to adult skipjack tuna EFH are expected.

Smooth Dogfish (*Mustelus canis*)

EFH has been designated for juveniles and adults at RISDS. Smooth dogfish are found in the Atlantic Ocean from Massachusetts to northern Argentina. As these animals are demersal, they primarily inhabit continental shelf and inshore waters at a depth of 200 m. Smooth dogfish are temperature dependent and often migrate between North Carolina and the Chesapeake Bay in the winter and move along bottom waters of the coast in the spring. Additionally, marsh creeks are likely important habitats for newborns during June and July while estuaries within the Mid-Atlantic Bight are known to be critical nursery habitats for the YOY life stage (NMFS and NEFMC, 2017).

Effects. Impacts to juvenile and adult smooth dogfish EFH from dredged material disposal activities in Rhode Island Sound are unlikely. Because of the shark's pelagic nature and high mobility, it will likely avoid locations where dredged material disposal activities are being conducted.

Spiny dogfish (*Squalus acanthias*)

EFH has been designated for juvenile and adult spiny dogfish at RISDS. The spiny dogfish is distributed in the northwestern Atlantic from Labrador to Florida. Spiny dogfish are a schooling species and will school by size when younger and by sex as adults. This species is generally found in temperatures between 3 and 28ºC and water depths from 10 to 390 meters (33 to 1280 ft) for juveniles and 450 meters (1476 ft) for adults. They feed on fish and crustaceans but tend to target the most abundant prey species in the area. Spiny dogfish movements are governed by the movements of their prey. They are generally found in coastal waters during spring and autumn, and during summer will migrate to the edge of continental shelf and to the Gulf of Maine-Georges Bank region. EFH for both juveniles and adults in Rhode Island Sound includes the pelagic waters out to the continental shelf (NMFS and NEFMC, 2017).

Effects. Impacts to juvenile and adult spiny dogfish EFH from dredged material disposal activities in Rhode Island Sound are unlikely. Because of the shark's pelagic nature and high mobility, it will likely avoid locations where dredged material disposal activities are being conducted.

Summer Flounder (*Paralichthys dentatus*)

EFH has been designated for summer flounder larvae and adults at all project sites, for juveniles at the Providence River FNP, ESDS, Narragansett Bay, and PIDS and for eggs at RISDS only (NMFS and NEFMC, 2017).

The summer flounder is a demersal species that is distributed in the northwest Atlantic from the Gulf of Maine to South Carolina. The summer flounder is a "left-eyed" flounder that is found over sand, mud, grass, around pilings, in tidal channels and salt ponds. The species is concentrated in bays and estuaries from spring to early autumn, and in early autumn, will migrate offshore to the outer continental shelf. Spawning occurs during the offshore migration in autumn and early winter. Summer flounder eggs are pelagic and float near the surface, drifting with currents. Eggs are most common within 14.5 km (9 miles) of the shore at water depths of 10 to 110 meters (33 to 361 ft). Larvae are partially benthic and may drop down to the substrate when not actively swimming. Early larvae will concentrate at depths of 22 to 57 meters (72 to 187 ft) at distances 22 to 83 km (14 to 52 miles) offshore. As larvae mature, they will move inshore with the currents, leaving post larvae and juveniles to settle on the bottom in bays and estuaries. Juvenile summer flounder tend to use various habitats (seagrass beds, mudflats, salt marsh creeks and open bay areas) in estuaries and bays as nursery areas. They are found in many of these habitats when water temperatures are greater than 3ºC and salinities range between 10 and 30 ppt. Adult summer flounder are common in inshore habitats during the warmer months. They move offshore to depths of 150 meters (492 ft) during colder months (NMFS and NEFMC, 2017).

Effects. Summer flounder larvae were collected in ichthyoplankton surveys from the Providence River (MRI Inc., 2000; 1999; 1993) and in ichthyoplankton surveys from Narragansett Bay in December 1989 through November 1990 (Keller *et al*., 1999). Impacts to egg and larval EFH during dredging and disposal activities will be minimal as they are mainly pelagic. Impacts from dredged material at RISDS could occur if eggs and larvae are in the water column over the disposal site during disposal. Because eggs float and larvae are partially benthic, larvae at the surface are likely to be less impacted by turbidity than larvae deeper in the water column. Impacts to adult and juvenile summer flounder EFH in all project areas will likely be minimal, as they are able to make use of many different bottom substrates and would likely move from the area if disturbed.

White Hake (*Urophycis tenuis*)

EFH for white hake larvae and juveniles is designated at RISDS only. White hake spawning takes place primarily offshore in deep waters along the continental slope off southern Georges Bank and the Middle Atlantic Bight. Larvae remain offshore and juveniles migrate inshore. Juvenile white hake are distributed over the project area in May-June (NMFS and NEFMC, 2017).

White hake EFH occurs from the Gulf of St. Lawrence to the Middle Atlantic Bight and from estuaries across the continental shelf to the submarine canyons along the upper continental slope and the deep, muddy basins in the Gulf of Maine. The eggs, larvae, and early juveniles are pelagic; older juveniles and adults are demersal (NMFS and NEFMC, 2017).

Effects. Larval white hake EFH should not be impacted as larvae tend to remain offshore and away from the project site to develop. Although dredging and disposal will remove or bury some benthic prey items, most juvenile white hake EFH will remain unaffected. Juvenile white hake will be able to use surrounding habitats for foraging while the affected areas recover.

White Shark (*Carcharodon carcharias*)

White sharks have juvenile EFH designated at all project locations. White sharks are highly migratory species that would be present in the project areas during the summer months only. Juvenile white sharks are top predators feeding on bony fishes, small sharks, and rays (NOAA, 2017).

Effects. Impacts to juvenile white shark EFH from dredged material disposal activities in Rhode Island Sound are unlikely. Because of the shark's high mobility, it will likely avoid locations where dredged material disposal activities are being conducted.

Windowpane Flounder (*Scophthalmus aquosus*)

EFH has been designated for windowpane flounder eggs, larvae, juveniles, and adults at all project sites. Windowpane flounder is a demersal species that is distributed in the northwest Atlantic along the continental shelf from the Gulf of St. Lawrence to Florida and is particularly common in large estuaries in waters less than 56 meters (184 ft). The windowpane flounder is a "left-eyed" flounder that is found over sand, mixtures of sandy silt or mud. No seasonal migration is evident in New England waters. Spawning occurs from April through December with peaks from May through October in waters below 21ºC and salinities between 5.5 and 36 ppt. Eggs and larvae are pelagic and float near the surface, drifting with currents. Juveniles are most often observed in the sublittoral zones generally in water depths of 6 to 14 meters (20 to 46 ft) (NMFS and NEFMC, 2017).

Windowpane flounder EFH includes inshore and offshore surface waters less than 70 meters (230 ft) in depth. Windowpane flounder eggs and larvae are most often found in surface waters where temperatures are below 20ºC. Juveniles are found in bottom habitats in water depths ranging from 1 to 100 meters (3 to 328 ft) and 1 to 75 meters (3 to 246 ft) for adults. Juveniles that settle in shallow inshore waters move to deeper offshore waters as they grow. Adults occur primarily on soft substrates (mud and sand) off Southern New England and Mid-Atlantic Bight (NEFMC and NMFS, 2017).

Effects. Windowpane flounder eggs and larvae were collected in ichthyoplankton surveys from the Providence River (MRI Inc., 2000; 1999; 1998; 1997; 1996; 1995; 1994; 1993) and in ichthyoplankton surveys from Narragansett Bay in December 1989 through November 1990 (Keller *et al*., 1999). Impacts to eggs and larvae that happen to be in the water column during dredging and disposal activities are likely to occur. Those eggs and larvae at the surface (where windowpane larvae are known to be present) are likely to be less impacted than larvae deeper in the water column. Impacts to juveniles and adult windowpane flounder EFH will likely be minimal, as individuals are likely to move from the dredge or disposal area to adjacent habitats.

Winter Flounder (*Pseudopleuronectes americanus*)

EFH has been described for winter flounder eggs, larvae, juveniles, and adults in the Providence River FNP, ESDS, Narragansett Bay, and PIDS and for larvae, juveniles, and adults at RISDS. In the Western Atlantic, the winter flounder *Pleuronectes americanus*, ranges from Labrador to Georgia. Like other flounders, winter flounder are a demersal species, common on muddy sand with patches of eelgrass, sand, clay and even gravel/cobble from the shoreline to 128 meters (420 ft). Their movements are generally localized, undertaking small scale migrations into estuaries, embayment's, and saltwater ponds in the winter to spawn, and moving to deeper water in summer. Winter flounder avoid waters cooler than 0ºC and warmer than 14- 15ºC. Adult winter flounder utilize a variety of substrates and prefer temperatures of 12-15 ˚C, and salinities above 22 ppt, although they have been shown to survive at salinities as low as 15 ppt. Mature adults are found in very shallow waters during the spawning season (NEFMC and NMFS, 2017). Spawning occurs over bottom habitats with substrates of sand, muddy sand, mud, or gravel in water temperatures less than 15ºC, and salinities between 5.5 and 36 ppt. Spawning in inshore areas occurs in water depths less than 6 meters, while spawning offshore can occur in waters as deep as 80 meters. Adult winter flounder are most often observed spawning from February through June. Adults also tend to return to the same spawning locations year after year and discrete local groups exist (Gulf of Maine, Georges Bank, Southern New England-Middle Atlantic). Winter flounder eggs are not buoyant but sink and stick together in clusters on the bottom. Newly hatched larvae remain near bottom (generally found at depths less than 37 meters (121 ft). The larvae are unlike other flatfishes in that even though they are pelagic, they are not completely at the mercy of tides or currents. Winter flounder larvae will alternatively swim upward and then sink to lie on the bottom as opposed to remaining constantly adrift at the surface. Juveniles tend to stay in inshore areas for 2 or more years but will move to avoid temperature extremes.

EFH for winter flounder eggs are found where water temperatures are less than 10ºC, salinities are between 10 and 30 ppt, and water depths are less than 5 meters (16 ft). EFH for winter flounder larvae are found in pelagic and bottom waters where temperatures are less than 15ºC, salinities range between 4 and 30 ppt, and water depths are less than 5 meters (16 ft). EFH for winter flounder young-of-year juveniles includes bottom habitats with a substrate of mud or fine-grained sand. Young-of-year winter flounder are generally found in water temperatures below 28ºC, salinities between 5 and 33 ppt, and in water depths of 0.1 to 10 meters (0.3 to 33 ft). EFH for older juveniles also includes bottom habitats with a mud or fine-grained sand. Older juveniles are generally found in water temperatures below 25ºC, salinities between 10 and 30 ppt, and water depths of 1 to 50 meters (3 to 164 ft). EFH for adult winter flounder includes bottom habitats with a substrate of mud, sand, or gravel. Adult winter flounder are generally found in water temperatures below 25ºC, salinities between 15 and 33 ppt, and water depths of 1 to 100 meters (3 to 328 ft).

Effects. Winter flounder eggs and larvae were collected in ichthyoplankton surveys from the Providence River (MRI Inc., 2000; 1999; 1998; 1997; 1996; 1995; 1994; 1993) and in ichthyoplankton surveys from Narragansett Bay in December 1989 through November 1990 (Keller *et al*., 1999). Impacts to egg EFH in the vicinity of the Providence River dredging operations are likely to be minimal because most of the upper river in the vicinity of Fox Point and Upper Fuller Rock Reaches is deeper than 5 meters (16 ft) where most winter flounder eggs are deposited. The shallow areas adjacent to the upper reaches of the channel where most of the dredging will be conducted have degraded habitats because of contamination. Impacts to larvae may occur if larvae are common near the bottom and in the water column near dredging or disposal operations. During discussions between the USACE and Mr. Eric Schneider of the Rhode Island Depart of Environmental Management-Marine Fisheries, it was determined that the critical impact concern associated with the proposed project for winter flounder resources in the project area is elevated suspended solids in shallow subtidal habitats that are less than five meters (16.4 feet) in depth that serve as critical spawning areas. As such, we have constructed a project sequencing schedule that will allow for the January 1 to June 30 restriction to be applied to dredging in any subtidal areas with water depths of five meters or less to avoid impacts to winter flounder egg and larvae EFH. The proposed sequencing will allow the project to be completed in a timely, cost-effective, and environmentally sensitive manner. Impacts to larvae during disposal of dredged material at RISDS will occur if larvae are present at the disposal site during disposal. Juvenile and adult winter flounder are likely to experience minimal impacts during disposal operations because they are likely to move to avoid the disposal plume.

Winter Skate (*Leucoraja ocellata*)

EFH has been described for winter skate juveniles and adults at all project locations. Winter skates are found over a wide range extending from southern New England and the Mid-Atlantic Bight (MAB) to North Carolina. They exhibit seasonal movements by moving offshore in the summer and near shore in the autumn. Winter skates are most active at night and remain buried in depressions during the day. Juveniles and Adults can be found at depths ranging from the shoreline to 90 meters (NEFMC and NMFS, 2017).

Winter skate EFH is sand and gravel bottoms although they have been documented in areas with mud bottoms in 3 to 111 meters and temperatures of 0 to 20ºC (NMFS and NEFMC, 2017).

Effects. Both juveniles and adult skates may occur within the project areas during those periods in which they are expected to move inshore. As both life stages of this species are motile and can avoid the area during periods of disturbance due to construction by moving to adjacent undisturbed areas. Therefore, no significant impacts to winter skates and their associated EFH are expected due to the proposed project. This project is not expected to permanently change the bottom substrate. Benthos will be affected temporarily until benthic communities recover in approximately 6-18 months post-construction.

Witch Flounder *(Glyptocephalus cynoglossus)*

Witch flounder larval EFH is designated at RISDS only. The witch flounder is a demersal species that is distributed throughout the Gulf of Maine and deeper waters along Georges Bank, and along the edge of the continental shelf south to Cape Hatteras, North Carolina. Witch flounder are sedentary and are more common in water depths greater than 90 meters; most are caught between 110 and 275 meters (361 and 902 ft). Witch flounder are found on substrates of mud, clay, mud/clay mixed with sand, and smooth ground between rocky patches. They spawn in late spring and summer, peaking in May and June. The eggs are pelagic and drift in the plankton. Witch flounder eggs and larvae are most often observed during the months of March through October and March through November, respectively. Larval abundance peaks in May through July. Larvae are also pelagic and are commonly found over depths of 28 to 250 meters (92 to 820 ft) (NEFMC and NMFS, 2017).

EFH has been designated for witch flounder larvae in Rhode Island Sound. EFH for larvae in Rhode Island Sound includes surface waters to 250 meters (820 ft) in depth with oceanic salinities and surface water temperatures below 13ºC.

Effects. Impacts to witch flounder larvae during disposal of dredged material at RISDS will occur if larvae are in the water column over the disposal site during disposal. Larvae at the surface are less likely to be impacted than larvae deeper in the water column.

Because the adults of this species appear to be absent from this region, the presence of larvae may also be low resulting in minimal effects.

Yellowfin Tuna (*Thunnus albacares*)

EFH has been described for juvenile yellowfin tuna at RISDS and Narragansett Bay. Yellowfin tuna sexual maturity is reached at about three years of age, 110 cm fork length (FL), and a weight of 25 kg. Spawning occurs throughout the year in the core areas of the species distribution (between 15° N lat. and 15° S lat.) and in the Gulf of Mexico and the Caribbean, occurring from May through November. Yellowfin tunas are believed to be serial spawners, and larval distribution appears to be limited to water temperatures above 24 °C, and salinity greater than 33 ppt (Richards and Simmons, 1971). Yellowfins are characteristically large, fast growing, and short-lived (Juan-Jorda et al., 2013). The maximum size of yellowfin tuna is over 200 cm FL (Collette and Nauen, 1983).

Effects. Juvenile yellowfin tuna may be infrequent summer visitors to RISDS and Narragansett Bay. Because of their rarity in the area, their highly migratory nature, and the fact that there will be no impacts to their EFH or prey items we anticipate no effects to yellowfin tuna EFH from this project.

Yellowtail Flounder (*Pleuronectes ferruginea*)

EFH has been designated for eggs, larvae, juveniles, and adult yellowtail flounder at RISDS only. Yellowtail flounder are a demersal species that is distributed along the northwestern Atlantic from Labrador to the Chesapeake Bay. Yellowtail flounder are a “right-eyed” species and are relatively sedentary, preferring bottoms of sand or sand and mud in waters from 30 to 90 meters (98 to 295 ft) in depth. Discrete stocks have been identified off Southern New England, Georges Bank, Cape Cod, and in the Middle Atlantic. Yellowtail flounder spawn in spring and summer with peaks observed in May.

EFH for yellowtail flounder eggs and larvae in Rhode Island Sound includes surface waters over the continental shelf where sea surface temperatures are below 15ºC, salinities are around 32.4 to 33.5 ppt., and water depths range from 30 to 90 meters (98 to 295 ft). Yellowtail flounder eggs and larvae are most often observed from March through July with peaks from April through June. EFH for juvenile and adult yellowtail flounder in Rhode Island Sound includes bottom habitats with substrates of sand or sand and mud. Juveniles and adults are most often observed in waters 20 to 50 meters (66 to 164 ft) in depth, at water temperatures below 15ºC, and salinities around 32.4 to 33.5 ppt. Spawning adult yellowtail flounder are found in the same bottom habitats but may be seen at depths ranging from 10 to 125 meters (33 to 410 ft). Spawning occurs at water temperatures below 17ºC and salinities of 32.4 to 33.5 ppt (NEFMC and NMFS, 2017).

Effects. Impacts to yellowtail flounder eggs and larvae during disposal of dredged material in Rhode Island Sound may occur if eggs and larvae are in the water column during disposal. Those eggs and larvae at the surface are less likely to be impacted than eggs and larvae deeper in the water column. Any juvenile or adult yellowtail flounder that happen to be present in the disposal area are likely to actively move away. Minimal impacts to yellowtail flounder EFH are expected.

Project Impacts Summary

The dredging of the Providence River and Harbor Federal Navigation Project and the associated placement of dredged material may adversely affect but is not likely to have significant effects or long-term lasting effects on the “spawning, breeding, feeding, or growth to maturity” of the majority of managed species that have EFH within the project area.

Dredging Sites

The dredging activities conducted for the project are likely to have some temporary impacts on EFH species in the Providence River, Narragansett Bay and Edgewood Shoals, but impacts will be minimized through the application of a dredging sequence that avoids sensitive areas during the most sensitive times of the year. In general, eggs and larvae are more susceptible to impacts than juveniles and adults, which are mobile and can find adjacent foraging habitat. Demersal species such as flounders are more susceptible to impacts than pelagic species since most dredging related disturbance occurs near the bottom. The EFH species with the most potential to be affected by dredging in the Providence River, Edgewood Shoals and upper Narragansett Bay are those with demersal eggs (one species: winter flounder) and those with planktonic eggs and larvae suspended in the water column. These eggs and larvae may be physically damaged or killed from exposure to elevated concentrations of suspended solids.

Juvenile and adult demersal and pelagic species are likely to actively avoid the sediment plume that results from dredging and find adjacent foraging opportunities. Small juvenile fish, particularly flounders and groundfish that reside on the bottom following metamorphosis from their larval form, will be more heavily affected than larger juveniles due to their mobility. However, the FNP and Edgewood Shoals provide poor benthic habitat, so it is unlikely that these species successfully use the channel habitat in high numbers.

Impacts to EFH and fish species can be minimized by using the appropriate dredging equipment and sequencing dredging activities to avoid key areas at sensitive times. The dredging will be sequenced to minimize impacts to fishery resources by adhering to the following priorities as much as possible without interrupting the progress of dredging.

Placement Sites

Placement activities conducted for the project are also likely to have some temporary impacts on the EFH species present at the proposed placement sites during placement and until the benthic habitat at the placement site recovers. Demersal species such as flounders will experience greater impacts than pelagic species, and eggs and larvae will experience greater impacts than juveniles and adults. The species with the most potential to be adversely affected by placement would be those that have demersal eggs and larvae. Demersal eggs and larvae are likely to be buried as dredged material is dumped at the placement site. Species that have planktonic eggs and larvae in the water column may also be seriously damaged or killed as they encounter the mass of material released from the scow.

Juveniles and adults of demersal species may be buried if they do not quickly move from the area when placement begins. Smaller juveniles are more likely to be buried than larger juveniles or adults. Pelagic juveniles and adults will likely experience minimal impacts as they are able to find adjacent foraging habitat as placement begins. Small pelagic juveniles, however, may be damaged or killed if they are not able to escape the rapidly descending sediment particles during the placement activities.

Conclusions

Although project activities are likely to impact EFH and species present in the dredging and placement areas, the impacts will be temporary. The species present in these areas will return following project completion. Physical parameters such as tides and currents are not expected to change because of the project. Any changes to water quality (temperature, salinity, TSS, DO) will be temporary and water quality will return to pre-project conditions when the project is complete. Prey species eliminated during dredging and placement activities will also return following project completion. The filling of Port Edgewood Basin and dredging of an access channel to the FNP will improve flushing and water quality conditions in the aera and potentially the greater Narragansett Bay.

Additionally, not all areas designated as EFH for the various species will incur impacts. Most species with designated EFH in the Providence River and Edgewood Shoals also have EFH in the larger Narragansett Bay and portions of Rhode Island Sound. The effects of dredging and placement will be confined to limited areas of the Providence River, Edgewood Shoals, Narragansett Bay, and Rhode Island Sound. Therefore, these species will be able to sustain the population of their respective species in this geographic region.

Avoidance, Minimization, and Mitigation

Specific measures taken to avoid and minimize impacts to EFH:

This project will be performed within various project windows in different reaches of Narragansett Bay to minimize impacts to EFH (Table 1). The timing of this maintenance dredging is specifically set to avoid impacts to EFH. Furthermore, winter spawning species such as the winter flounder (whose EFH can be affected by dredging operations) spawn demersal eggs in late winter/early spring. The timing of maintenance dredging is specifically set to avoid impacts to winter flounder EFH.

Dredged material will be placed in areas with similar sediment composition. For example, silty sediments from the FNP will be placed at RISDS and Edgewood Shoals, where both have silty sediment currently. The placement of dredged material at these locations is specifically to avoid the conversion or loss of EFH. Any EFH impacts at the dredge or placement sites will be temporary.

Is compensatory mitigation proposed?

No compensatory mitigation proposed.

Compensatory mitigation details:

No significant adverse effects to any species' EFH is expected as a result of this project. Therefore, no compensatory mitigation is proposed.

8. Federal Agency Determination

Federal Action Agency's EFH determination	
	There is no adverse effect on EFH or EFH is not designated at the project site. EFH Consultation is not required. This is a FWCA only request.
X	The adverse effect on EFH is not substantial. This means that the adverse effects are no more than minimal, temporary, or can be alleviated with minor project modifications or conservation recommendations. This is a request for an abbreviated EFH consultation.
	The adverse effect on EFH is substantial. This is a request for an expanded EFH consultation.

9. Fish and Wildlife Coordination Act

Fish and Wildlife Coordination Act Resources

Species known to occur at site	**Habitat impact type**
alewife	Project window is outside of potential spawning run.
American eel	Temporary increase in turbidity during spawning run.
American shad	Project window is outside of potential spawning run.
Atlantic menhaden	Potential turbidity in dredge and placement areas.
blue crab	N/A
blue mussel	N/A
blueback herring	Project window is outside of potential spawning run.
Eastern oyster	N/A
horseshoe crab	N/A

quahog	Potential entrainment in dredge areas and burial in placement areas. Quahog relocation to take place within CAD footprint prior to construction
soft-shell clams	Potential entrainment in dredge areas and burial in placement areas.
striped bass	Potential turbidity in dredge and placement areas.
other species:	

10. References

Bourne, B.W. and J.J. Govoni. (1988). Distribution of fish eggs and larvae and patterns of water circulation in Narragansett Bay, 1972 – 1973. American Fisheries Society Symposium Vol. 3: 132 – 148.

Collette, B. B., & Nauen, C. E. (1983). *Scombrids of the world: an annotated and illustrated catalogue of tunas, mackerels, bonitos, and related species known to date. v. 2*.

Jacobson, L. D. (2005). Essential fish habitat source document. Longfin inshore squid, Loligo pealeii, life history and habitat characteristics.

Juan-Jordá, M. J., Mosqueira, I., Freire, J., & Dulvy, N. K. (2013). The conservation and management of tunas and their relatives: setting life history research priorities. *PLoS One*, *8*(8), e70405.

Keller, A.A., G Klein-MacPhee, and J. St. Onge Burns. (1999). "Abundance and Distribution of Ichthyoplankton in Narragansett Bay, Rhode Island, 1989 – 1990." Estuaries, Vol. 22, No.1, pp 149 – 163.

Kremer, J.N., Nixon, S.W. (1978). Sensitivity and Stability. In: A Coastal Marine Ecosystem. Ecological Studies, vol 24. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-66717-6_11

Knebel, H. J., Needell, S., O'Hara, C. J. 1982. Modern sedimentary environments on the Rhode Island inner shelf, off the eastern United States. Marine Geology. Volume 49, Issues 3–4, October 1982, Pages 241 256

Marine Research Inc. (MRI). (1993). Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1992. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Marine Research Inc. (MRI). (1994). Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1993. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Marine Research Inc. (MRI). (1995). Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1994. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Marine Research Inc. (MRI). (1996). Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1995. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Marine Research Inc. (MRI). (1997). Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1996. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Marine Research Inc. (MRI). 1998. Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1997. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Marine Research Inc. (MRI). 1999. Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1998. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Marine Research Inc. (MRI). 2000. Aquatic Ecology Studies in the Providence and Seekonk Rivers in the Vicinity of the Manchester Street Repowering Project, April – October 1999. Submitted to Narragansett Electric Company and New England Power Company, Westborough, MA

Northeast Fisheries Science Center. (2011). 51st Northeast Regional Stock Assessment Workshop (51st SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 11-02; 856 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026.

NOAA. (2017). National Oceanic and Atmospheric Administration (NOAA). September 1, 2017. Final Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan: Essential Fish Habitat and Environmental Assessment. Office of the Sustainable Fisheries – Atlantic Highly Migratory Species Management Division.

NMFS and NEFMC, (2017). Omnibus Essential Fish Habitat Amendment 2, Volume 2: EFH and HAPC Designation Alternatives and Environmental Impacts. October 2017.

NMFS. (2024). Essential Fsh Habitat Mapper. Retrieved October 2024, from https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper

Raposa, K. B., Wasson, K., Smith, E., Crooks, J. A., Delgado, P., Fernald, S. H., ... & Lerberg, S. (2016). Assessing tidal marsh resilience to sea-level rise at broad geographic scales with multi-metric indices. Biological Conservation, 204, 263 275.

Richards, W.J., and D.C. Simmons. (1971). Distribution of tuna larvae (Pisces, Scombridae) in the northwestern Gulf of Guinea and off Sierra Leone. *Fish. Bull. NOAA-NMFS*, 69(3):555–68.

Sea Temperature Info. (2022a). *Narragansett Bay Water Temperature*. Retrieved from https://seatemperature.info/stony-creek-beach-water-temperature.html.

Sea Temperature Info. (2022b). *Rhode Island Sound Water Temperature*. Retrieved from https://seatemperature.info/stony-creek-beach-water-temperature.html.

USACE. (2001). *Providence River and Harbor Maintenance Dredging Project Final Environmental Impact Statement (FEIS).* U.S. Army Corps of Engineers, New England District, Concord, MA.

USACE. (2004). *Rhode Island Sound Disposal Site Final Environmental Impact Statement (FEIS).* U.S. Army Corps of Engineers, New England District.

USACE. (2013). *Sediment Sampling and Testing in Support of Dredged Material Suitability Determination. Providence River and Harbor Federal Navigation Project, Maintenance Dredging. Rhode Island*. U.S. Army Corps of Engineers, New England District, Concord, MA.

USACE. 2021a. Monitoring Survey at the Providence River Confined Aquatic Disposal Cells, September/October 2020. DAMOS Contribution No. 211. Prepared by INSPIRE Environmental. Prepared for the U.S. Army Corps of Engineers, New England District, Concord, MA, 50 pp. plus Figures and Appendices.

USACE. 2021b. Monitoring Survey at the Rhode Island Sound Disposal Site May/June 2020. DAMOS Contribution No. 210. Prepared by INSPIRE Environmental. Submitted to the U.S. Army Corps of Engineers, New England District, Concord, MA, 87 pp. plus Figures and Appendices.

USACE. (2022). *Suitability Determination for the Providence River and Harbor DMMP*. U.S. Army Corps of Engineers, New England District, Concord, MA.

This page intentionally left blank.

Providence River and Harbor Federal Navigation Project Maintenance Dredging Project

Coastal Zone Management Consistency Determination

RICR Section 1.3.1 In Tidal and Coastal Pond Waters, on Shoreline Features and Their Contiguous Areas (formerly § 300)

A. Category B Requirements (formerly § 300.1)

1. The requirements herein for a Category B Assent are necessary data and information for the purposes of federal consistency reviews. All persons applying for a Category B Assent are required to:

a. Demonstrate the need for the proposed activity or alteration;

Maintenance dredging of the Providence River and Harbor Federal Navigation Project (FNP) is required to maintain safe navigation in the FNP. This navigation feature and the access it provides to commercial goods and services in Rhode Island is an important element of the state's economy.

The proposed project involves two complete maintenance dredging cycles of the Providence River and Harbor Federal Navigation Project (FNP). Cycle-One is expected to be constructed in 2027-2028 and Cycle-Two is expected to be constructed in 2047-2048. Each dredging cycle will require the construction of a confined aquatic disposal (CAD) cell to accommodate unsuitable dredged material generated from the maintenance dredging of the Providence River and Harbor FNP as well as three adjacent shallow-draft FNPs (Bullocks Cove, Pawtuxet Cove, and Apponaug Cove). The Cycle-One maintenance dredging cycle is anticipated to generate approximately 2,072,9333 cubic yards (CY) of unsuitable material from the Providence River and Harbor FNP and approximately 65,240 CY from the adjacent shallow-draft FNPs. The Cycle-Two maintenance dredging cycle is anticipated to generate approximately 1,990,800 CY of unsuitable material from the Providence River and Harbor FNP and approximately 44,320 CYs from the adjacent shallow-draft FNPs.

An access channel and CAD cell, one for each dredging cycle, will be constructed in the Edgewood Shoals area of Narragansett Bay adjacent to the Fuller Rock Reach of the Providence River FNP. The access channel and Edgewood Shoals North (ESN) CAD cell will be constructed in 2027 and will generate approximately 3,32900,000 CY of suitable dredged material and 37,000 CY of unsuitable material. The CAD cell is being sized to account for approximately 2,138,000CY of federal dredging needs plus the placement of an additional 300,000 CY of non-Federal dredging needs, and approximately 38,000 CY allowance for to serve as a starter cell for Cycle-Two's CAD cell construction. Approximately 389,000 CY of material (37,000 CY unsuitable, capped by 352,000 CY suitable) from ESN CAD cell will be placed for beneficial use in the adjacent Port Edgewood Basin, a former Department of Defense navigation port. Material placed at Port Edgewood Basin will cover existing unsuitable sediments in the basin as well as change the bathymetry to help alleviate water circulation and water quality issues in the basin.

Approximately 1,825,000 CY of suitable material from ESN CAD cell will be placed beneficially at the previously used Prudence Island Disposal Site (PIDS) to cover dredged material mounds at the site that contain unsuitable material. Additionally, approximately 113,000 CY of suitable material will be used to cap and restore river bottom bathymetry at five CAD cells in the Fox Point Reach of the FNP that were built in the last maintenance dredging effort. The remaining 1,002,434 CY of suitable material from the ESN CAD cell will be placed at the Rhode Island Sound Disposal Site (RISDS).

Maintenance dredging Cycle-Two is expected to be constructed in 2047-2048. Based upon shoaling rate calculations, nearly 2,000,000 CY will be required to be removed from the Providence FNP and adjacent FNPs during cycle two. For the second cycle, a second CAD cell, Edgewood Shoals South (ESS), would be constructed in the Edgewood Shoals area. The construction of the ESS CAD cell would generate approximately 3,083,000 CY of dredged material. Approximately 38,000 CY of unsuitable material from the ESS CAD cell would be placed in the Cycle-One (ESN) CAD cell, followed by capping and closure of the ESN CAD cell with approximately 300,000 CY of suitable material. Additionally, approximately128,000 CY of suitable material could be placed to cap and close out the remaining two open CAD cells at the Fox Point Reach North site. The remaining suitable material would be placed at the RISDS if no beneficial use alternatives can be found in 2047-2048.

b. Demonstrate that all applicable local zoning ordinances, building codes, flood hazard standards, and all safety codes, fire codes, and environmental requirements have or will be met; local approvals are required for activities as specifically prescribed for nontidal portions of a project in §§ 1.3.1(B), (C), (F), (H), (I), (K), (M), (O) and (Q) of this Part; for projects on state land, the state building official, for the purposes of this section, is the building official;

The National Environmental Policy Act requires that an Environmental Assessment (EA) be prepared for the proposed work. A copy of the EA is enclosed. The EA demonstrates that all the environmental requirements that the proposed project is subject to have been met.

The project will be consistent to the maximum extent practicable with the Rhode Island Coastal Resources Management Plan (RICRMP).

c. Describe the boundaries of the coastal waters and land area that is anticipated to be affected;

The proposed maintenance dredging project will require the construction of CAD cells to accommodate unsuitable dredged material. Suitable material from the construction of the CAD cells will be used beneficially to restore bottom habitats in Port Edgewood Basin, cap the historic Prudence Island Disposal Site, and the capping of existing CAD cells in the Fox Point Reach of the Providence River FNP. The DMMP/EA as well as Attachments 1 and 2 to this package depict the proposed dredge areas as well as the proposed placement sites.

d. Demonstrate that the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters;

The proposed project is not anticipated to adversely impact erosion or deposition. Chapter 7 of the DMMP/EA for the proposed project details the anticipated project effects.

e. Demonstrate that the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life;

A complete analysis of the environmental consequences of the project on resources within the proposed project area are documented in Chapter 7 of the attached DMMP/EA. No significant impacts are anticipated. Therefore, the proposed project is consistent with this policy.

f. Demonstrate that the alteration will not unreasonably interfere with, impair, or significantly impact existing public access to, or use of, tidal waters and/or the shore;

A complete analysis of the consequences of the project on public access within the proposed project area are documented in Chapter 7 of the attached DMMP/EA. No significant impacts are anticipated. Therefore, the proposed project is consistent with this policy.

g. Demonstrate that the alteration will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation;

A complete analysis of the consequences of the project on physical processes within the proposed project area are documented in Chapter 7 of the attached DMMP/EA. No significant impacts are anticipated. Therefore, the proposed project is consistent with this policy.

h. Demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM;

A complete analysis of the consequences of the project on water quality within the proposed project area are documented in Chapter 7 of the attached DMMP/EA. No significant impacts are anticipated. Therefore, the proposed project is consistent with this policy.

i. Demonstrate that the alteration or activity will not result in significant impacts to areas of historic and archaeological significance;

A complete analysis of the consequences of the project on historical and archaeological resources within the proposed project area are documented in Chapter 7 of the attached DMMP/EA. No significant impacts are anticipated. Therefore, the proposed project is consistent with this policy.

j. Demonstrate that the alteration or activity will not result in significant conflicts with water dependent uses and activities such as recreational boating, fishing, swimming, navigation, and commerce, and;

A complete analysis of the consequences of the project on water dependent uses within the proposed project area are documented in Chapter 7 of the attached DMMP/EA. No significant impacts are anticipated. Therefore, the proposed project is consistent with this policy.

k. Demonstrate that measures have been taken to minimize any adverse scenic impact (see § 1.3.5 of this Part).

The construction of the proposed project will take place over a period of two years. During construction, dredging equipment will be present and visible to the public. However, following construction, dredging equipment will leave. Therefore, no long term adverse scenic impacts are expected.

2. Each topic shall be addressed in writing and include detailed site plans and a locus map for the proposed project.

An EA is included with this request for concurrence and contains maps and plans of the proposed project.

3. Additional requirements are listed for specific Category B activities and alterations in the sections that follow.

RICR Section 1.3.1(I) is applicable to this project and compliance with its policies are noted below.

RICR Section 1.3.1(I) Dredging and dredged material disposal (formerly § 300.9)

1. Policies

a. The Council shall support necessary maintenance dredging activities in Type 2, 3, 4, 5, and 6 waters, provided environmentally sound disposal locations and procedures are identified.

The project involves maintenance dredging of the Providence River and Harbor Federal Navigation Project. The material to be dredged from the FNP consists of unsuitable sandy silt that will be placed in confined aquatic disposal cells for containment. The majority of suitable sediments dredged from the CAD cell will be used beneficially to restore bottom habitats in Port Edgewood Basin, cap the historic Prudence Island Disposal Site, and the capping of existing CAD cells in the Fox Point Reach of the Providence River FNP. Therefore, the proposed project is consistent with this policy.

b. Where beneficial re-use options as set forth in R.I. Gen. Laws § 46-6.1-3 are not practical, the Council favors offshore open-water disposal for large volumes of dredged materials, providing that environmental impacts are minimized.

The majority of suitable sediments dredged from the proposed project will be used beneficially to restore bottom habitats in Port Edgewood Basin, the historic Prudence Island Disposal Site, and the capping of existing CAD cells in the Fox Point Reach of the Providence River FNP. Any volume of suitable material remaining will be placed at the Rhode Island Sound Disposal Site. Therefore, the proposed project is consistent with this policy.

c. The Council encourages the use of innovative nearshore methods of dredged materials disposal, particularly when small volumes of material must be disposed. These options

include but are not limited to the creation of wetlands, shellfish habitat, and beach nourishment in suitable areas.

USACE also encourages beneficial use alternatives where possible. The proposed project will place dredged material beneficially in Port Edgewood Basin to cap unsuitable sediments and to change the bathymetry in Edgewood Shoals to eliminate water quality issues. Material will also be used to cap the previously used Prudence Island Disposal Site, and to cap confined aquatic disposal cells in the Fox Point Reach of the Providence River FNP. Therefore, the proposed project is consistent with this policy.

d. For disposal of dredged material resulting from maintenance dredging operations, a Category A Review may be permitted provided the Executive Director determines that the disposal is conducted consistent with the RIDEM's dredging regulations and that the disposal is at an approved disposal facility, or at an approved federal disposal facility. Category A reviews may also be permitted when:

(1) the upland disposal volume is not greater than 10,000 cubic yards (see § 1.3.1(B) of this Part);

(2) the proposal complies with all applicable local zoning ordinances;

(3) applicable soil erosion and sediment controls are employed (see § 1.3.1(B) of this Part); and

(4) the proposal meets the standards of § 1.1.6(E) of this Part.

The proposed work does not involve upland disposal and is greater than 10,000 cubic yards. In addition, the proposed disposal location for all material is not at a previously approved disposal facility. Therefore, this policy is not applicable.

e. For beach replenishment, a Category A review may be permitted for the placement of clean sands provided the Executive Director determines that the placement of the materials shall be for beach replenishment only, and the proposal meets the standards of §§1.1.4(E) and 1.3.1(I) of this Part as applicable.

The proposed work involves placing dredged material in the subtidal nearshore environment. Therefore, this policy is not applicable.

f. The Council utilizes and follows the prescribed processes outlined in the Army Corps regulations and manuals for both upland and in-water dredged material disposal.

The project involves maintenance dredging of the Providence River and Harbor Federal Navigation Project. The material to be dredged from the FNP consists of unsuitable sandy silt that will be placed in confined aquatic disposal cells for containment. The majority of suitable sediments dredged from the CAD cell will be used beneficially to restore bottom habitats in Port Edgewood Basin, cap the historic Prudence Island Disposal Site, and the capping of existing

CAD cells in the Fox Point Reach of the Providence River FNP. Therefore, the proposed project is consistent with this policy.

g. The Council may require performance assurance bonds for projects that utilize in-water disposal or transit federal channels with loaded scows.

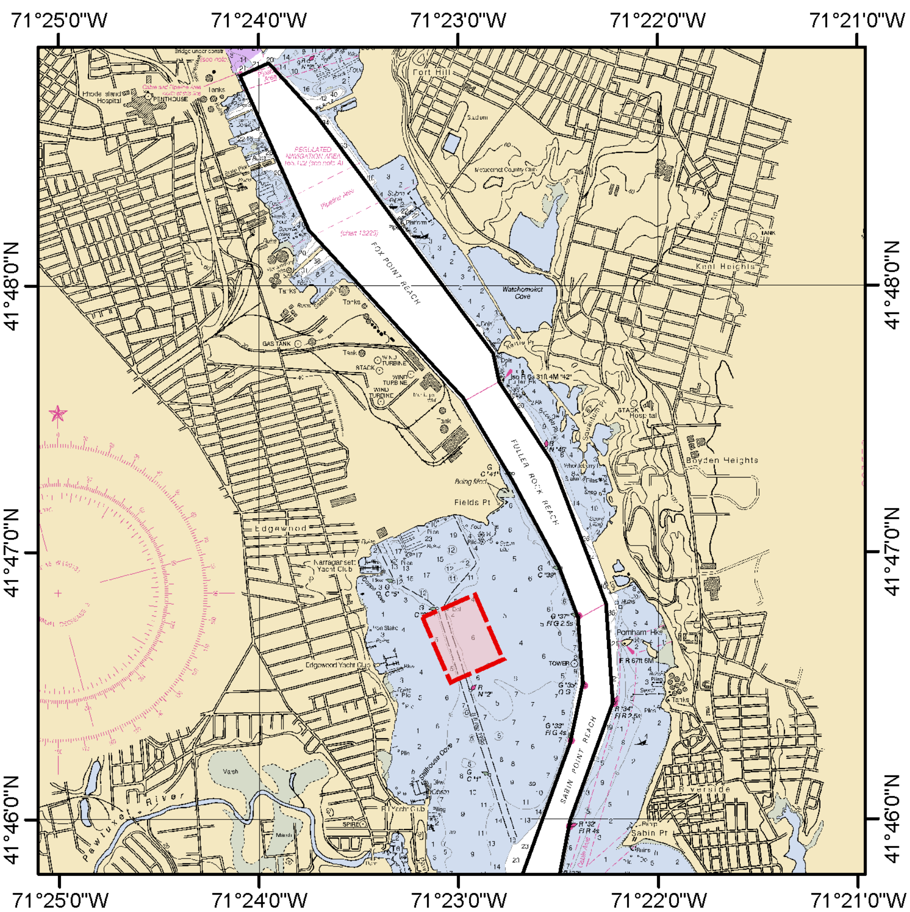
USACE and RI CRMC are project partners on the proposed project. The proposed project is consistent with this policy.

This page intentionally left blank.

DATA REPORT
October 2021 Sediment Sampling
And Benthic Community Analysis

Final

Edgewood Shoals CAD Cell
Providence River, RI



US Army Corps of Engineers ®
New England District

March 2022

OCTOBER 2021 SEDIMENT SAMPLING AND BENTHIC COMMUNITY ANALYSIS

EDGEWOOD SHOALS CONFINED AQUATIC DISPOSAL CELL

PROVIDENCE RIVER, RI

March 2022

Prepared by:

Planning Division
Environmental Resources and Marine Programs Section
U.S. Army Corps of Engineers
New England District
Concord, Massachusetts

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

The New England District of the US Army Corps of Engineers (USACE) is currently preparing a dredged material management plan (DMMP) that will identify, evaluate, and compare management alternatives for material generated from the maintenance dredging of the Providence River Federal Navigation Project (FNP) over the next 20-year period. This includes the management of 608,000 cubic yards of shoaled material which was found to be unsuitable for unconfined open water placement based on chemical and biological testing performed in 2013 and 2014. A potential alternative for this material, and additional unsuitable material that may be present in subsequent rounds of maintenance dredging, involves the construction of an access channel and one or more confined aquatic disposal (CAD) cells in the vicinity of Edgewood Shoals.

Edgewood Shoals is a natural shallow area in the Providence River located between Fields Point and the mouth of the Pawtuxet River. The eastern edge of the shoal abuts the 40-foot FNP channel. A 13-foot channel and basin were dredged through the shoal in the early 1940s to provide access to a shipyard commissioned by the U.S. Maritime Commission as part of the Nation's Emergency Shipbuilding Program. The channel has been allowed to shoal in over time and recent nautical charts (Figure 1) indicate a reported depth of 8 feet. The site of the former Fields Point Shipyard is currently occupied by a combined Navy, Marine Corps, and Army Reserve center and an educational facility run by Save the Bay. Land use along the western shoreline of Edgewood Shoals includes a mix of urban residential development and small marinas.

In October of 2021, USACE collected benthic grab samples from Edgewood Shoals to provide baseline information on the ecological resources of the proposed study area; specifically, macrobenthic invertebrate communities. The surficial sediments and associated habitat types within the proposed channel and adjacent areas that may be influenced by the construction of the proposed project were also characterized. This report describes the field and lab methods employed and the results of benthic community analysis along with an interpretation of these findings.

2.0 MATERIALS AND METHODS

2.1 Sediment Sample Collection and Processing

Benthic sampling activities were performed on October 20, 2021 by staff from the NAE Environmental Resources and Marine Programs Section. Work was carried out onboard the R/V Nomad, a 25-foot SBI Defender outfitted for coastal sampling and survey operations. Vessel positioning was achieved using a Hemisphere Vector VS1000™ Real Time Kinematic (RTK) position and heading system interfaced to a computer running Hypack® survey software for navigation. RTK corrections from the SmartNet North America VRS network service were accessed and applied in real time through a cellular internet connection. Depth measurements were obtained using an Airmar® P319 transducer operating at a frequency of 200 kHz.

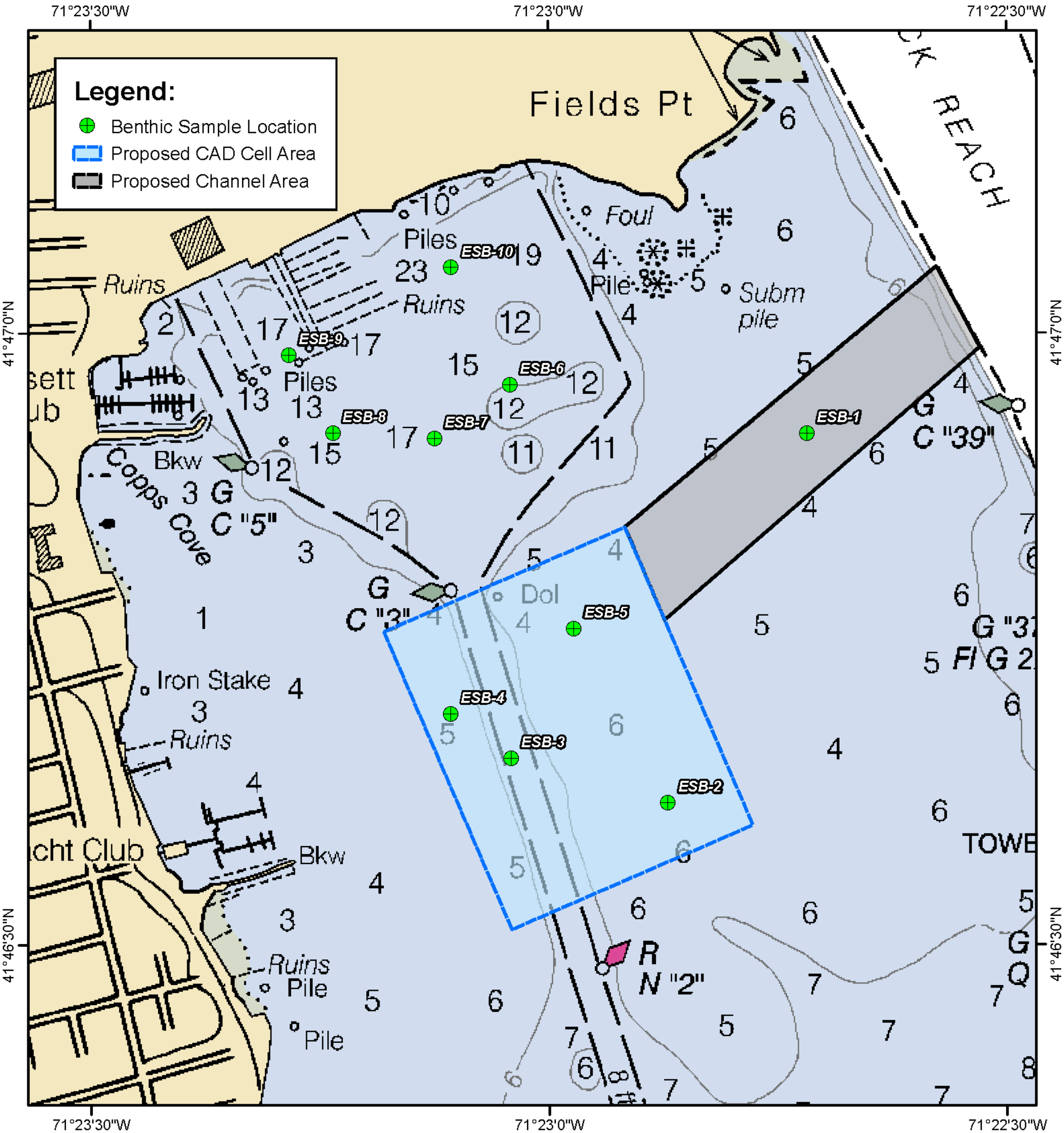
Ten sampling locations for benthic community analysis were established within the overall Edgewood Shoals project area (Figure 1). Five stations were located within the historic Fields

Point Shipyard basin, four stations were located within the proposed CAD cell, and one station was located within the proposed CAD cell entrance channel. Sampling station 3, along with being located within the proposed CAD cell, was also located within the extent of the historic Fields Point Shipyard entrance channel. At all ten stations, a 0.04 m^2 VanVeen grab sampler was used to collect a single benthic sample for community analysis.

Each sample collected for benthic community analysis was sieved with seawater thorough a 0.5 mm sieve and preserved in 10% formaldehyde with 0.1% rose bengal stain. Samples were kept in formaldehyde solution until processed at the NAE environmental laboratory located at Ft. Devens, MA. At the time of processing, the samples were washed on a 0.5 mm sieve to remove the preservative and remaining fine sediment. The material was then picked and sorted, and organisms were removed from the sediments and transferred to jars containing 70% ethanol. Organisms were identified to the lowest taxon possible and enumerated.

Table 1. Coordinate locations, depths, and descriptions of benthic samples collected from Edgewood Shoals in October 2021.

Station ID	Latitude (WGS84)	Longitude (WGS84)	Depth (FT MLLW)	Sample Description
ESB-1	41.781962	-71.378642	-5.6	Dark gray sandy silt with large, live quahogs, shell hash/ rubble, and *Spiochaetopterus* tubes.
ESB-2	41.776931	-71.381172	-6.1	Gray sandy silt with large, live quahogs, shell hash/ rubble, and *Spiochaetopterus* tubes.
ESB-3	41.777541	-71.384025	-12.7	Black organic silt.
ESB-4	41.778151	-71.385125	-5.5	Sandy silt with shell hash/ rubble and *Spiochaetopterus* tubes.
ESB-5	41.779307	-71.382883	-5.8	Gray sandy silt with shell hash/ rubble and *Spiochaetopterus* tubes.
ESB-6	41.782627	-71.384040	-11.5	Black organic silt with wooden piling debris and empty polychaete tubes
ESB-7	41.781897	-71.385414	-15.6	Black organic silt with macroalgal fragments and leaf litter/debris. Sample also contained fish bones.
ESB-8	41.781975	-71.387263	-11.5	Black organic silt with macroalgal fragments and leaf litter/debris.
ESB-9	41.783033	-71.388066	-30.1	Black organic silt with large barnacle (Balanomorpha) and mussel (Mytilidae) shell hash/ rubble.
ESB-10	41.784228	-71.385110	-17.3	Black organic silt with some algal fragment and leaf litter/debris.



US Army Corps
of Engineers
New England District

FIGURE 1:
EDGEWOOD SHOALS CAD CELL
2021 BENTHIC SAMPLE LOCATIONS

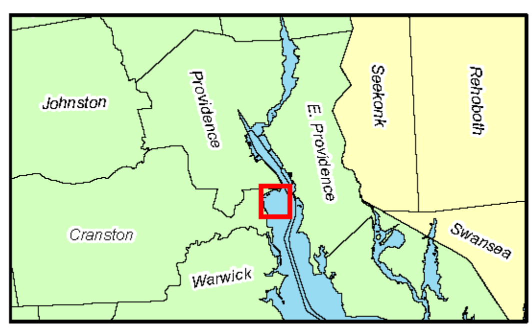
0 500 1,000 1,500 Feet

0 250 500 Meters

1:8,000

NOAA CHART 13225

GCS NAD1983



2.2 Benthic Community Analysis

Species richness (*S*), Peilou's evenness (*J'*), and Shannon-Weiner diversity (*H'*) were calculated for each sampling station using the *vegan* package in the R statistical analysis software suite (Oksanen, et al., 2020). Species richness a count of the number of taxa present at each sampling station (i.e., within each sample). Peilou's evenness is an index of how equally distributed taxa counts are between the taxa present at a station. The *J'* index approaches a value of 0 if counts are highly disproportionately distributed between taxa and approaches a value of 1 if the counts of taxa are equally distributed. Low evenness typically indicates the dominance of one or a few highly opportunistic taxa, while high evenness typically implies an equilibrium community with equally distributed counts of each taxon. The Shannon-Weiner index is a diversity measure that accounts for both the diversity, abundance, and evenness of taxa present. Communities with highly uneven, low counts of only a few species will have low *H'* values, while communities with equally distributed, high counts of a diverse assemblage of taxa will have high *H'* values. One caveat with *H'* is that the value will always increase with increases in abundance, regardless of evenness. A grouped boxplot comparing diversity indices between samples collected from within the historic Fields Point Shipyard channel and basin to samples collected outside of these areas was created using the *ggplot2* package in R (Wickham, 2016).

The Atzi's Marine Biotic Index (AMBI) was used to examine the ecological quality (i.e., level of disturbance) of the benthic communities present at sampling stations (Borja, Muxika, & Mader, 2020). AMBI actively maintains a list of nearly 11,000 benthic taxa in which each species is assigned to an ecological group ranging from 1-5 based on its sensitivity or tolerance to disturbance. Species in ecological group 1 are considered sensitive species, while species in ecological group 5 are considered to indicate pollution or disturbance. AMBI works by quantifying the proportion of taxa from each ecological group present in a sample to derive an AMBI value. Resulting AMBI values are used to assign a disturbance classification to each sample (Borja, Franco, & Perez, 2000). Because AMBI only takes into consideration the proportion of pollution/ disturbance tolerant species within a sample regardless of the species richness, abundance, or diversity present, some manual changes were performed to the disturbance classifications to better reflect the communities present.

The October 2021 benthic sample locations were plotted over multi-beam bathymetric survey data collected by the USACE New England District Hydrographic Survey Section in November of 2021 to help interpret the results of benthic community analysis and contribute USACE's understanding of the ecological framework of the area (Figure 2).

3.0 RESULTS AND DISCUSSION

3.1 Benthic Community Analysis

The benthic community within Edgewood Shoals was typical of a late-stage, equilibrium community, comprised of a diverse assemblage of benthic invertebrates from a wide-range of functional groups. The community contained many large, head-down, tube-building deposit-feeding polychaetes such as *Clymenella torquata*, *Sabaco elongatus*, and *Pectinaria gouldii*, as well as large, tube-building, filter-feeders such as *Spiochaetopterus oculatus* (an ecosystem engineer which can create reefs of worm tubes) and *Paraprionospio pinnata* (Pollack, 1997). There were high counts of small, tube/burrow-building, deposit-feeders such as the polychaetes: *Streblospio benedicti*, *Polydora cornuta*, and *Polycirrus eximius*, as well as the amphipod: *Ampelisca abdita*, and larger, burrowing, deposit-feeding polychaetes such as *Cirriformia grandis* and *Chaetozone setosa*. There were also high counts of more mobile, burrowing, deposit-feeders such as the small, disturbance-tolerant *Heteromastus filiformis* and the large-bodied, highly mobile polychaete *Leitoscoloplos fragilis*. The community also contained many mobile scavengers and carnivorous predators such as the polychaetes: *Glycera* spp., *Eteone* spp., *Oxydromus obscurus*, and *Nereis* spp., and isopods within the genus *Chiridotea* (Pollack, 1997). Many epifaunal invertebrates were also present within the benthic community, such as species within the genus, *Lembos* (filter/deposit-feeding amphipods associated with benthic macroalgae), and the ecosystem-engineer, *Crepidula fornicata* (large, filter-feeding gastropods whose shells provide structure for the attachment of benthic macroalgae and other fouling organisms), and their tiny ectoparasitic gastropod, *Boonea seminuda*. The benthic community also contained burrowing bivalves, including large, commercial-sized quahogs (*Mercenaria mercenaria*) and the smaller, organic-pollution-tolerant *Nucula proxima*. The bivalve, *Petrasma borealis*, which relies on sulfur-oxidizing chemosynthetic bacteria for sustenance, was also present within the benthic community (Pollack, 1997). Species that rely on sulfur-oxidizing symbionts are typical of anoxic environments. Correspondingly, the combination of poor water circulation due to the steep bathymetric gradient created by the Providence River FNP, and the presence of six different wastewater outfalls within Edgewood Shoals is known to create anoxic conditions in portions of the shoals during summer months (Medley, 2019). The benthic community within the extent of the historic Fields Point Shipyard channel and turning basin (corresponding to sampling stations 3, 6, 7, 8, 9, 10) was moderately (stations 3 and 6) to severely (stations 7-10) reduced from the surrounding community. The full species-sample data matrix is presented in Table 2.

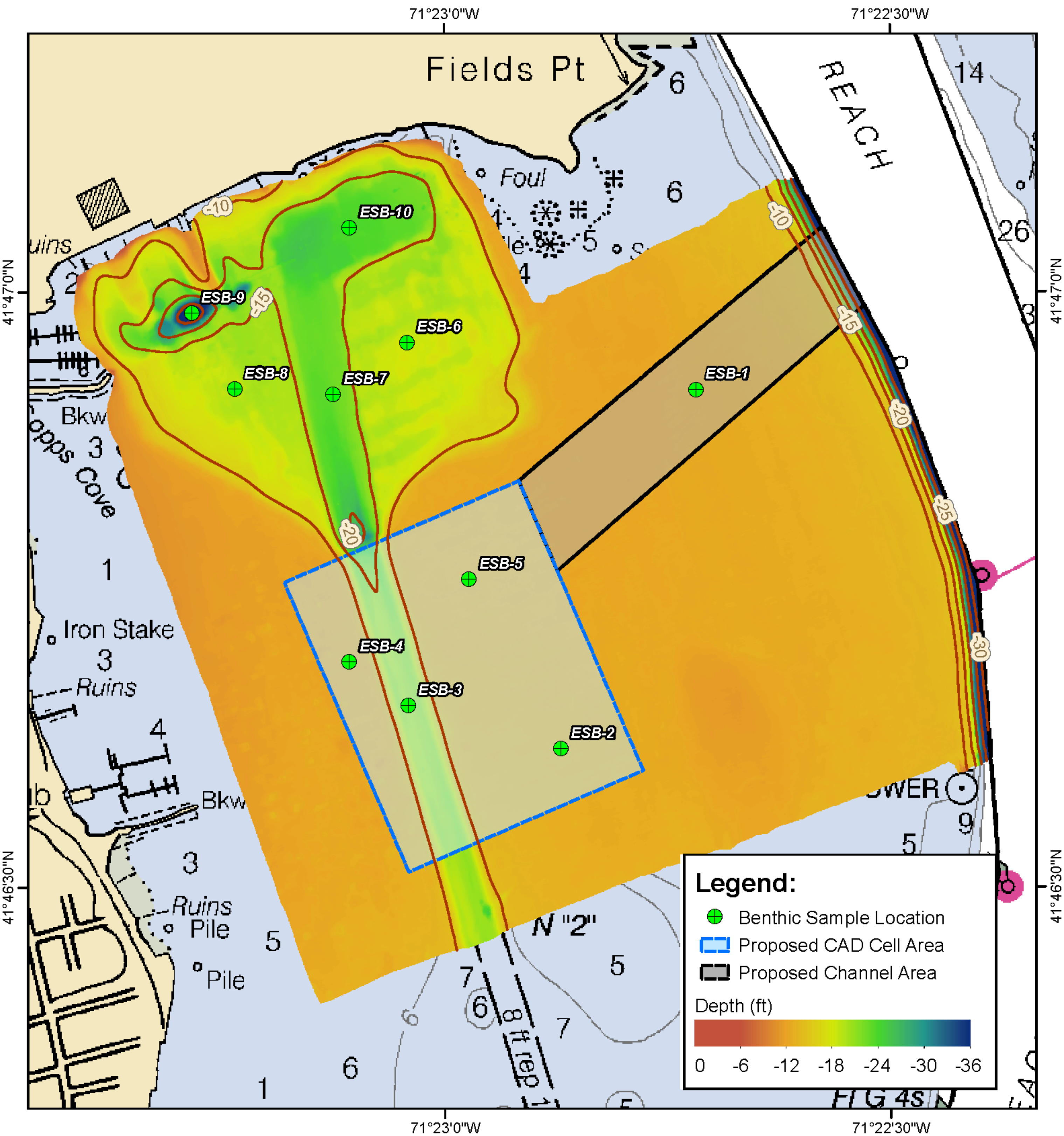
Diversity measures varied drastically between the sampling stations in Edgewood Shoals (Table 3). Sampling stations located outside of the historic Fields Point Shipyard entrance channel and turning basin (sampling stations 1, 2, 4, and 5) had consistently high values for species richness (ranging from 22-29 species per 0.04 m^2), Shannon-Weiner diversity (ranging from 2.3-2.6), and Peilou's evenness (ranging from 0.7-0.8). Both sampling station 3 (located within the historic entrance channel) and sampling station 6 (located in the eastern portion of the turning basin closer to the river channel) had moderately reduced values for richness (11 and 16 species per 0.04 m^2, respectively), diversity (1.5 and 1.6, respectively), and evenness (both 0.6). The sampling stations located within the interior, nearshore portion of the turning basin (stations 7, 8, 9, and 10) had severely reduced values of richness (0-3 species per 0.04 m^2) and diversity (0.0-1.0). Because there were so few individuals within these samples, the values for evenness varied drastically (ranging from 0.0-0.9) and were rather misleading. The grouped boxplot presented in Figure 3 illustrates the differences in diversity measures between sampling stations from within the historic Fields Point Shipyard and stations outside of those areas. Importantly, the total abundance of benthic invertebrates also varied radically between sampling stations. Mean total abundance at sampling stations outside of the channel or turning basin was 485.8 individuals per 0.04 m^2. The mean total abundance at sampling stations 3 and 6 (located within the entrance channel and eastern portion of the turning basin, respectively) was 209.5 individuals per 0.04 m^2. The mean total abundance of sampling stations within the interior, nearshore portions of the turning basin were reduced to 2.8 individuals per 0.04 m^2. In other words, the mean total abundance was over 175 times greater at the sampling stations located outside of the extent of the turning basin than those located within the interior portions of it.

The results of the AMBI ecological quality analysis are presented in Table 3. The benthic communities present within Edgewood Shoals ranged from "slightly disturbed" to "extremely disturbed", according to AMBI. Sampling stations located outside of the Fields Point entrance channel and turning basin were all classified as "slightly disturbed". The sampling stations located within the extent of the entrance channel and turning basin ranged from "slightly disturbed" to "extremely disturbed". However, the creators of AMBI warn that results can be misleading and potentially unreliable when samples contain fewer than three species or fewer than three individuals (Borja & Muxika, 2005). In these instances (sampling stations 7-10), Borja & Muxika (2005) suggest supplementing disturbance classifications with other indices such as total abundance, species richness, diversity, and evenness. Therefore, based on extreme reductions in abundance, richness, and diversity, sampling station 7 was re-classified from "slightly disturbed" to "heavily disturbed" and station 8 re-classified from "moderately disturbed" to "heavily disturbed".

These results suggest that the benthic community present in the general vicinity of Edgewood Shoals is subject to a low level of underlying disturbance, and are indicative of a late-stage, equilibrium, ecosystem engineering community with benthic invertebrates from many different functional groups. However, moderate to extreme levels of disturbance likely resulting from a combination of anoxia, physical disturbance from dredging activities, pollution, and organic enrichment severely reduces the benthic community within the historic Fields Point Shipyard entrance channel and turning basin. For example, sampling station 5, located outside of the area of heaviest disturbance, contained over 800 individuals, representing at least 29 different species, with a high level of evenness (0.7) amongst the species present, while sampling station 10 was devoid of any living benthic invertebrates.

Table 2. Benthic invertebrates collected from Edgewood Shoals on October 20, 2021. Numbers are per 0.04 m^2.

Taxon		Edgewood Shoals Benthic Sample										Total
		1	2	3	4	5	6	7	8	9	10	
Annelida	**Polychaeta**											
	Capitella capitata	-	-	-	2	1	-	1	-	4	-	**8**
	Chaetozone setosa	1	-	1	13	4	5	-	-	-	-	**24**
	Cirriformia grandis	-	-	-	-	16	-	-	-	-	-	**16**
	Clymenella torquata	2	4	-	2	7	-	-	-	-	-	**15**
	Eteone spp.	7	12	1	11	22	1	-	-	-	-	**54**
	Glycera spp.	27	28	1	47	33	1	-	-	-	-	**137**
	Heteromastus filiformis	54	27	4	120	119	87	-	-	-	-	**411**
	Hydroides dianthus	-	-	-	-	1	-	-	-	-	-	**1**
	Leitoscoloplos fragilis	6	2	-	13	20	1	-	-	-	-	**42**
	Nephtys ciliata	-	1	-	-	-	-	-	-	-	-	**1**
	Nephtys incisa	-	-	-	-	-	1	-	-	-	-	**1**
	Nereis spp.	3	4	-	2	10	-	1	-	-	-	**20**
	Odontosyllis fulgurans	-	1	-	-	-	-	-	-	-	-	**1**
	Oxydromus obscurus	-	3	-	14	6	2	-	-	-	-	**25**
	Paraprionospio pinnata	14	5	1	5	11	17	-	-	1	-	**54**
	Parasabella microphthalma	-	-	-	-	1	-	-	-	-	-	**1**
	Pectinaria gouldii	1	2	1	2	9	-	-	-	-	-	**15**
	Polycirrus eximius	-	-	-	24	61	1	-	-	-	-	**86**
	Polydora cornuta	10	26	-	29	44	2	-	-	-	-	**111**
	Sabaco elongatus	-	-	-	-	2	1	-	-	-	-	**3**
	Spiochaetopterus oculatus	2	10	1	5	6	4	-	-	-	-	**28**
	Streblospio benedicti	51	65	24	143	235	134	2	-	1	-	**655**
	Clitellata											
	Oligochaeta spp.	6	3	-	11	4	6	-	-	-	-	**30**
Arthropoda	**Malacostraca**											
	Ampelisca abdita	16	18	14	45	94	103	-	1	-	-	**291**
	Carcinus maenas	-	1	-	-	-	-	-	-	-	-	**1**
	Chiridotea spp.	1	1	-	6	-	-	-	-	-	-	**8**
	Cumacea spp.	-	1	1	6	1	-	-	-	-	-	**9**
	Idunella clymenellae	1	-	-	-	-	-	-	-	-	-	**1**
	Lembos spp.	15	34	-	51	110	-	-	-	-	-	**210**
	Lysianopsis alba	-	-	-	1	-	-	-	-	-	-	**1**
Mollusca	**Bivalvia**											
	Ameritella agilis	-	-	-	3	-	-	-	-	-	-	**3**
	Mercenaria mercenaria	2	5	-	-	1	-	-	-	-	-	**8**
	Nucula proxima	1	4	-	4	11	3	-	-	-	-	**23**
	Petrasma borealis	-	2	-	2	2	-	-	-	-	-	**6**
	Gastropoda											
	Acteocina canaliculata	-	-	-	1	1	-	-	-	-	-	**2**
	Astyris lunata	1	-	-	-	-	-	-	-	-	-	**1**
	Boonea seminuda	-	7	-	-	-	-	-	-	-	-	**7**
	Crepidula fornicata	4	24	-	4	21	-	-	-	-	-	**53**
	Japonactaeon punctostriatus	2	3	1	-	3	-	-	-	-	-	**9**
	Turbonilla spp.	-	1	-	-	-	-	-	-	-	-	**1**
	Total Individuals	**227**	**294**	**50**	**566**	**856**	**369**	**4**	**1**	**6**	**0**	**2373**
	Total No. Species	**22**	**27**	**11**	**26**	**29**	**16**	**3**	**1**	**3**	**0**	**40**



US Army Corps
of Engineers
New England District

FIGURE 2:
EDGEWOOD SHOALS CAD CELL
2021 BATHYMETRY

0 510 1,020 1,530 Feet
0 260 520 Meters
1:8,226

NOAA CHART 13225

GCS NAD1983

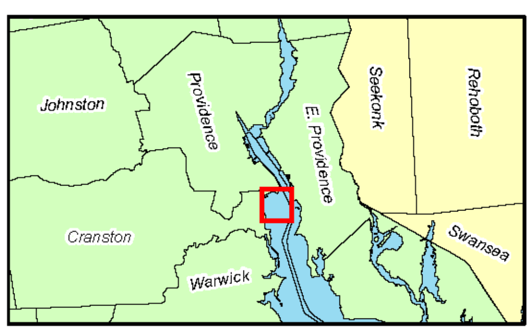


Table 3. Diversity measures and disturbance classification for Edgewood Shoals benthic sampling stations.

Sampling Station	Species Richness (S)	Shannon-Weiner Index (H')	Peilou's Evenness (J)	Disturbance Classification
ESB-1	22	2.3	0.8	Slightly disturbed
ESB-2	27	2.6	0.8	Slightly disturbed
ESB-3	11	1.5	0.6	Slightly disturbed
ESB-4	26	2.4	0.7	Slightly disturbed
ESB-5	29	2.4	0.7	Slightly disturbed
ESB-6	16	1.6	0.6	Moderately disturbed
ESB-7	3	1.0	0.9	Heavily disturbed
ESB-8	1	0.0	0.0	Heavily disturbed
ESB-9	3	0.9	0.8	Heavily disturbed
ESB-10	0	0.0	0.0	Extremely disturbed

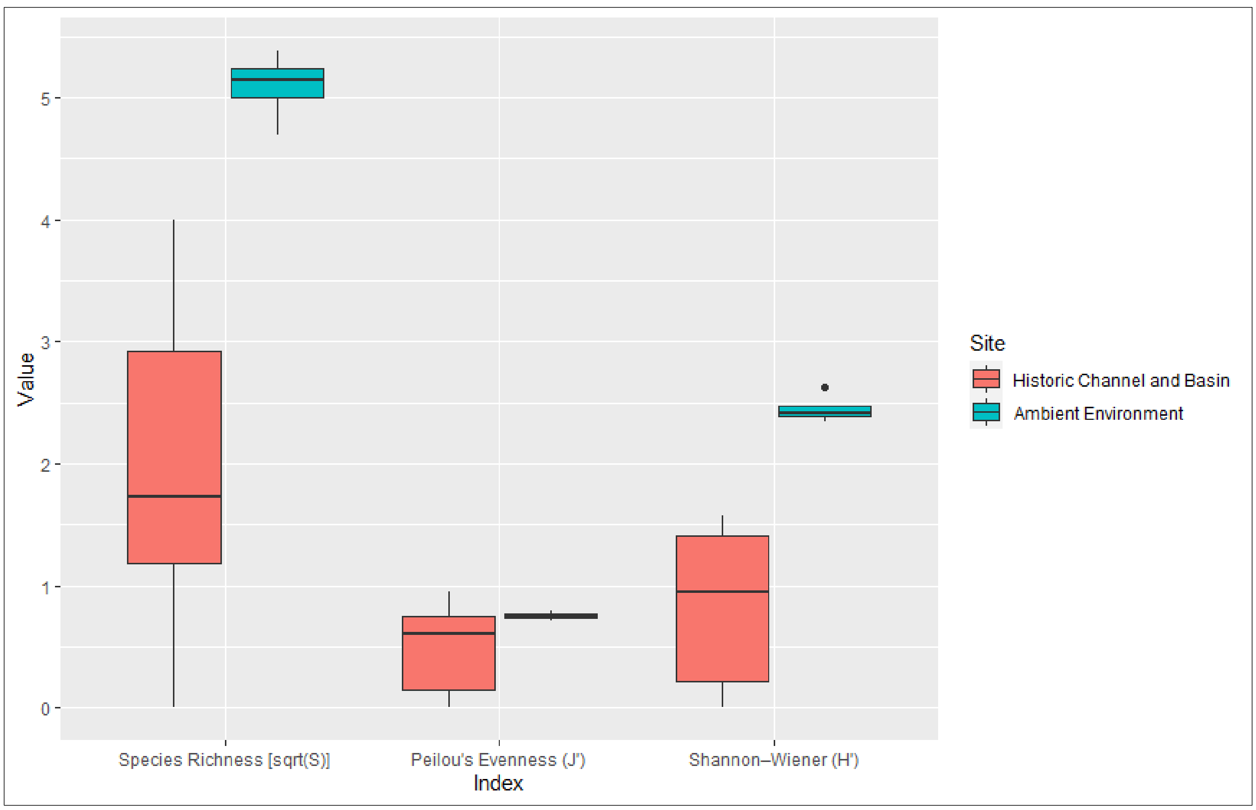


Figure 3. A boxplot depicting species richness, diversity, and evenness between sampling stations grouped by area. Red boxes correspond to sampling stations located within the Fields Point entrance channel and turning basin. Species richness was square rooted to make it more visually comparable to the other indices.

This page intentionally left blank.

NEW ENGLAND DISTRICT
U.S. ARMY CORPS OF ENGINEERS, CONCORD, MA
CLEAN WATER ACT SECTION 404 (b)(1) EVALUATION

PROJECT: Maintenance Dredging of the Providence River and Harbor Federal Navigation Project, Providence, Rhode Island.

PROJECT MANAGER: Miranda Cashman PHONE NO. (978) 318-8128
COMPLETED BY: Todd Randall PHONE NO. (978) 318-8318

PROJECT DESCRIPTION: The U.S. Army Corps of Engineers (USACE), New England District proposes maintenance dredging of the Providence River and Harbor Federal Navigation Project (Providence FNP) in Providence, Rhode Island. Hydrographic surveys identified shoaling of the FNP channel, which creates unsafe navigation conditions since shallow conditions increase the risk of vessel groundings. Maintenance dredging of the Providence FNP is required to restore the channel to its full authorized depth, plus allowable overdepth, and provide safe navigation. Per regulations, USACE has completed a Dredged Material Management Plan (DMMP) which serves as the decision document for the planned maintenance dredging and the placement of the dredged material from the 16.8-mile-long Providence FNP. An Environmental Assessment (EA) has also been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. This evaluation of the Clean Water Act Section 404(b)(1) guidelines is being performed for the placement of sediments associated with the project.

The Providence River and Harbor FNP was originally adopted in 1852 and was modified by 17 subsequent authorizations. The existing project was authorized by the River and Harbor Act of 1965, in accordance with reports printed in Senate Document #93, 88th Congress, 2d Session, dated August 18, 1964. This project authorized deepening the main channel and turning basin in the Providence River to 40 feet. A complete list of authorizations is included in the DMMP.

The proposed project described in the DMMP involves two complete maintenance dredging cycles Providence FNP over a 20-year period. Cycle-One is expected to be constructed in 2027-2029 and Cycle-Two is expected to be constructed in 2047-2049. Each dredging cycle will require the construction of an access channel confined aquatic disposal (CAD) cell for the placement of unsuitable dredged material generated from the maintenance dredging. The CAD cells have been sized to also receive unsuitable material from three adjacent shallow-draft Federal navigation projects (FNPs) (Bullocks Cove, Pawtuxet Cove, and Apponaug Cove) and receive additional dredged material from local non-Federal sources (at full non-Federal expense).

The CAD cells will be located in the Edgewood Shoals area of Narragansett Bay adjacent to the Fuller Rock Reach of the Providence FNP. For Cycle One, the Edgewood Shoals North (ESN) CAD cell will be constructed in 2027, and will be sized for the placement of 2,072,933CY of unsuitable material from Providence FNP, 65,240 CY of unsuitable material from the three adjacent FNPs, 300,000 CY for additional material from non-Federal dredging sources, future starter cell materials from a Cycle-

Two CAD cell, and a final three-foot cap of suitable material for restoration and closeout. The ESN CAD cell construction will cover a 55-acre area and generate approximately 37,000 CY of unsuitable material and 3,300,000 CY of suitable material.

The suitable material generated from the ESN CAD cell construction can be beneficially used. Approximately 389,000 CY of material (37,000 CY unsuitable, capped by 352,000 CY suitable) from ESN CAD cell will be placed for beneficial use in the adjacent Port Edgewood Basin, a former Department of Defense navigation port. Material placed at Port Edgewood Basin will cover existing unsuitable sediments in the basin as well as change the bathymetry which will alleviate water circulation and water quality issues in the basin. Approximately 1,825,000 CY of suitable material will be placed beneficially at the previously used Prudence Island Disposal Site to cover dredged material mounds at the site that contain unsuitable material. Additionally, approximately 113,000 CY of suitable material will be used to cap and restore bottom bathymetry at five open CAD cells in the Fox Point Reach of the FNP that were constructed for prior maintenance dredging activity in 2005. The remaining 1,000,000 CY of suitable material from the ESN CAD cell will be placed at the Rhode Island Sound Disposal Site (RISDS). Following the construction of the ESN CAD cell, the Providence FNP will be dredged in the year 2028. The ESN CAD cell will remain open for approximately 20 years for placement of additional Federal and non-Federal dredging placement needs and then be closed out and capped with suitable material excavated from the Cycle-Two CAD cell in 2047.

Maintenance dredging Cycle Two is expected to be implemented in 2047-2048. Based upon shoaling rate calculations, approximately 1,990,000 CY will be dredged from the Providence FNP in Cycle Two. To place this material, the Edgewood Shoals South (ESS) CAD cell will be constructed south of the ESN CAD cell. The ESS CAD cell will cover a 55-acre area and be large enough to accommodate the predicted dredging needs of the Providence FNP in 2048, 44,320 CY estimated capacity for maintenance dredging of the three adjacent shallow-draft FNPs, 300,000 CY of non-Federal dredging projects, capacity for future starter cell placement, and final capping with three feet of clean material. The ESS CAD cell will remain open for approximately 20 years before capping and closeout.

The construction of the ESS CAD cell will generate approximately 3,000,000 CY of dredged material. The approximately 38,000 CY of unsuitable material from the ESS CAD cell will be placed in the Cycle-One (ESN) CAD cell, followed by capping and closure of the ESN CAD cell with approximately 300,000 CY of suitable material from the ESS CAD cell construction. Additionally, approximately 130,000 CY of suitable material could be placed to cap and close out the remaining two open CAD cells at Fox Point Reach. The remaining suitable material will be placed at the RISDS if no additional beneficial use alternatives can be found in 2047-2048. Following the construction of the ESS CAD cell, the Providence FNP will be dredged in the year 2048. The ESS CAD cell will remain open for approximately 20 years for placement of additional Federal and non-Federal dredging placement needs and then be capped and closed out in the year 2067.

NEW ENGLAND DISTRICT
U.S. ARMY CORPS OF ENGINEERS
Evaluation of Clean Water Act Section 404(b)(1) Guidelines

PROJECT: Providence River and Harbor Federal Navigation Project, Providence, Rhode Island

1. Review of Compliance (Section 230.10(a)-(d)).

	YES	**NO**
a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to or be in the aquatic ecosystem to fulfill its basic purpose.	X	
b. The activity does not appear to: 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their habitat; and 3) violate requirements of any Federally designated marine sanctuary.	X	
c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values.	X	
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.	X	

2. Technical Evaluation Factors (Subparts C-F).

	N/A	**Not Significant**	**Significant**
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)			
1) Substrate		X	
2) Suspended particulates/turbidity		X	
3) Water column impacts		X	
4) Current patterns and water circulation		X	
5) Normal water fluctuations		X	
6) Salinity gradients		X	
b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D)			

		N/A	Not Significant	Significant
	1) Threatened and endangered species		X	
	2) Fish, crustaceans, mollusks, and other organisms in the aquatic food web		X	
	3) Other wildlife (mammals, birds, reptiles, and amphibians)		X	
c. Potential Impacts on Special Aquatic Sites (Subpart E).				
	1) Sanctuaries and refuges	X		
	2) Wetlands		X	
	3) Mud flats		X	
	4) Vegetated shallows		X	
	5) Coral reefs	X		
	6) Riffle and pool complexes	X		
d. Potential Effects on Human Use Characteristics (Subpart F).				
	1) Municipal and private water supplies	X		
	2) Recreational and commercial fisheries		X	
	3) Water-related recreation		X	
	4) Aesthetics impacts		X	
	5) Parks, national and historic monuments, national seashores, wilderness areas, research sites and similar preserves		X	

3. <u>Evaluation and Testing (Subpart G).</u>

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)		
	1) Physical characteristics	X
	2) Hydrography in relation to known or anticipated sources of contaminants	X

	3) Results from previous testing of the material or similar material in the vicinity of the project	X
	4) Known, significant sources of persistent pesticides from land runoff or percolation	X
	5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA)	X
	6) Public records of significant introduction of contaminants from industries, municipalities, or other sources.	X
	7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	X
	8) Other sources (specify)	X
	<u>List appropriate references</u>. See USACE Environmental Assessment for the Maintenance Dredging of the Providence River and Harbor Federal Navigation Project, Sections 2.5, 4.2, 4.12, Appendix F	

	YES	NO
b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredged material is not a carrier of contaminants or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints.	X	

4. <u>Disposal Site Delineation (Section 230.11(f)).</u>

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (*Check only those appropriate.*)		
	1) Depth of water at disposal site	X
	2) Current velocity, direction, variability at disposal site	X
	3) Degree of turbulence	
	4) Water column stratification	X
	5) Discharge vessel speed and direction	X
	6) Rate of discharge	X
	7) Dredged material characteristics (constituents, amount, and type of material, settling velocities)	X

	8) Number of discharges per unit of time	X
	9) Other factors affecting rates and patterns of mixing (specify)	

List appropriate references. See USACE Environmental Assessment for the Maintenance Dredging of the Providence River and Harbor Federal Navigation Project, Sections 2.5, 3.0, and Appendix F

	YES	**NO**
b. An evaluation of the appropriate information factors in 4a above indicated that the disposal sites and/or size of mixing zone are acceptable.	X	

5. Actions to Minimize Adverse Effects (Subpart H).

	YES	**NO**
All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.	X	

List actions taken.

1. The designated tow vessel will be directed to place dredged material at specific coordinates within the designated placement sites to ensure discharge occurs in the areas assessed for effects.

6. Factual Determination (Section 230.11).

A review of appropriate information, as identified in Items 2 – 5 above, indicates there is minimal potential for short or long term environmental effects of the proposed discharge as related to:

	YES	**NO**
a. Physical substrate at the disposal site (review Sections 2a, 3, 4, and 5 above)	X	
b. Water circulation fluctuation and salinity (review Sections 2a, 3, 4, and 5)	X	
c. Suspended particulates/turbidity (review Sections 2a, 3, 4 and 5)	X	
d. Contaminant availability (review Sections 2a, 3, and 4)	X	
e. Aquatic ecosystem structure, function, and organisms (review Sections 2b and 2c, 3, and 5)	X	
f. Proposed disposal site (review Sections 2, 4, and 5)	X	

g. Cumulative effects on the aquatic ecosystem	X	
h. Secondary effects on the aquatic ecosystem	X	

7. Findings of Compliance or Non-compliance

	YES	**NO**
The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines.	X	

Date

Justin R. Pabis, P.E.
Colonel, U.S. Army Corps of Engineers
District Engineer

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

CENAE-PDE 13 October 2025

MEMORANDUM FOR THE RECORD

SUBJECT: Providence River and Harbor Dredged Material Management Plan (DMMP) – Clean Air Act (CAA) Air Quality Conformity Analysis Coordination.

1. BACKGROUND. During the development of the Providence River and Harbor DMMP, which includes the preferred alternative of maintenance dredging of the Providence River and Harbor Federal Navigation Project (FNP) and the construction of two confined aquatic disposal cells (CAD cells) to contain unsuitable dredged material, a CAA Air Quality Conformity Analysis (conformity analysis) was determined by the U.S. Army Corps of Engineers (USACE) to be unnecessary for CAA compliance for maintenance dredging. The basis for this determination was the fact that maintenance dredging is exempt from conformity analysis per 40 CFR 93.153(c)(ix).

However, the maintenance dredging exemption provided by 40 CFR 93.153(c)(ix) would not apply to the proposed construction of CAD cells as dredging to new depths would be required. As the state of Rhode Island is in attainment status for all National Ambient Air Quality Standards (NAAQS), the proposed construction of CAD cells was also determined to be exempt from the need for a conformity analysis.

The USACE subsequently learned that the Providence River and Harbor DMMP project area (Providence, Rhode Island) is located within a designated CAA Ozone Transport Region (OTR) and proposed CAD cell construction may require a conformity analysis of ozone precursors to determine if emissions would be below *de minimis* thresholds. The USACE sought confirmation from the Rhode Island Department of Environmental Management – Office of Air Resources (RIDEM-OAR) on whether the OTR designation warranted special consideration regarding conformity analysis.

2. Resolution: USACE contacted the RIDEM-OAR to determine if the OTR designation warranted special consideration regarding conformity analysis. Ms. Karen Slattery (RIDEM-OAR Deputy Administrator) was contacted and replied via email of 23 September 2025 (following her communication with the US Environmental Protection Agency) that the OTR designation does not affect the NAAQS attainment status and therefore a conformity analysis was not needed. Ms. Slattery's email is provided with this memorandum.

3. Conclusion: A conformity analysis in not required for USACE's Providence River and Harbor maintenance dredging and CAD cell creation efforts as detailed in the DMMP for the project.

Prepared by: Todd Randall

RANDALL.TODD.A.1241930480 Digitally signed by RANDALL.TODD.A.1241930480 Date: 2025.10.13 23:33:56 -04'00'

Enclosure

From:	Slattery, Karen (DEM)
To:	Randall, Todd A CIV USARMY CENAE (USA)
Subject:	[Non-DoD Source] RE: Conformity Providence River Dredging Project
Date:	Tuesday, September 23, 2025 4:26:16 PM

I received a quick response from EPA confirming that I am correct – General Conformity does not apply.

Karen Slattery

From: Randall, Todd A CIV USARMY CENAE (USA) <Todd.A.Randall@usace.army.mil>
Sent: Monday, September 22, 2025 4:55 PM
To: Slattery, Karen (DEM) <karen.slattery@dem.ri.gov>
Subject: RE: Conformity Providence River Dredging Project

Thanks Karen!

That was my initial determination too, but we got a comment on our proposed project from our legal team about RI also being in an OTR – so was not sure if that had any implications for thresholds.

Not being completely understanding of that designation, I thought I'd ask.

So just to confirm, the designation of being in an OTR does not come with any special need to use threshold values for NAAQS, correct?

Thanks again for the quick response – you've brightened my day considerably

Cheers,
TODD

TODD RANDALL
Marine Ecologist
US Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742
Office: 978-318-8518
Cell: 978-580-3255

From: Slattery, Karen (DEM) <karen.slattery@dem.ri.gov>
Sent: Monday, September 22, 2025 10:55 AM
To: Randall, Todd A CIV USARMY CENAE (USA) <Todd.A.Randall@usace.army.mil>
Subject: [Non-DoD Source] Conformity Providence River Dredging Project

Hello Todd,

Your question regarding conformity for this project was directed to me for response. RI is in attainment of all the NAAQS and as such a conformity determination is not required.

Please contact me if you have any additional questions.

Karen Slattery
Deputy Administrator

Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street, Providence, RI 02908
(401)537-4396

This page intentionally left blank.

Water Quality Monitoring Field Sampling Plan

1. **Project Objectives:** This field sampling plan (FSP) focuses on methods to conduct water quality monitoring (WQM) during disposal of dredged material from the Providence River and Harbor Federal Navigation Project (FNP) into the Edgewood Shoals confined aquatic disposal (CAD) cell. Previously in 2003, extensive water column sampling and monitoring indicated there were no adverse effects during dredging and disposal activities related to the FNP maintenance dredging and disposal effort (USACE, 2008). Therefore, this WQM FSP builds on that empirical data and focuses on turbidity monitoring during disposal activities.

The primary objective of the WQM effort is to use adaptive management to limit the extent of water quality impacts resulting from dredged material disposal operations. Monitoring data will be collected by the United States Army Corps of Engineers (USACE) New England District (NAE) so that operational adjustments can be made as needed to limit the dispersal of suspended sediments and associated contaminants.

The overall WQM approach for the Providence River and Harbor maintenance dredging effort utilizes an adaptive, criteria-based strategy to monitor project-related increases in turbidity. In situ (i.e., field based) turbidity measurements are collected at established compliance transects and compared to background levels. In the event of an exceedance, a decision sequence is used to determine whether corrective actions are required.

2. **Scope of Work and Overview of Monitoring Approach:** WQM will be performed to characterize sediment resuspension and plume transport. The emphasis of the program will focus on near-field turbidity impacts as well as assessing the extent of transport away from the disposal operation. Overall, the monitoring effort will include transect monitoring and may incorporate plume tracking.

Boat-based monitoring will be performed at an up-current reference location to establish background conditions and along transects at defined distances down-current of disposal operations. In-situ turbidity monitoring results will be compared against the project-specific turbidity criterion, which is defined as 50 nephelometric turbidity units (NTU) above background measured at the compliance transect. If turbidity exceedances are measured, NAE may perform Acoustic Doppler Current Profiler (ADCP) transects to document the extent of the plume.

3. **Boat-Based Water Quality Monitoring:** The NAE field team will utilize a multiparameter data sonde (Yellow Springs International [YSI] 6 series or equivalent) to collect in-situ measurements of instrument depth, temperature, salinity, turbidity, and dissolved oxygen (DO) during boat-based monitoring. A

handheld display unit will be used to read parameters from the sonde during observation transects. Data will be recorded in a field logbook. The boat-based sondes will be calibrated for all parameters daily (when in use) to ensure data quality.

Boat-based monitoring of in-situ turbidity will be performed daily during periods of active disposal activities for the first five days of the project. The monitoring schedule for the remainder of the project will be based on the results from this initial monitoring.

4. **Monitoring Locations:** Water quality measurements will be taken at three locations:

- **Reference:** A reference station will be located 1,000 feet up-current of the disposal boundary to provide background conditions.
- **Active Disposal Zone**: Measurements will be made along the boundary of the disposal area. This is defined as close as practicable and as safety allows (e.g., typically no closer than 50 or 75 feet from the scow).
- **Compliance Transect**: Defined as 1,000 feet down-current of the CAD cell boundary.

Reference Station:

At the start of each monitoring day, the field team will travel to the reference location, 1,000 feet up-current of the active disposal area. The reference location will vary depending on the tide (flood versus ebb). Approximate tide phase will be determined by checking the tide charts for the Providence River and recorded in the field logbook.

- Flood tide: the reference location is 1,000 feet south of the southern boundary of the CAD cell.
- Ebb tide: the reference location is 1,000 feet north of the northern boundary of the CAD cell.

Targeting the cleanest, least turbid location, the reference site will be outside the influence of any localized turbidity sources (e.g., CSO discharges or storm water drains), but still representative of the water column conditions near the disposal area. Water depth will be measured with a weighted line or depth sounder and the result recorded in the field logbook. The in-situ sensors will be lowered slowly through the water column with care taken to avoid placing the instruments on the bottom. Turbidity measurements will be collected at top, middle, and bottom (within three feet of the sediment) depths. The in-situ readings for all parameters at these depths will also be recorded in the field logbook.

The highest reference turbidity value will serve as the background value for subsequent turbidity readings taken during the applicable tidal phase. This value will be subtracted from subsequent readings to determine if the turbidity criterion has been exceeded. Reference locations may need to be resampled in the event of changing tidal or weather conditions, such as rain events, which can dramatically alter ambient water quality conditions. Resampling of the reference location will be conducted at the field team's discretion based on real-time data feedback and field observations.

Active Disposal Zone:

The sampling team will transit to the down-current area during active disposal operations. In-situ readings will be collected at this area in the same manner described for the reference location. The focus of the efforts will be on identifying in which direction, if any, the plume is dispersing. Within the active disposal zone, turbidity readings of 50 NTU above background will not result in a threshold exceedance; however, efforts will be made to reduce high turbidity plumes if observed.

Compliance Transects:

Compliance transects are located 1,000 feet down current of the active disposal zone. Real-time data feedback and visual observations will be used to identify any suspended sediment plumes at the compliance transects. In-situ readings will be collected at this area in the same manner described for the reference location. Measurements will be collected every fifteen minutes for at least one hour or until turbidity levels reach background levels.

If a substantial turbidity plume is identified, subsequent readings will be concentrated at this location to identify fluctuations in the plume intensity and potential exceedances of the compliance threshold. In this case, an ADCP may also be used to map the location and extent of the plume.

In the event of a sustained (more than one hour) threshold exceedance at the compliance transect determined to be attributable to the disposal activities, NAE will stop disposal activities and reassess the disposal and monitoring plan.

References:

USACE. 2008. Providence River and Harbor Maintenance Dredging Project Synthesis Report. DAMOS Contribution No. 178. US Army Corps of Engineers, New England District, Concord, MA.

This page intentionally left blank.

MEMORANDUM OF UNDERSTANDING
BETWEEN THE
US ARMY CORPS OF ENGINEERS
AND
THE RHODE ISLAND
COASTAL RESOURCES MANAGEMENT COUNCIL

TO ESTABLISH PRACTICES AND COORDINATION OF INFORMATION RELATIVE TO MANAGEMENT OF THE PROVIDENCE RIVER CONFINED AQUATIC DISPOSAL ("CAD") CELLS IN THE PROVIDENCE RIVER LOCATED IN PROVIDENCE AND EAST PROVIDENCE, RI.

This MEMORANDUM OF UNDERSTANDING ("MOU") is made and entered into by the U.S. Army Corps of Engineers, New England District ("USACE"), and the Rhode Island Coastal Resources Management Council ("CRMC"); collectively the "PARTIES".

WHEREAS, CRMC operates and manages placement of dredged sediments into the Providence River CAD Cells ("CAD Cells"), located in the Cities of Providence and East Providence, Rhode Island; and

WHEREAS, the CAD Cells are located within the footprint of the Congressionally authorized Providence River and Harbor Federal navigation project ("FNP") which was originally authorized by the Act of 30 August 1852 and then modified by the Act of 2 March 1867, and the River and Harbor Acts of 1870, 1873, 1878, 1882, 1884, 1886, 1896, 1902, 1907, 1910, 1913, 1915, 1937, 1965, and the Water Resources Development Act of 1986; and

WHEREAS, the USACE is required, pursuant to 33 U.S.C. 408 ("Section 408"), to ensure that any proposed alteration, occupation, or use of a Federal project would not be injurious to the public interest or impair the usefulness of the USACE project; and

WHEREAS, the USACE has determined that the placement of dredged material within the footprint (including the designated 3x project depth setback) of an FNP feature (channel, anchorage, turning basin) is considered to be an alteration, occupation, or use the FNP and therefor requires a Section 408 evaluation and approval in accordance with the USACE Engineering Circular 1165-2-220 ("EC"); and

WHEREAS, the PARTIES have concurred that the information, conditions, and controls necessary for the USACE to make a determination that a Section 408 proposal involving only placement of dredged material into the CAD Cells is unlikely to adversely impact the usefulness of the FNP is most appropriately achieved, obtained, and provided by CRMC in lieu of the individual Section 408 requesters; and

NOW, THEREFORE, the PARTIES agree as follows:

1. CRMC will:

    a. Manage the CAD Cells, by tracking the remaining capacity in the CAD Cells, by directing the placement (quantities and locations) of dredged sediments in the CAD Cells, and by monitoring all dredged material placement activities through an electronic tracking system. Tracking of the remaining CAD Cell capacity requires conducting periodic hydrographic surveys of the CAD Cells, computing the remaining CAD Cell capacity up to the elevation 45-feet-below Mean Lower Low Water ("MLLW"), and tracking actual volumes of sediments placed in the CAD Cells since the most recent survey.

    b. Provide to USACE, at the end of each dredging season (February 15), an annual report of CAD Cell operations taking place over the previous 12 months. The annual CAD Cell report shall include:

        i. List of all dredge projects that have placed material into the CAD Cells for that reporting year, to include (a) the final dredged quantity, (b) the target CAD Cell location (coordinates), and (c) the dredged material disposal dates.

        ii. Map showing the coordinates of the target dredged material placement location(s) within the CAD Cells during the reporting year.

        iii. Ballance sheet showing the remaining capacity of each of the CAD Cells, starting with the calculated capacity based on the most recent survey and then subtracting the actual volumes placed in each CAD Cell since the survey was conducted.

2. USACE Will:

    a. Review and evaluate requests for Section 408 approval that include placement of dredged sediments in the CAD Cells based on CRMC's management of the CAD Cells and annual reporting of CAD Cell operations.

    b. Make efforts to expedite Section 408 reviews that only involve placement of dredged material in the CAD Cells. The expedited reviews are only made possible by CRMC's management practices and annual reporting of the remaining capacity of the CAD Cells. Section 408 requests that include other actions that could potentially impact the usefulness of the FNP would require additional time to consider and could not be expedited.

3. TERM. The term of this MOU shall commence on the effective date and shall terminate when the CAD Cells are closed by CRMC due to lack of remaining capacity.

4. GENERAL TERMS.

    a. In the exercise of their respective tasks under this MOU, the PARTIES will comply with all applicable Federal and State laws and regulations.

    b. Each party to this MOU shall be liable for its own acts and the results thereof to the extent authorized by law and shall not be responsible for the acts of the other party, its officers, employees, or agents. Nothing in this MOU shall be deemed to be a waiver by any of the PARTIES of any applicable state or Federal immunities or limits of liability.

    c. This MOU is nonbinding. Nothing in this MOU creates any duty, obligation, or responsibility for USACE. Any activity undertaken by the CRMC for the activities described in this MOU is solely at the CRMC's own risk and responsibility.

5. EFFECTIVE DATE. This Agreement shall be effective following adoption hereof by the respective governing bodies of the PARTIES on the date that the last Party hereto signs and dates said document.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the PARTIES hereto have executed this MOU.

USACE

8 June 2021

Scott E. Acone, P.E.
Chief, Programs & Project Management Division
New England District
United States Army Corps of Engineers

Date

CRMC

8 June 2021

Jeffrey Willis
Executive Director
Coastal Resources Management Council

Date