

Connecticut Department of Energy & Environmental Protection
Structures, Dredging & Fill, and Tidal Wetlands and 401 Water Quality Certificate

Attachment M1 – Essential Fish Habitat Assessment Approval

Samorajczyk, Christopher W

From: Alison Verkade - NOAA Federal <alison.verkade@noaa.gov>
Sent: Thursday, August 30, 2018 4:13 PM
To: Samorajczyk, Christopher W
Cc: leah.sirmin@dot.gov; Davis, Andrew H
Subject: Re: CTDOT 301-176 WALK Bridge Replacement EFH Consultation

Hi Chris,

The additional information has helped, however there are still outstanding concerns that will need to be addressed.

In particular, no mitigation plan has been included and the mitigation plan views that have been provided raise some concerns. Specifically, it is not clear why a 28" high modular sill, or 3' x 2' wide rip-rap edge have been proposed in two of the three wetland restoration areas, or why only sea lavender is proposed to be planted along a section of two of the three tidal wetland areas in a band waterward of MHW. It is also not clear if the tidal wetland mitigation area calculations include the existing tidal wetland footprint areas, or if you have only incorporated the areas that will be newly created/restored. Additionally, it appears that a large portion of Mitigation Area #3, for Phragmites control, lies above the HTL (and CJL), the objective of Phragmites control in this area should be provided.

There are also some items and areas where it does not appear that the impacts have been incorporated into your total impact calculations (e.g. sheet 3 of 24 notes "excavate as needed" in a call out pointing to tidal wetlands, but no tidal wetland impacts have been noted for the marine access trestle work, similarly this applies to each work platform where existing vegetation will be shaded versus excavated). It is also not clear what the 20,916 SF of temporary tidal wetland "impact for marsh restoration" is referencing in the EFH Impact Breakdown table.

However, we have enough information to provide our EFH conservation recommendations. Based upon the provided information, we have the following EFH conservation recommendations:

- 1) No in-water silt producing activities (e.g. dredging, pile removal, etc) should be conducted from February 1 to September 30, of any calendar year, to protect winter flounder sensitive life history stage EFH, diadromous fish passage, and shellfish resources.
- 2) All temporary construction access structures and fills should be removed and restored to pre-construction elevations and conditions.
- 3) A full mitigation plan should be submitted for our review and comment. The plan should clearly: 1) identify and quantify the project impacts; 2) identify and quantify the proposed mitigation to offset such impacts (including a detailed description of the proposed grading and planting, justification (including data support) for the incorporation of any proposed hard feature, and quantification of each mitigation area footprint), and 3) describe the proposed monitoring and adaptive management plan. This plan should also include and address the proposed restoration of temporary construction access areas and structures. The plan should include plan views that clearly identify all existing and proposed water lines (i.e. HTL, MHW, MLW) and all existing and proposed resource area footprints (e.g. SF of existing and proposed tidal wetlands).

Please let me know if you have any questions or concerns. Thank you, Alison

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On Tue, Jul 31, 2018 at 3:45 PM, Samorajczyk, Christopher W <Christopher.Samorajczyk@ct.gov> wrote:

Hi Alison-

Attached you will find a revised chart with better clarification of the habitat impacts by activity type and revised plan sheets showing each of the 22 stages with impacts. Also attached is a chart detailing the time line of activities and when they occur in regards to EFH species TOYs. If you have any questions or need additional explanation/clarification let me know. As for the proposed mitigation for this project I have attached the most current plan sheets depicting this work. We are only at 30% design so there will be some minor tweaking but the concept and the impact areas are firm. If you have any questions or concerns above these activities we could easily set up a time to discuss—if needed. Talk soon—

Thanks, Chris

Christopher W. Samorajczyk

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From: Alison Verkade - NOAA Federal [mailto:alison.verkade@noaa.gov]
Sent: Friday, July 13, 2018 3:04 PM

To: Samorajczyk, Christopher W
Cc: leah.sirmin@dot.gov
Subject: Re: CTDOT 301-176 WALK Bridge Replacement EFH Consultation

Hi Chris,

I have completed reviewing the provided document. While the document is quite comprehensive, there is some missing/confusing information on habitat impacts by activity type and there also appear to be some inconsistencies/discrepancies between the text and the plans. For example, the EFH assessment worksheet indicates there will be 130,000 SF of impacts with 1,600 SF of these impacts being permanent, however the rest of the EFH assessment worksheet only calls out approximately 16,500 SF of these impacts (under the tidal wetlands, mudflats, and shellfish habitat sections). The remaining ~113,500 SF of impacts are not accounted for specifically in the worksheet and it is not clear where all of these impacts are occurring from the main document text. If you can please provide a table that clearly illustrates the work activities that will result in habitat impacts, and that includes the total square feet of habitat impact by activity type (e.g. excavation, dredging, filling, etc) and what habitats are affected by each activity, that would be helpful.

Regarding the text/plans discrepancies, it would be helpful to display each phase of the project on separate plan views or clearly illustrate all aspects of each phase on the provided plan view. For example, the "Marine Staging Yard Bulkhead, Trestle, and Fender Piling" text refers to a 200 foot bulkhead, but the plans call out a permanent 300 foot bulkhead to be installed at "Stage 22" (this is described in the text under the "Stage 22") but the 200 foot bulkhead does not appear to be shown on the plans anywhere. A separate plan for each phase of the 22 stages is not necessarily needed (e.g. if multiple stages will co-occur, or if it is possible to clearly illustrate all temporary construction access structures on one plan view), but each proposed phase for the stages should be clearly illustrated (e.g. existing condition, construction access structures/activities, final proposed conditions).

You have provided detailed information in the main document on the construction sequencing and timing for each stage/work activity type, but it is not clear which activities are proposed to be conducted during the recommended time of year restrictions for winter flounder (Feb 1-May 31), diadromous fish (April 1-June 30), or shellfish (May 1-Sept 30). The "Section 7 Consultation and EFH Assessment Processes for Walk Bridge" table that was provided somewhat addresses this, but what is provided in the table is not clearly illustrating what habitat impacts will, or will not occur during the time frames illustrated, or if the "Possible Mitigation" item will or will not be required, or what the habitat impact the mitigation option is seeking to minimize. It is also not always clear what the habitat impacts for each stage/work activity type are - the table requested above will help with this, but a text description of the habitat impact should also be provided. It is also not clear what the post conditions/specifications are for the proposed existing structures and temporary structure/fill removals (e.g. will installed sheets/piles be removed in full, cut-off at the mudline, etc). We recommend that piles and sheeting be removed to a minimum of two feet below the mudline and all fills/excavated areas be restored to pre-existing conditions.

Additionally, a copy of the proposed tidal wetland and intertidal habitat mitigation plan should be provided for our review and comment. Included with the plan should be plan views depicting the proposed mitigation, including the tidal wetland sill, plantings, and proposed alternative access options.

Please let me know if you have any questions or concerns. Thank you, Alison

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On Wed, Jun 13, 2018 at 10:53 AM, Samorajczyk, Christopher W <Christopher.Samorajczyk@ct.gov> wrote:

Hi Alison-

Attached is the Connecticut Department of Transportation's Essential Fish Habitat consultation and worksheet for project CTDOT 301-176. The project is the full replacement of the Metro North Railroad Bridge over the Norwalk River in Norwalk, Connecticut. A hard copy will follow by mail. Let me know if you require any additional information for your review.

Thanks, Chris

Christopher W. Samorajczyk

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EFH ASSESSMENT WORKSHEET FOR FEDERAL AGENCIES (modified 3/2016)

PROJECT NAME: Walk Bridge Replacement Project (Bridge No. 04288R)

DATE:

PROJECT NO.: CT State Project 0301-0176

LOCATION (Water body, county, physical address):

Norwalk River, Fairfield County, Norwalk, CT
41° 6' 2" N; 73° 24' 57" W

PREPARER: Nick Henke, HNTB Corporation

Step 1: Use NOAA's EFH Mapper to generate the list of designated EFH for federally-managed species and life stages for the geographic area of interest. Use this list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. The list can be included as an attachment to the worksheet. Make a preliminary determination on the need to conduct an EFH consultation.

1. INITIAL CONSIDERATIONS		
EFH Designations	Yes	No
<p>Is the action located in or adjacent to EFH designated for eggs?</p> <p>List the species:</p> <p>red hake (<i>Urophycis chuss</i>), winter flounder (<i>Pseudopleuronectes americanus</i>), windowpane flounder (<i>Scophthalmus aquosus</i>), ocean pout (<i>Macrozoarces americanus</i>), silver hake (<i>Merluccius bilineris</i>), longfin inshore squid (<i>Loligo pealeii</i>), Atlantic butterfish (<i>Peprilus triacanthus</i>), Atlantic mackerel (<i>Scomber scombrus</i>), scup (<i>Stenotomus chrysops</i>), and smoothhound shark complex (Atlantic stock).</p>	<input checked="checked" type="checkbox"/>	<input type="checkbox"/>
<p>Is the action located in or adjacent to EFH designated for larvae?</p> <p>List the species:</p> <p>red hake (<i>Urophycis chuss</i>), winter flounder (<i>Pseudopleuronectes americanus</i>), windowpane flounder (<i>Scophthalmus aquosus</i>), silver hake (<i>Merluccius bilineris</i>), Atlantic butterfish (<i>Peprilus triacanthus</i>), Atlantic mackerel (<i>Scomber scombrus</i>), scup (<i>Stenotomus chrysops</i>), and smoothhound shark complex (Atlantic stock).</p>	<input checked="checked" type="checkbox"/>	<input type="checkbox"/>
<p>Is the action located in or adjacent to EFH designated for juveniles?</p> <p>List the species:</p> <p>pollock (<i>Pollachius virens</i>), red hake (<i>Urophycis chuss</i>), winter flounder (<i>Pseudopleuronectes americanus</i>), windowpane flounder (<i>Scophthalmus aquosus</i>), Atlantic herring (<i>Clupea harengus</i>), little skate (<i>Leucoraja erinacea</i>), winter skate (<i>Leucoraja ocellata</i>), bluefish (<i>Pomatomus saltatrix</i>), longfin inshore squid (<i>Loligo pealeii</i>), Atlantic butterfish (<i>Peprilus triacanthus</i>), Atlantic mackerel (<i>Scomber scombrus</i>), summer flounder (<i>Paralichthys dentatus</i>), scup (<i>Stenotomus chrysops</i>), black sea bass (<i>Centropristis striata</i>), sand tiger shark (<i>Carcharias taurus</i>), and smoothhound shark complex (Atlantic stock).</p>	<input checked="checked" type="checkbox"/>	<input type="checkbox"/>

<p>Is the action located in or adjacent to EFH designated for adults or spawning adults? List the species:</p> <p>pollock (<i>Pollachius virens</i>), red hake (<i>Urophycis chuss</i>), winter flounder (<i>Pseudopleuronectes americanus</i>), windowpane flounder (<i>Scophthalmus aquosus</i>), ocean pout (<i>Macrozoarces americanus</i>), Atlantic herring (<i>Clupea harengus</i>), little skate (<i>Leucoraja erinacea</i>), winter skate (<i>Leucoraja ocellata</i>), bluefish (<i>Pomatomus saltatrix</i>), longfin inshore squid (<i>Loligo pealeii</i>), Atlantic butterfish (<i>Peprilus triacanthus</i>), Atlantic mackerel (<i>Scomber scombrus</i>), summer flounder (<i>Paralichthys dentatus</i>), scup (<i>Stenotomus chrysops</i>), and smoothhound shark complex (Atlantic stock).</p>	<input checked="checked" type="checkbox"/>	<input type="checkbox"/>
<p>If you answered 'no' to all questions above, then an EFH consultation is not required - go to Section 5.</p> <p>If you answered 'yes' to any of the above questions, proceed to Section 2 and complete the remainder of the worksheet.</p>		

Step 2: In order to assess impacts, it is critical to know the habitat characteristics of the site before the activity is undertaken. Use existing information, to the extent possible, in answering these questions. Identify the sources of the information provided and provide as much description as available. These should not be yes or no answers. Please note that there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts. Project plans that show the location and extent of sensitive habitats, as well as water depths, the HTL, MHW and MLW should be provided.

2. SITE CHARACTERISTICS	
Site Characteristics	Description
Is the site intertidal, sub-tidal, or water column?	The Walk Bridge Replacement Project and associated work will take place in the intertidal, subtidal, and water column. Proposed activities include removal of the existing Walk Bridge swing span, approach spans, and piers, and installation of new fixed and movable bridge spans and piers. Temporary construction phase trestles will be placed in the river supported by driven piles. Additionally, channel dredging, cable trenching, riprap removal, and intertidal and tidal wetland regrading and invasives treatment will take place.
What are the sediment characteristics?	Surficial materials in the vicinity of the Walk Bridge consist of artificial fill, which is described as earth and manmade materials that have been artificially emplaced (Surficial Materials Map of Connecticut, 1992). Sample collection activities within the Norwalk River revealed, sediment consists of gray, dark gray, and black organic silt with shells to depths ranging from 5 to 7 feet below the river bottom. The organic silt is underlain by gray organic silty clay and fine to medium sand with shells. Strong creosote-like odors were observed in samples taken down river from the bridge. Rounded gravel, brick, and coal slag were observed in a sample taken north of the bridge on the eastern extent of the western navigational channel.
Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the SAV species and spatial extent.	No submerged aquatic vegetation (SAV) beds are mapped, are known to occur within, or were observed the Norwalk River in the area of the Walk Bridge Replacement Project and nearby vicinity.
Are there wetlands present on or adjacent to the site? If so, describe the spatial extent and vegetation types.	Tidal wetlands occur on the banks of the Norwalk River throughout the entire project area. These wetlands are representative of estuarine vegetative communities typically deemed salt tolerant, such as smooth cordgrass (<i>Spartina alterniflora</i>), salt meadow grass (<i>Spartina patens</i>), high-tide bush (<i>Iva frutescens</i>), water hemp (<i>Amaranthus cannabinus</i>), seaside goldenrod (<i>Solidago sempervirens</i>), and marsh orach (<i>Atriplex patula</i>). The prominent species in the project vicinity is smooth cordgrass.

Is there shellfish present at or adjacent to the project site? If so, please describe the spatial extent and species present.	Shellfish resources occur in the intertidal and subtidal zones adjacent to the bridge and along the river banks both up and downstream. Spatial extent and distribution of the species present in the system changes with substrate conditions, which are also variable. Ribbed mussels were observed in the upper intertidal zones growing in association with stands of <i>Spartina alterniflora</i> or as separate shell beds. Lower intertidal areas may contain soft-shell clams. Eastern oyster was observed growing on boulders in the intertidal zone and on the stone bridge abutments and piers of Walk Bridge.
Are there mudflats present at or adjacent to the project site? If so please describe the spatial extent.	Intertidal mudflats occur in the Norwalk River with the largest occurring on the east riverbank, north of the bridge. The flats in this area are variable in size and are found in combination with boulder and cobble areas, patches of tidal wetland vegetation, and abandoned timber pier pilings. Impacts to intertidal flats are expected as part of construction staging and access for this project. Additionally, a small intertidal area on the west shore, beneath the bridge, will be affected but the substrate is comprised of coarse sand and cobbles and as such does not meet the definition of an intertidal mudflat.
Is there rocky or cobble bottom habitat present at or adjacent to the project site? If so, please describe the spatial extent.	The intertidal zone proximate to the Walk Bridge contains areas of boulder or boulder and cobble-dominated substrates. These boulder and cobble areas are variable in size and are interspersed with mudflats, patches of intertidal vegetation, and historic pier pilings. The boundaries are diffuse making areas hard to accurately quantify. There is an area of discarded riprap in the intertidal zone on the east side of the river, north of the bridge. This riprap will be removed as part of the tidal wetland mitigation efforts and restored back to viable salt marsh habitat. Additionally, areas where work trestles will span tidal marsh, solar powered LED grow lighting will be used to keep these habitat areas functioning while construction is underway.
Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so for which species, what type habitat type, size, characteristics?	There are no identified Habitat Areas of Particular Concern designated at the project site.
What is the typical salinity, depth and water temperature regime/range?	Channel depth in the Norwalk River, as determined by the US Army Corps of Engineers post-dredging bathymetric survey, is reported to be 10 feet below MLLW (USACE, 2009). Salinity changes with seasonal conditions but remains in the mixohaline range (approximately 26.5 PSU) since the river lies at the western end of Long Island Sound (Anderson et al., 1993). Water temperatures typically range from 37°F in the winter to 73°F in the summer (SeaTemperatureInfo.com).
What is the normal frequency of site disturbance, both natural and man-made?	The Walk Bridge was constructed in the late 1800s as a movable bridge. The site experiences regular daily disturbance due to boat traffic within the channel. Boat traffic in the Norwalk River at the site of the proposed project consists predominantly of recreational boating, but commercial barge traffic to upstream facilities is also present. The channel was last dredged in or before 2009, although some small-scale dredging projects may have occurred in proximal marinas since then.
What is the area of proposed impact (work footprint & far afield)?	This project will consist of in water structure addition, removal, and dredging activities. In water structure removal activities will include the existing pivot pier and rest piers and the removal of submarine cables at 3 locations from beneath the riverbed. In water structures to be added for this project will consist of eight 12-foot diameter drilled shafts (4 at each lift pier) and four 10-foot diameter center supports (2 at each lift pier), as well as the addition of submarine cables at one location beneath the riverbed. All other habitat disturbing elements as part of this project will be temporary and removed before project completion and vacating the action area. The final condition following this project will result in a slight change in horizontal clearance layout at the bridge, and an insignificant change in the habitat available for EFH species' use downstream at the relocated ferry vessel dock. Total footprint impacts of the proposed project will be approximately 132,000 sf, of which approximately 1,600 ft will be permanent.

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

3. DESCRIPTION OF IMPACTS			
Impacts	Y	N	Description
Nature and duration of activity(s). Clearly describe the activities proposed and the duration of any disturbances.			This project consists of a replacement of an existing deteriorated swing span bridge with a new vertical lift span bridge. Construction activities include erection of temporary work trestles, new lift span piers, demolition of existing bridge piers, channel dredging, submarine cable trenching, and various other in water activities. Dredging activities are expected to be the most impactful as part of this project, and as a result, will only happen during the months of December and January when many species that utilize the Norwalk River as essential fish habitat are expected to be absent. A detailed discussion of these activities is presented in chronological order by construction stage in the EFH letter portion of this document.
Will the benthic community be disturbed? If no, why not? If yes, describe in detail how the benthos will be impacted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Permanent disturbance to the benthic community within subtidal habitat for new bridge piers and fender system, and temporary impacts from trestles, marine enclosures, staging areas, and submarine conduits will result from this project. The benthic community in the river is expected to be colonized with epibenthic invertebrates and meiofauna indicative of predictive early seral stage invertebrate communities described by (Rhoads and Germano, 1986) (i.e., early successional stage marine oligochaete worms and amphipod crustaceans that live on the sediment surface). These communities are adapted to disturbance and will begin to recolonize the backfilled trench sediment surface from adjacent source colonies soon after work completion (Rhoads and Germano, 1982). The approach for compensation involves the removal of the existing Walk Bridge rest piers and central pivot pier, and providing a suitable sediment substrate for the marine benthic community. The temporary subtidal impacts areas will be compensated in-place through restoration of the temporary impact areas, which also involves removal of temporary piles and providing suitable sediment substrates. Channel dredging will take place and is considered a temporary impact as no net loss of subtidal benthic habitat will occur.
Will SAV be impacted? If no, why not? If yes, describe in detail how the SAV will be impacted. Consider both direct and indirect impacts. Provide details of any SAV survey conducted at the site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No submerged aquatic vegetation is mapped for the Norwalk River area and none were observed during site visits to delineate intertidal wetlands. Therefore, no impact to SAV is anticipated since none are known to occur in the Norwalk River.
Will salt marsh habitat be impacted? If no, why not? If yes, describe in detail how wetlands will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Permanent impacts to salt marsh will occur from new bridge piers, temporary construction trestles at downstream staging yard parcels, temporary contractor trestle piers at the bridge, temporary construction fills at the west bank, and potentially bike path elements at the east abutment. Approximately 650 square feet of permanent salt marsh impact is anticipated. Temporary impacts would total approximately 6,000 square feet as a result of the work associated with shading from the contractor construction trestles. Salt marsh impacts will be mitigated at a compensation ratio of 4:1 and will focus on remediation of common reed (<i>Phragmites australis</i>) stands embedded within or adjacent to areas of existing salt marsh. Mitigation efforts will also target salt marsh establishment in intertidal areas currently occupied by discarded riprap. This will be achieved by the removal of riprap, establishing appropriate elevations and growing substrate, and salt marsh plantings. Riprap will be re-purposed as a living shoreline to aid in protection of the new low marsh, and serve to retain valuable hard habitat in the process. The restoration of in this area to low marsh will be an improvement.

<p>Will mudflat habitat be impacted? If no, why not? If yes, describe in detail how mudflats will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Permanent impacts to mudflat would total approximately 4,500 square feet as a result of the work associated with construction of the new bridge piers. Temporary impacts are approximated to be 3,600 square feet as a result of the work associated with contractor trestles, fill, existing pier marine enclosures, and contractor staging and access areas. Mudflat impacts will be mitigated at a compensation ratio of 4:1 for permanent impacts and 1:1 for temporary impacts, and will focus on remediation and habitat establishment in intertidal areas currently occupied by discarded riprap. This will be achieved by the removal of riprap and establishing appropriate elevations and substrate.</p>
<p>Will shellfish habitat be impacted? If so, provide in detail how the shellfish habitat will be impacted. What is the aerial extent of the impact? Provide details of any shellfish survey conducted at the site.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Shellfish resources occur in the intertidal and subtidal zones adjacent to the bridge and along the river banks both up and downstream. Spatial extent and distribution of the species present in the system changes with substrate conditions, which are also variable. Permanent disturbance to the shellfish community for new bridge piers and fender piles, and temporary impacts from trestles, marine enclosures, staging areas, and submarine conduits will result from this project. Permanent impacts resulting from the new pier and fender pile locations will result in approximately 1,600 square feet of impact to potential shellfish environment. Removal of the existing piers will add approximately 3,650 square feet resulting in a net gain of approximately 2,050 square feet of potential shellfish habitat resulting from this project. All other impacts will be temporary and will not result in any permanent loss of shellfish habitat.</p>
<p>Will hard bottom (rocky, cobble, gravel) habitat be impacted at the site? If so, provide in detail how the hard bottom will be impacted. What is the aerial extent of the impact?</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>The intertidal zone proximate to the Walk Bridge contains areas of boulder or boulder and cobble-dominated substrates. These boulder and cobble areas are variable in size and are interspersed with mudflats, patches of intertidal vegetation, and historic pier pilings. The boundaries are diffuse making areas hard to accurately quantify. There is an area of discarded riprap in the intertidal zone on the east side of the river, north of the bridge. This riprap will be removed as part of the tidal wetland mitigation efforts and restored back to viable salt marsh habitat. Portions of this riprap will be re-purposed as a living shoreline to aid in protection of the new low marsh, and serve to retain valuable hard habitat in the process. The final condition of in this area will be an improvement providing both hard habitat and low marsh function for species who seek these environments in the Norwalk River. Additionally, areas where work trestles will span tidal marsh, solar powered LED grow lighting will be used to keep these habitat areas functioning while construction is underway.</p>
<p>Will sediments be altered and/or sedimentation rates change? If no, why not? If yes, describe how.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Sediments alterations will result from excavation/dredging activities. Investigations conducted by CTDOT have determined the top four feet of sediments to be contaminated and not suitable for backfill. These contaminated sediments will be excavated to a minimum depth of four feet and disposed at an approved upland location in accordance with all applicable CTDEEP Regulations. Backfill material will be clean sediment of similar grain size and composition to that which was removed. Sedimentation rates are not anticipated to changes as a result of this project.</p>
<p>Will turbidity increase? If no, why not? If yes, describe the causes, the extent of the effects, and the duration.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Temporary localized increases in turbidity/suspended sediment for the entire project will result from the clamshell excavation work, pile/sheet driving and extraction, shaft and micropile drilling, 2 cy bucket excavation, pier demolition, and marsh restoration regrading. To mitigate against turbidity concerns, these activities will take place within turbidity curtains (some of the pile driving/extraction and clamshell excavation activities, bulkhead installation, and marsh restoration activities), above MLW during low tide (marsh restoration), within marine enclosures (shaft and micropile drilling, 2 cy bucket excavation, and pier demolition), and/or during the winter months (clamshell excavation) such that no impairment of movement of species with essential fish habitat in the action area or sediment migration into nearby salt marsh habitat will be expected or any other effect that can be meaningfully measured, detected, or evaluated.</p>

<p>Will water depth change? What are the current and proposed depths?</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Water depths will change at select locations as a result of this project. Regrading will be conducted for the tidal wetland mitigation sites to facilitate restoration and stimulate growth of tidal marsh species. Dredging of approximately 4 feet will take place at the marine staging yard and the relocated ferry dock to accommodate vessel access in these locations. Additionally, once the pivot pier and associated fender system have been removed, the area within will be dredged to meet navigation channel depths (~10 feet MLLW) as this will connect the existing separate navigation channels into one joined channel through the new Walk Bridge.</p>
<p>Will contaminants be released into sediments or water column? If yes, describe the nature of the contaminants and the extent of the effects.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>During removal of the top four feet of sediment from the excavation, there may be incidental release of sediment that may contain chemical constituents detected during preconstruction investigations. Chemical constituents detected in the top four feet of sediment include the following: Extractable Total Petroleum Hydrocarbons (TPH), Semi-volatile Organic Compounds (SVOCs), Polychlorinated Biphenyls (PCBs), and metals (CTDOT, 2016). Information on the concentrations and distribution of these chemical constituents in the site sediment can be found within the CTDOT Task 210 report (CTDOT, 2016) (available upon request). Adverse impacts to water quality will be minimized by properly disposing excavated sediments on land at an approved disposal facility. Additionally, the sediment spoils will be dewatered on a barge and the dewatered wastewater will be filtered through silt bags and treated to meet CTDEEP discharge water quality performance standards before being discharged back into the river.</p>
<p>Will tidal flow, currents, or wave patterns be altered? If no, why not? If yes, describe in detail how.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>The tidal flow, current, and wave pattern will not be altered as a result of this project.</p>
<p>Will water quality be altered? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration of the impact.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Temporary localized increases in turbidity/suspended sediment for the project will result from clamshell excavation work, pile/sheet driving and extraction, shaft and micropile drilling, 2 cy bucket excavation, pier demolition, and marsh restoration regrading. To mitigate against water quality concerns, these turbidity producing activities will take place within turbidity curtains (some of the pile driving/extraction and clamshell excavation activities, bulkhead installation, and marsh restoration activities), above MLW during low tide (marsh restoration), within marine enclosures (shaft and micropile drilling, 2 cy bucket excavation, and pier demolition), and/or during the winter months (clamshell excavation) such that no impairment of movement of species with essential fish habitat in the action area will be expected or any other effect that can be meaningfully measured, detected, or evaluated.</p>
<p>Will ambient noise levels change? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration and degree of impact.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Temporary construction phase ambient noise levels will vary and at times rise above behavioral and/or physiological thresholds for aquatic species. To avoid adversely affecting these species to the greatest extent possible, all pile driving/extraction and shaft and micropile drilling activities will be coordinated so activities are only taking place on one half (or occupy only 50% when working in the middle of the river) of the river at a time, only during predetermined daily time windows (ex. 12-hour work periods followed by 12-hour work free periods), and otherwise conducted in a manner that makes a portion of the river accessible to fish passage. Additionally, soft starts will be used at the beginning of each shift and bubble curtains will be deployed during pile driving/extraction activities as a mitigative measure to attenuate sound.</p>
<p>Does the action have the potential to impact prey species of federally managed fish with EFH designations?</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>It is expected that only a minor and/or temporary reduction in available benthic prey species may be experienced and limited to the locations of the excavation, intertidal regrading, shaft drilling, and pile driving. No significant permanent reduction in the abundance, availability, accessibility, and quality of prey is expected. It is anticipated that the project will result in insignificant changes in foraging behavior. During high tide, existing mudflat, tidal marsh, hard habitat, and other valuable habitat types utilized by prey species will continue to be available in the Norwalk River throughout construction. The opportunity for benthic invertebrates to recolonize the excavated areas and regraded tidal marsh sediments will immediately (within days to weeks) follow this work, reestablishing and increasing foraging habitat.</p>

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

4. EFH ASSESSMENT			
Functions and Values	Y	N	Describe habitat type, species and life stages to be adversely impacted
Will functions and values of EFH be impacted for:			
Spawning If yes, describe in detail how, and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	To avoid adversely affecting spawning EFH or trust species to the greatest extent possible, all activities that may produce elevated noise will be coordinated to only take place on one half of the river at a time, only during predetermined daily time windows (ex. 12-hour on/12-hour off), and otherwise conducted in a manner that makes a portion of the river accessible to fish passage. Bubble curtains will be deployed during pile driving/extraction and shaft and micropile drilling activities as a mitigative measure to attenuate sound. To mitigate against turbidity concerns, activities will take place within turbidity curtains (some of the pile driving/extraction and clamshell excavation activities, bulkhead installation, and marsh restoration activities), above MLW during low tide (marsh restoration), within marine enclosures (shaft and micropile drilling, 2 cy bucket excavation, and pier demolition), and/or during the winter months (clamshell excavation) such that no impairment of spawning EFH species will be expected.
Nursery If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Although there may be a minor temporary loss of benthic habitat within the footprints of the proposed project, activities will not adversely impact the demersal EFH species (i.e., winter flounder) and other trust species (forage fish and various crabs) that utilize the benthic substrate as nursery habitat. There will be no net loss of nursery habitat for EFH species or other trust species due to the proposed action, and during high tide, existing mudflat, tidal marsh, hard habitat, and other valuable nursery habitat will continue to be available in the Norwalk River throughout construction.
Forage If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Although there may be a minor temporary net loss of benthic habitat within the footprints of the proposed project, activities will not adversely impact the demersal EFH species (i.e., winter flounder) and other trust species (forage fish and various crabs) that utilize the benthic substrate. During high tide, existing mudflat, tidal marsh, hard habitat, and other valuable habitat types utilized by prey species will be available in the Norwalk River throughout construction. Temporary impacts due to sediment disturbance associated with the dredging will occur during winter months when most demersal species have departed for deeper and thus warmer offshore waters. Re-colonization of backfill material is expected to begin relatively quickly following cessation of disturbance (Rhoads and Germano, 1982). During activities when sound pressure levels may be temporarily elevated, individuals will be expected to adjust course away from the ensounded area and use the multitude of available foraging opportunities throughout the Norwalk River, Norwalk Harbor, and nearby Long Island Sound.
Shelter If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No subtidal structures (natural or artificial) such as rock ledges or shell reefs, boulder fields, submerged wooden debris, SAV, or other benthic features will be intentionally removed or destroyed during this project, and during high tide, existing mudflat, tidal marsh, hard habitat, and other valuable shelter providing habitat will continue to be available in the Norwalk River throughout construction. Therefore, no adverse impact to shelter used by EFH or trust species will occur.

Will impacts be temporary or permanent? Please indicate in description box and describe the duration of the impacts.			<p>Permanent disturbance to the subtidal habitat will result from the placement of the new bridge piers. All other impacts from this project are considered temporary and will result from work trestles, marine enclosures, staging areas, and submarine conduits. Temporary in water activities will take approximately 4 years. Dredging activities will be limited to winter months (December and January) and activities resulting in elevated noise will be attenuated with bubble curtains and conducted so activities are only taking place on one half (or occupy only 50% when working in the middle of the river) of the river at a time, only during predetermined daily time windows (ex. 12-hour work periods followed by 12-hour work free periods), and otherwise conducted in a manner that makes a portion of the river accessible to fish passage.</p>
Will compensatory mitigation be used? If no, why not? Describe plans for mitigation and how this will offset impacts to EFH. Include a conceptual compensatory mitigation plan, if applicable.	<input checked="" type="checkbox"/>		<p>The approach for compensation involves the removal of the existing Walk Bridge rest piers and central pivot pier and providing a suitable sediment substrate for the marine benthic community. The temporary subtidal impacts areas will be compensated in-place through restoration of the temporary impact areas, which also involves removal of temporary piles and providing suitable sediment substrates. Channel dredging will take place and is considered a temporary impact as no net loss of subtidal benthic habitat will occur. Tidal wetland compensation will be provided along the river in the vicinity of Walk Bridge at a rate of 4:1 for impacts resulting from the project.</p>

Step 5: This section provides the federal agency's determination on the degree of impact to EFH from the proposed action. The EFH determination also dictates the type of EFH consultation that will be required with NOAA Fisheries.

Please note: if information provided in the worksheet is insufficient to allow NOAA Fisheries to complete the EFH consultation additional information will be requested.

5. DETERMINATION OF IMPACT		
Federal Agency's EFH Determination		
Overall degree of adverse effects on EFH (not including compensatory mitigation) will be: (check the appropriate statement)	<input type="checkbox"/>	<p>There is no adverse effect on EFH or no EFH is designated at the project site.</p> <p>EFH Consultation is not required.</p>
	<input checked="" type="checkbox"/>	<p>The adverse effect on EFH is not substantial. This means that the adverse effects are either no more than minimal, temporary, or that they can be alleviated with minor project modifications or conservation recommendations.</p> <p>This is a request for an abbreviated EFH consultation.</p>
	<input type="checkbox"/>	<p>The adverse effect on EFH is substantial.</p> <p>This is a request for an expanded EFH consultation.</p>

Step 6: Consultation with NOAA Fisheries may also be required if the proposed action results in adverse impacts to other NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats as part of the Fish and Wildlife Coordination Act. Some examples of other NOAA-trust resources are listed below. Inquiries regarding potential impacts to marine mammals or threatened/endangered species should be directed to NOAA Fisheries' Protected Resources Division.

6. OTHER NOAA-TRUST RESOURCES IMPACT ASSESSMENT	
Species known to occur at site (list others that may apply)	Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat). Please note, impacts to federally listed species of fish, sea turtles, and marine mammals must be coordinated with the GARFO Protected Resources Division.
alewife	Alewife migrate up coastal rivers to freshwater during the Spring months to spawn when water temperatures reach approximately 55-60°F (Bigelow and Schroeder, 1953). Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not affect movement of these species. Any turbidity produced during these migratory movements will be minor and not reach levels expected to impact aquatic species. Barge placement and construction activities are expected to allow adequate zones of passage to be maintained throughout the action area (min. of 4-5 feet below barge at low tide), and bubble curtains will be deployed during pile driving/extraction and shaft and micropile drilling activities as a mitigative measure to attenuate sound.
American eel	The American eel is expected to traverse the action area during seasonal movements upstream to mature into their adult stage, and downstream to spawn in the Sargasso Sea during Fall (USGS). Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not affect movement of these species. Any turbidity produced during these migratory movements will be minor and not reach levels expected to impact aquatic species. Barge placement and construction activities are expected to allow adequate zones of passage to be maintained throughout the action area (min. of 4-5 feet below barge at low tide), and bubble curtains will be deployed during pile driving/extraction and shaft and micropile drilling activities as a mitigative measure to attenuate sound.
American shad	Like alewife, American shad migrate up coastal rivers to freshwater during the Spring months to spawn (Bigelow and Schroeder, 1953). Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not affect movement of these species. Any turbidity produced during these migratory movements will be minor and not reach levels expected to impact aquatic species. Barge placement and construction activities are expected to allow adequate zones of passage to be maintained throughout the action area (min. of 4-5 feet below barge at low tide), and bubble curtains will be deployed during pile driving/extraction and shaft and micropile drilling activities as a mitigative measure to attenuate sound.
Atlantic menhaden	Reports indicate schools of individuals are chased into Long Island Sound estuaries, including the Norwalk River, by Atlantic bluefish during summer months (Harris et al., 2014). Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not affect movement of these species. Any turbidity produced during the summer months will be minor and not reach levels expected to impact aquatic species. Barge placement and construction activities are expected to allow adequate zones of passage to be maintained throughout the action area (min. of 4-5 feet below barge at low tide), and bubble curtains will be deployed during pile driving/extraction and shaft and micropile drilling activities as a mitigative measure to attenuate sound.
blue crab	Reports suggest blue crabs can be expected to be present in the Norwalk River (Harris et al., 2014) at various points throughout the year, likely dependent on water temperature. Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not be expected to affect movement of these species, and other construction activities are expected to allow adequate zones of passage throughout the action area (min. of 4-5 feet below barge at low tide).
blue mussel	No blue mussels were observed or are known to occur in the Norwalk River estuary at or adjacent to the proposed Walk Bridge Replacement Project locations.
blueback herring	Like alewife, blueback herring migrate up coastal rivers to freshwater during the Spring months to spawn (USFWS, 2001). Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not affect movement of these species. Any turbidity produced during these migratory movements will be minor and not reach levels expected to impact aquatic species. Barge placement and construction activities are expected to allow adequate zones of passage to be maintained throughout the action area (min. of 4-5 feet below barge at low tide), and bubble curtains will be deployed during pile driving/extraction and shaft and micropile drilling activities as a mitigative measure to attenuate sound.

Eastern oyster	Eastern oyster was noted growing on rocks in the nearby intertidal zone and within the intertidal elevations of the bridge abutments and piers. There are no recreational or commercial oyster beds in the project area or adjacent habitats of the river reach, so no direct impact to harvestable oyster reefs will occur as a result of this project. Seasonal restrictions and other mitigative measures for in water turbidity producing work will limit total suspended solids (TSS) to levels well below those shown to have adverse effects on benthic communities (EPA 1986).
horseshoe crab	Reports suggest horseshoe crabs can be expected in the action area (Harris et al., 2014). Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not be expected to affect movement of these species, and other construction activities are expected to allow adequate zones of passage throughout the action area (min. of 4-5 feet below barge at low tide).
quahog	There are no recreational or commercial quahog beds in the Norwalk River where the Walk Bridge Replacement Project will take place or within any adjacent habitats, so no direct impact to quahog populations would occur from the proposed project activities.
soft-shell clams	There are no recreational or commercial soft-shell clam beds in the Norwalk River where the Walk Bridge Replacement Project will take place or within adjacent habitats, so no direct impact to soft-shell clam populations would occur from the proposed project activities.
striped bass	Striped bass may utilize the Norwalk River for foraging and potential shelter in deeper channels (Bigelow and Schroeder, 1953). Since this is a highly mobile species, it is not anticipated that the project will negatively impact this species. Excavation and dredging activities will take place during the winter months (December and January), or within turbidity curtains, and will not affect movement of these species. Barge placement and construction activities are expected to allow adequate zones of passage to be maintained throughout the action area (min. of 4-5 feet below barge at low tide), and bubble curtains will be deployed during pile driving/extraction and shaft and micropile drilling activities as a mitigative measure to attenuate sound.
other species:	