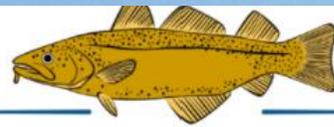




Barnstable County

REGIONAL GOVERNMENT OF CAPE COD



BARNSTABLE COUNTY

DREDGE

The Year In Review
2023 – 2024 Dredge Season



Dredge Season 2023 – 2024

By The Numbers

Total Cubic Yards (CY) Dredged:

60,833

Number of Towns with Dredge Projects Completed:

8

Smallest Project (CY):

357 CY from Great Pond Inlet, Falmouth, which was required to allow the dredge to transit under the bridge into the Great Pond Embayment

Largest Project (CY):

9,298 CY from Stage Harbor Approach Channel, Chatham

Longest Pipe Run:

2.17 miles or **11,500** feet - Stage Harbor, Chatham

DID YOU KNOW? Over the past 27 years, the Barnstable County dredges have removed over 2.5 million cubic yards of material from over 300 projects on Cape Cod. More than 95% of the dredged material went to rebuilding the beaches and coastal infrastructure.

This season was the second year with a late start and less than the number of projects required to balance the departments budget. The shortage of projects was primarily due to the lack of dredging permits available from several towns. This has resulted in a continued decline in revenue and support from the County to balance the dredge programs budget.

About the program:

The County Dredge program started in 1996 with the purchase of the first cutterhead suction dredge Cod Fish I which was in service for most of the program's years. The Sand Shifter was added in 2017 followed by the Cod Fish II in 2019, both of which are cutterhead suction dredges. Demand for dredging on Cape Cod has increased in recent years due to climate change implications and the availability of additional state grant funding for projects. The dredging "season" typically runs from September to mid-June, and is subject to time of year restrictions, ranging from protecting winter flounder to piping plovers as well as summer tourism.

Programs mission:

To improve the recreational, environmental, and economic value of our changing coastline and estuaries while achieving cost savings for municipalities on Cape Cod.

For further information on the Barnstable County Dredge department please visit

<https://www.barnstablecounty.org/dredge/>

Mashpee - Popponesset Bay Approach Channel

PROJECT OVERVIEW:

Target Volume: 3,400 CY

Actual Volume: 3,501 CY

TOY: April 1 – PPL's

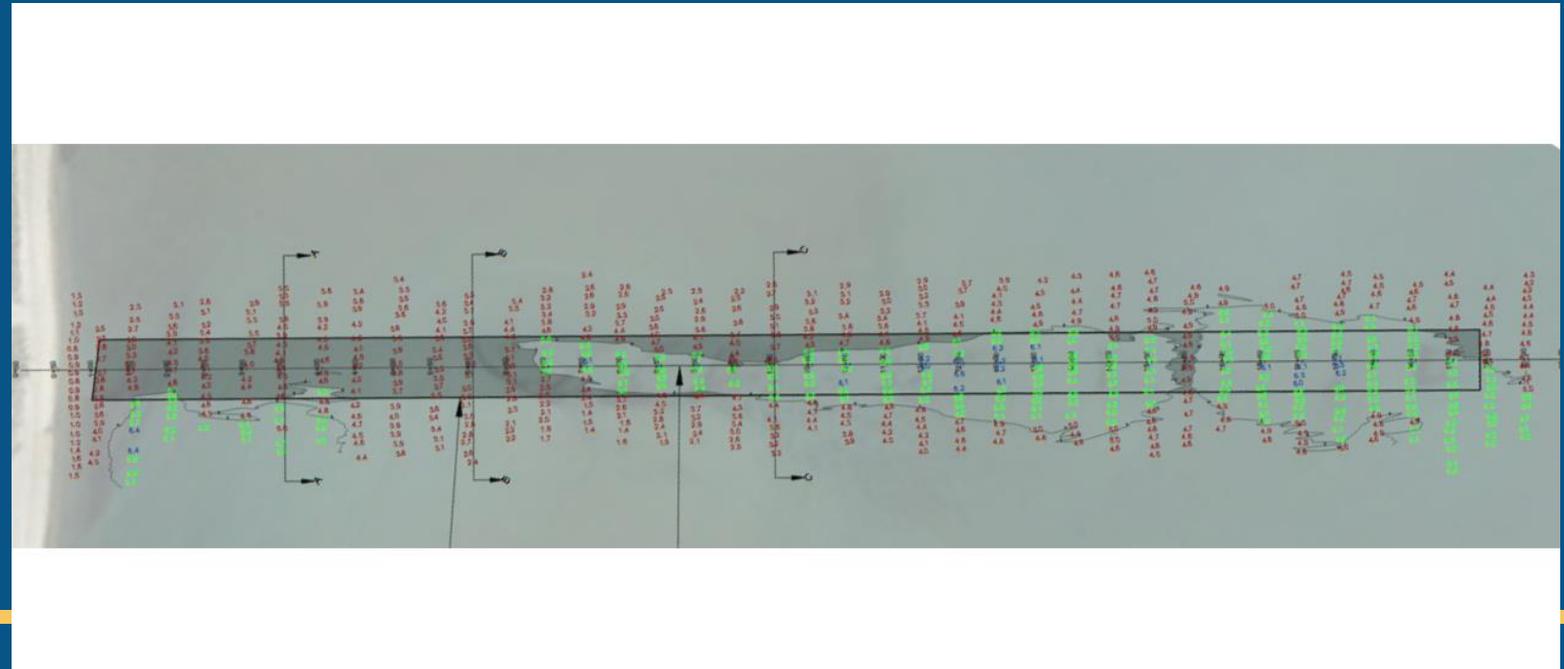
Dredge: Cod Fish II

Discharge Locations: Middle section of Poppy Spit

NOTES:

This channel was dredged in the fall of 2023 removing ~6,000 CY. As the Post Dredge volume indicates, the shoaling was limited to just a few areas, mostly in the middle and northern end of the channel.

The challenges for this project were strong surface currents (both outgoing and incoming) and extremely low tides which were too low at times to keep the cutterhead on the bottom. There is a lot of sand movement occurring in this area. This winters strong southerly storms (starting in December) did considerable damage to the spit, in some places cutting it in half.



Yarmouth - Bass River Approach & Entrance Channel

PROJECT OVERVIEW:

Target Volume: 6,946 CY

Actual Volume: 6,807 CY

TOY: January 15 – Winter Flounder

Dredge: Sand Shifter

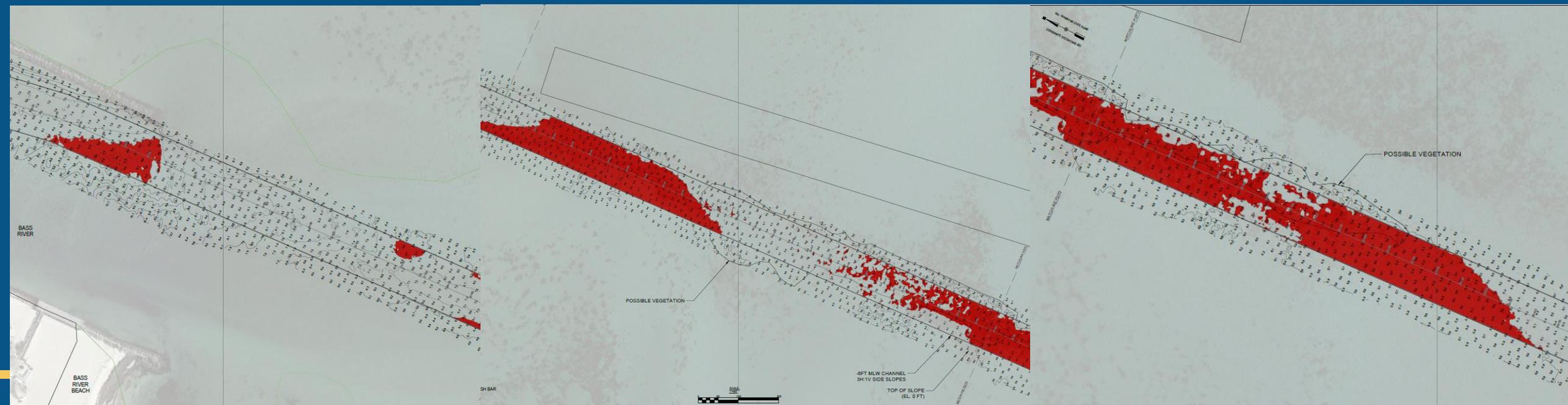
Discharge Locations: West Dennis Beach, Dennis & Bass River Beach, Yarmouth

NOTES:

This was the first time since 2018 that this area was dredged.

In addition to the hard packed material, the strong surface currents in this area (mostly outgoing) presented some operational challenges reducing the dredging time.

This project is a shared project between the towns of Dennis & Yarmouth.



Yarmouth - Parkers River Approach Channel

PROJECT OVERVIEW:

Target Volume: 7,347 CY

Actual Volume: 3,363 CY

TOY: January 15 – Winter Flounder

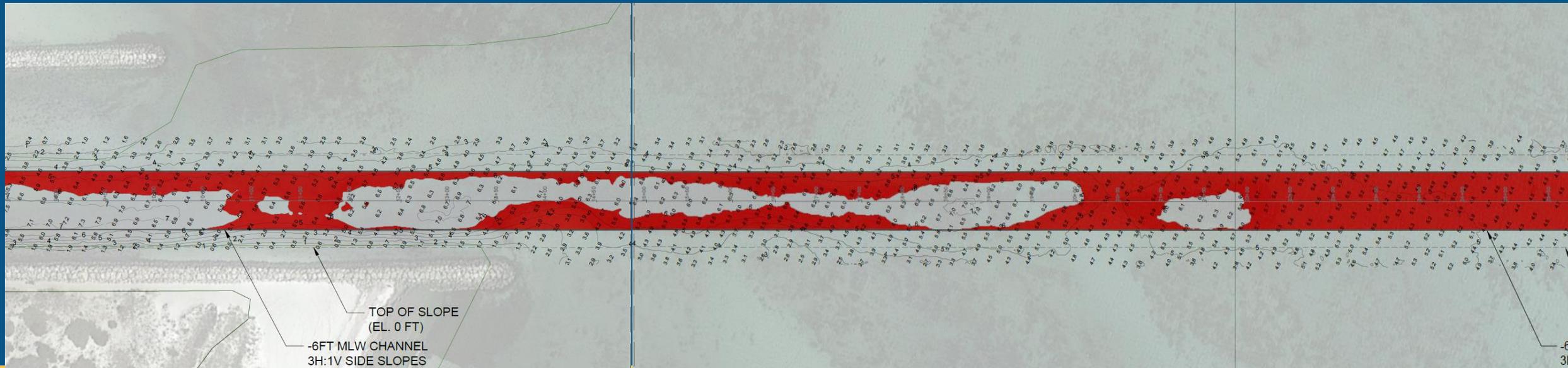
Dredge: Sand Shifter

Discharge Location: Thatcher Beach, Yarmouth

NOTES:

This was the second year that this channel was dredged. In 2022, the town's 10-Year Comprehensive Permit wasn't approved so only the northern end of the channel was permitted (via a General Permit Authorization).

This was a continuation of last years project with the southern section of the channel (and one shoal near the jetty) being dredged. Due to a pending Winter Flounder TOY restriction for Round Cove in Harwich (January 15), we had to reduce the scope of this project in order to move the dredge and pipe to Round Cove and complete it before the WF TOY.



Harwich - Round Cove Entrance Channel

PROJECT OVERVIEW:

Target Volume: 6,172 CY

Actual Volume: 4,262 CY

TOY: January 15 – Winter Flounder

Dredge: Sand Shifter

Discharge Locations: Bay Road & Wequassett Beach

NOTES:

This channel was last dredged in 2018. The mobilizing for this project was challenging. A near flood tide and local knowledge is required to safely make the transit. (due to the changing channels around Morris Island and north to Pleasant Bay).

Without any historical records that detailed the area to start, we began dredging near the south side of the channel which was rocky requiring the dredge to be moved ahead to get into sandy bottom. Very high tides flooded the access and launching of the skiffs for several days.



Chatham - Stage Harbor Approach Channel

PROJECT OVERVIEW:

Target Volume: 18,000* CY

Actual Volume: 9,298 CY

TOY: April 1 – PPL's

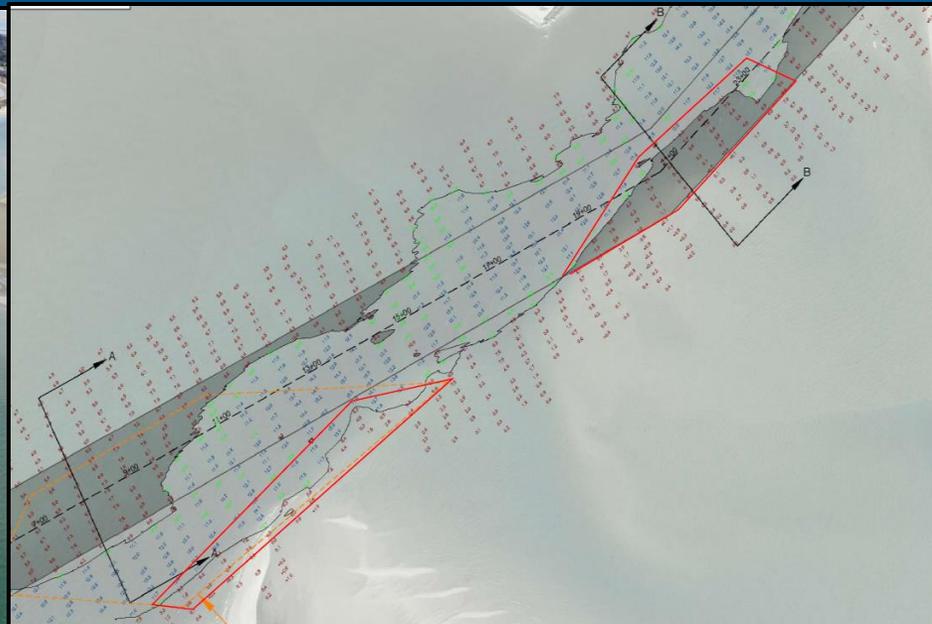
Dredge: Sand Shifter

Discharge Location: Numerous

NOTES:

This project has proven to be very challenging with strong surface currents at times requiring two skiffs to keep the dredge into the current, extremely low tides that prevent the movement of pipe during mob/demob, and long pipe runs required to get to the western discharge locations (~11,000').

Unfortunately, the CAT engine on the Booster Station failed to start on a 20-degree morning and remained out of service for 10 days. Dredging continued during this time discharging to the western end of Hardings Beach. 50% of the project plan was completed.



*Reduced due to delayed start time

Truro - Pamet Harbor, Approach & Entrance Channel

PROJECT OVERVIEW:

Target Volume: 7,904 CY

Actual Volume: 6,570 CY

TOY: January 15 – Winter Flounder

Dredge: Cod Fish II

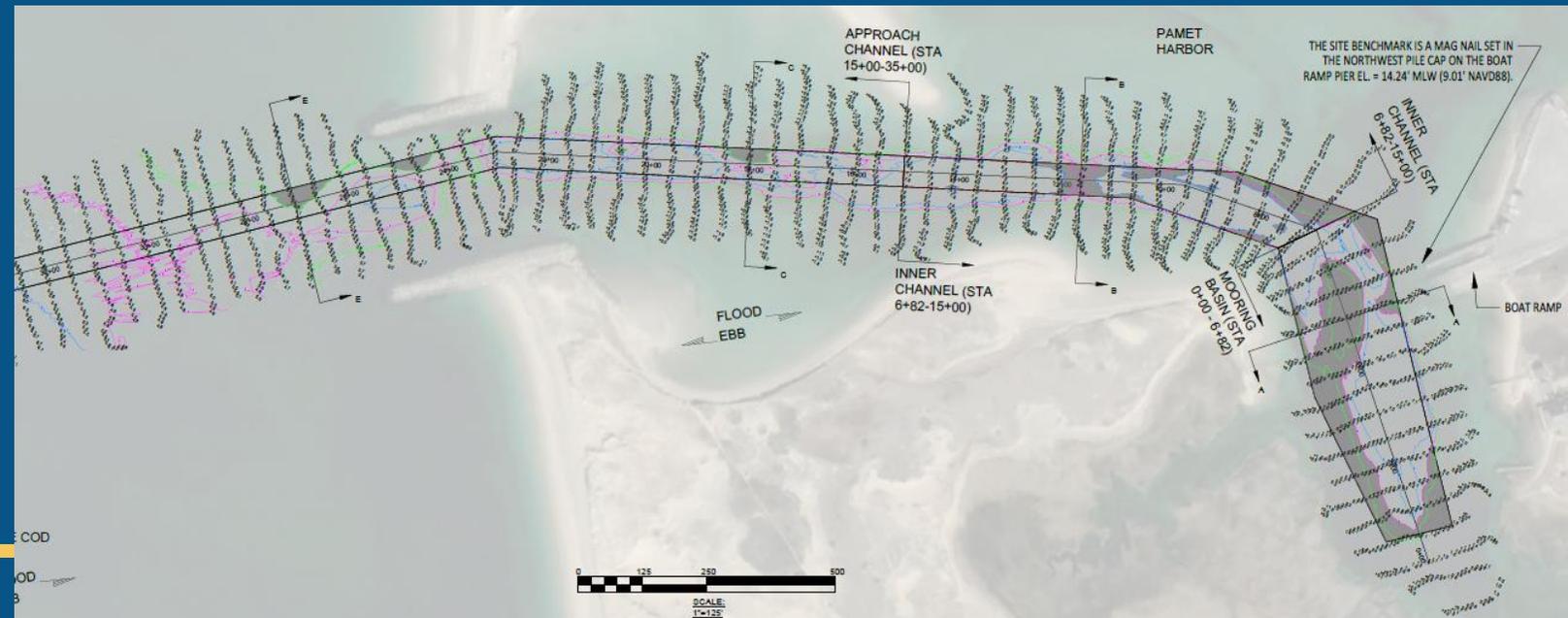
Discharge Locations: Eastern Side of jetty

NOTES:

This project alternates between dredging the Basin, Inner and Outer Channel and just the Inner & Outer Channel. This season all three sections were dredged.

The mobilizing for this project is lengthy as it requires a three-day transit from the south side with a stop over at the east end of the CC Canal. Low tides also contribute to the long mobilization time.

There has been a wash-over at the toe of the jetty and mitigation efforts have been ongoing for the past year. The dredge material was placed here again this year, but it has been removed by strong northerly winds and high tides.



Dennis - Sesuit Harbor Approach & Entrance Channel

PROJECT OVERVIEW:

Target Volume: 4,331 CY

Actual Volume: 2,489 CY

TOY: January 30 – Winter Flounder

Dredge: Cod Fish II

Discharge Locations: Cold Storage Beach, Dennis

NOTES:

This project needs to be completed as late in the season as possible as the backfill that occurs throughout the months to follow can result in shoaling in the channel restricting commercial fishing and recreational vessels during the summer months.

This season the volume of material to be dredged was reduced significantly from previous years. This may be due to the change in wind direction of the Fall/Winter storms from the south instead of the north as typically occurs.

A breakdown occurred on the Cod Fish II part way through this project. The PTO (Power Take Off) that controls the shifting / gear of the CAT engine seized. A spare PTO was on hand and the removal of the PTO resulted in the failure of another part (spacer/sprocket) that delayed the repair.



Barnstable - Cotuit Harbor Approach Channel

PROJECT OVERVIEW:

Target Volume: 18,343 CY

Actual Volume: 2,173* CY

TOY: April 1 – PPL's

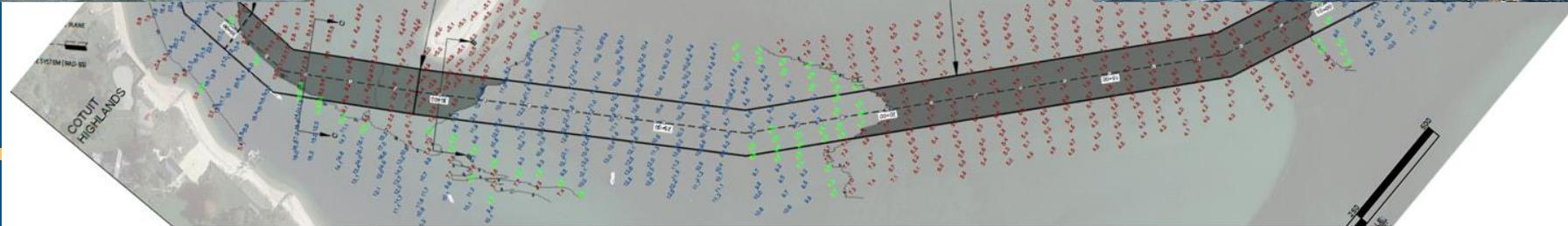
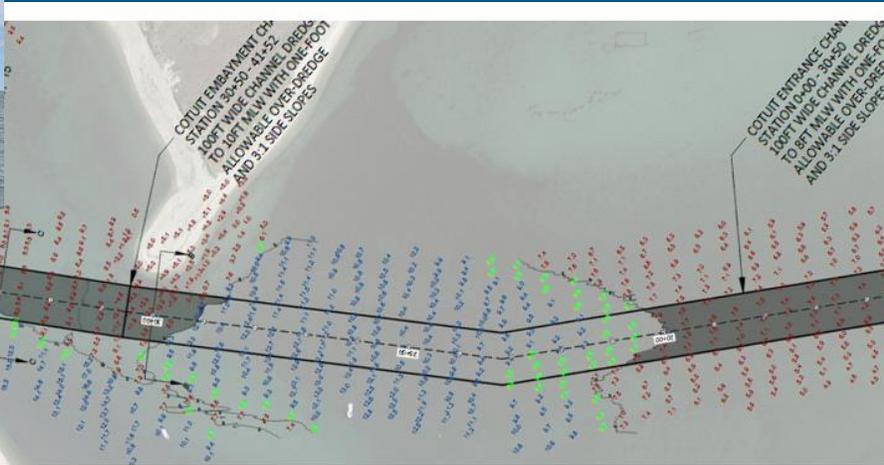
Dredge: Sand Shifter

Discharge Locations: Eastern end of Sampsons Island

NOTES:

This project was delayed from a January start due to the Round Cove, Harwich project and the requirement to get that project completed by January 15. The mobilizing time was 7+ days. Due to the location of the discharge location, it required the Booster Station (on the barge) to be positioned on the south side of Sampsons Island (in exposed seas) with 9,000' of pipe.

*The Wx conditions during this project severely reduced the dredging days to just 6 days. A waiver request was submitted to continue dredging after April 1st, but PPL activity on the island was taking place and dredge operations were suspended. Only two dredging days were needed to provide enough material to fill the wash-over area and to complete the southern most section. This project is tentatively planned to restart on October 1st.



Falmouth – Bourne's Pond - Entrance Channel

PROJECT OVERVIEW:

Target Volume: 4,121 CY

Actual Volume: 2,781 CY

Dredge: Cod Fish II

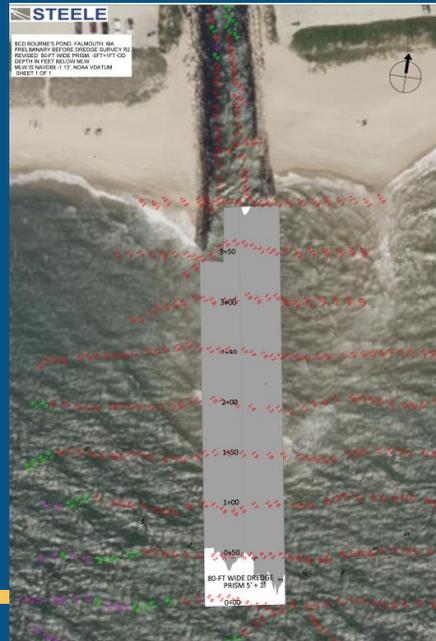
Discharge Location: Menauhant Beach

NOTES:

Due to the lack of permits in Falmouth for the past two years, all projects have excessive shoaling and required additional days to complete.

This location had extreme shoaling throughout the channel area. Low water conditions prevented dredging and added additional days.

Strong surface currents due to tidal flow (mostly on outgoing tides) also slowed down dredging operations. Backfilling occurred on more than one occasion as this project in progress.



Falmouth - Great Pond Entrance Channel

PROJECT OVERVIEW:

Target Volume: 80 CY

Actual Volume: 357 CY

TOY: May 1 – Horseshoe Crabs

Dredge: Cod Fish II

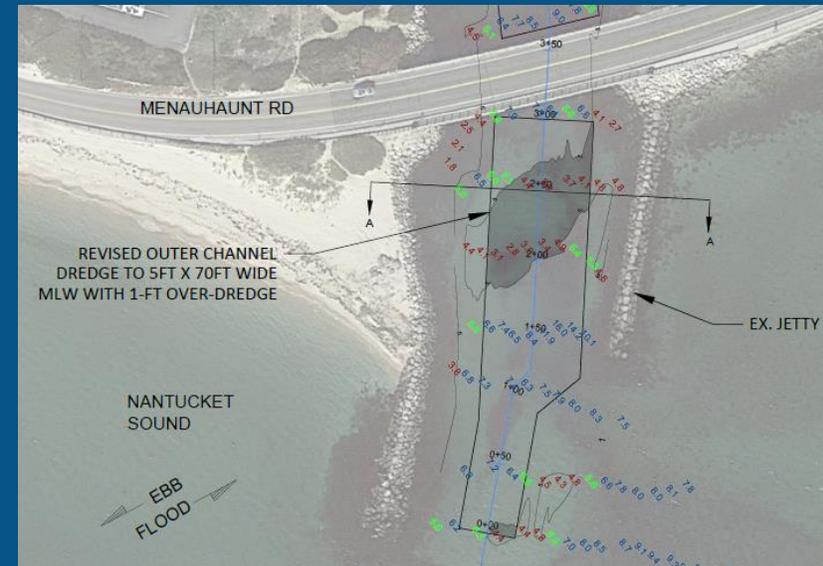
Discharge Location: Inn Seasons Beach

NOTES:

Excessive shoaling throughout this channel required an Emergency Certification to allow for the dredging to take place.

The Entrance channel had to be cleared first as it was impassable for the dredge to enter the channel.

Extreme shoaling, a narrow channel, easterly swells, and strong surface currents presented major challenges throughout this project.



Freshly dredged material poured through the dredge pipe and onto InnSeason Beach.
GILDA GEIST/ENTERPRISE

Falmouth - Great Pond Embayment

PROJECT OVERVIEW:

Target Volume: 3,523 CY

Actual Volume: 6,937 CY

TOY: May 1 – Horseshoe Crabs

Dredge: Cod Fish II

Discharge Location: Inns Seasons Beach

NOTES:

Excessive shoaling throughout this channel required an Emergency Certification to allow for the dredging to take place.

The Entrance channel had to be cleared first. Once done, the spuds had to be removed from the dredge, along with the muffler/exhaust system. Once under the bridge, the spuds had to be put back in place and the muffler/exhaust system had to be reinstated. When dredging was completed, the process was repeated.

The sand from this project was moved to numerous locations along Surf Drive to restore damage done by the winter storms.



Falmouth - Green Pond Entrance Channel

PROJECT OVERVIEW:

Target Volume: 2,165 CY

Actual Volume: 2,260 CY

TOY: May 1 – Horseshoe Crabs

Dredge: Cod Fish II

Discharge Location: Adjacent to jetty – Acapasket Beach

NOTES:

Dangerous shoaling exists in this channel prohibiting boats with drafts more than 3' from entering even at high tides.

The presence of a pair of nesting PPL's on the east side of the jetty restricted dredging operations requiring monitoring throughout the day when the dredge was operating.

This project required three days of dredging but took three weeks from setup to completion due to the delays due to the pair of PPL's present.



Harwich - Allen Harbor Approach Channel

PROJECT OVERVIEW:

Target Volume: 3,380 CY / Dredging Depth 6' + 1'

Actual Volume: 3,957 Interim Survey*

TOY: May 1st – Horseshoe Crabs

Dredge: Sand Shifter

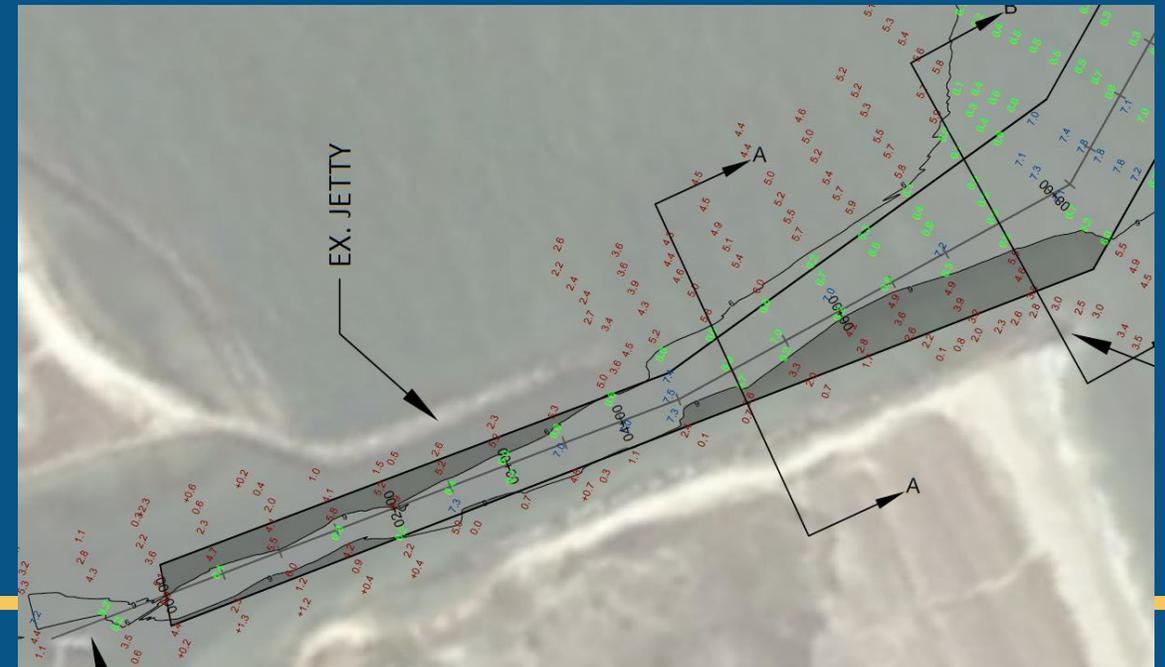
Discharge Location: Private Beaches

NOTES: Phase 1

This project started on April 25th and dredging continued through April 30th. The Entrance Channel portion of this project was completed (inside the breakwater). The dredge was moved to the next section south to continue dredging.

With a Horseshoe Crab TOY restriction of May 1st, a waiver request was submitted by the town to the DEP/DMF, but it was denied. Subsequent appeals were also denied.

See next slide for Phase 2.



*An interim survey was completed to capture the volume dredged to date = 3,957 CY

Harwich - Allen Harbor Approach Channel

PROJECT OVERVIEW:

Target Volume: 4,000 CY

(6' + 1' Over-Dredge)

Actual Volume: 4,128 CY

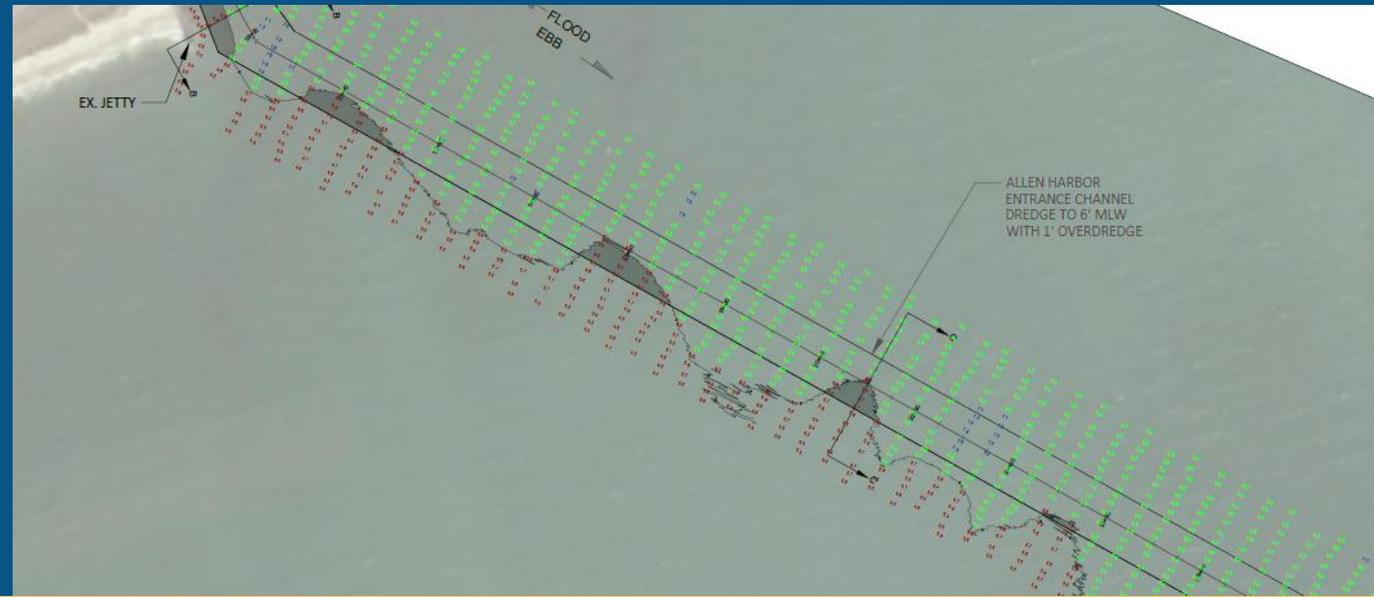
Dredge: Sand Shifter

Discharge Locations: Private Beaches

NOTES: Phase 2

This phase targeted the southern section of the Approach Channel.

As noted on the previous slide, this project was stopped on May 1st due to a Horseshoe Crab TOY restriction and it was restarted on June 11th. It was completed on June 14th.



Harwich – Wychmere Harbor Approach Channel

PROJECT OVERVIEW: Phase 1

Target Volume: 4,261 CY

Dredging Depth (6' + 1' Over-Dredge)

Actual Volume: 1,950*

TOY: May 1 – Horseshoe Crabs

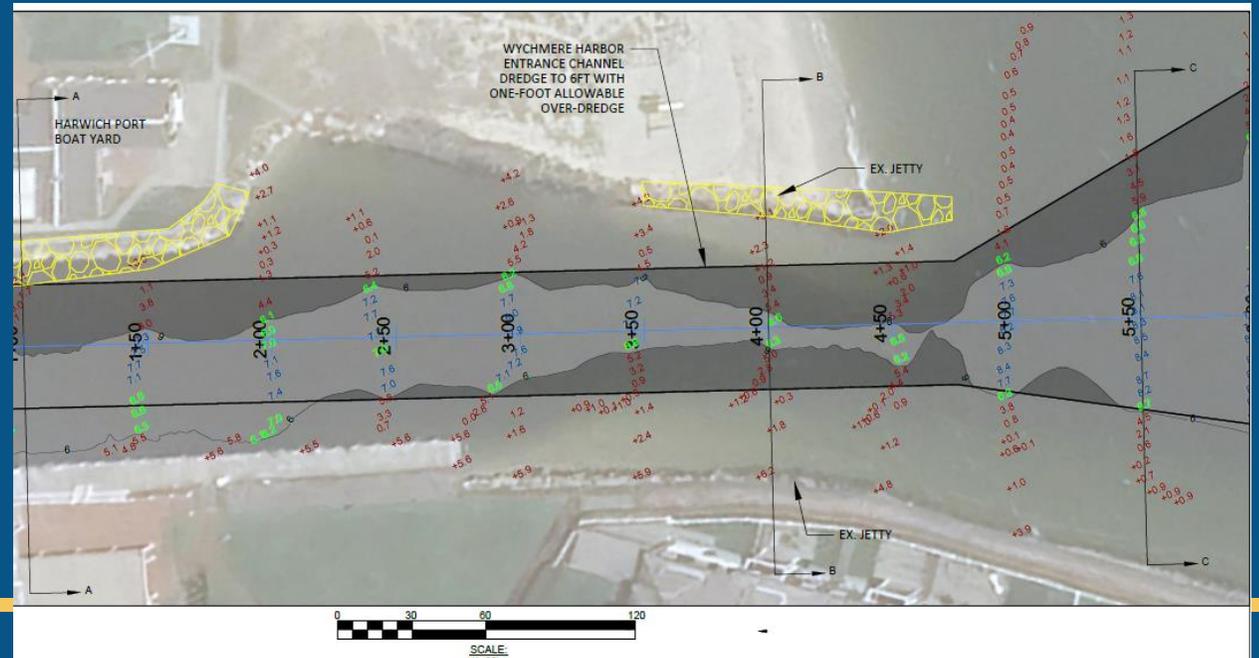
Dredge: Sand Shifter

NOTES:

This project started on June 17th and dredging continued through June 19th.

The discharge location for this project was adjacent to the east side of the jetty with a very short pipe run (1,500').

*A large volume of material in the Pre-Dredge survey is located in an area where the dredge cannot work due to bottom type (>10% fines) and the lack of areas to secure anchors.



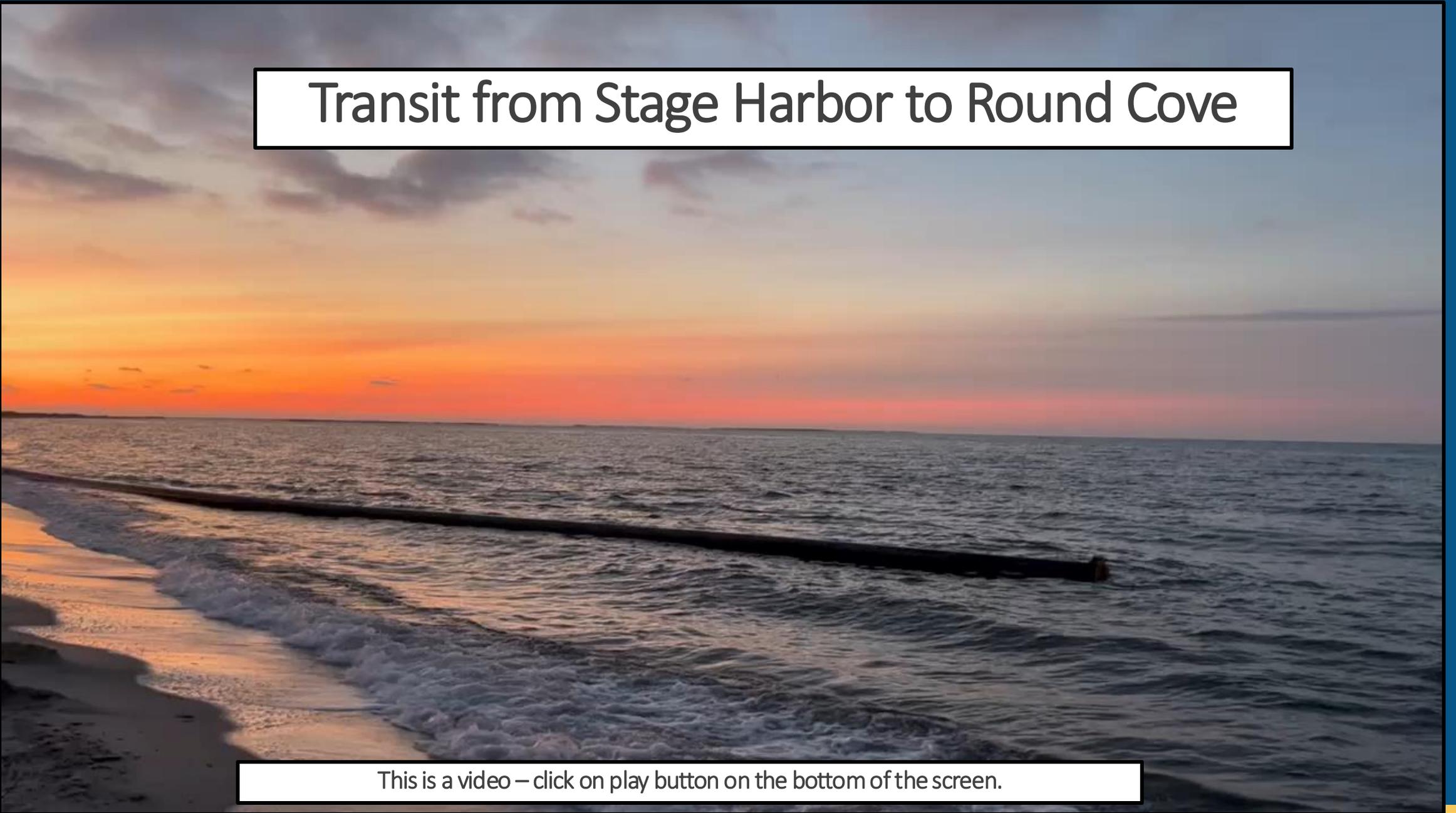
Additional Pictures From This Season Projects



Transit from Stage Harbor to Round Cove

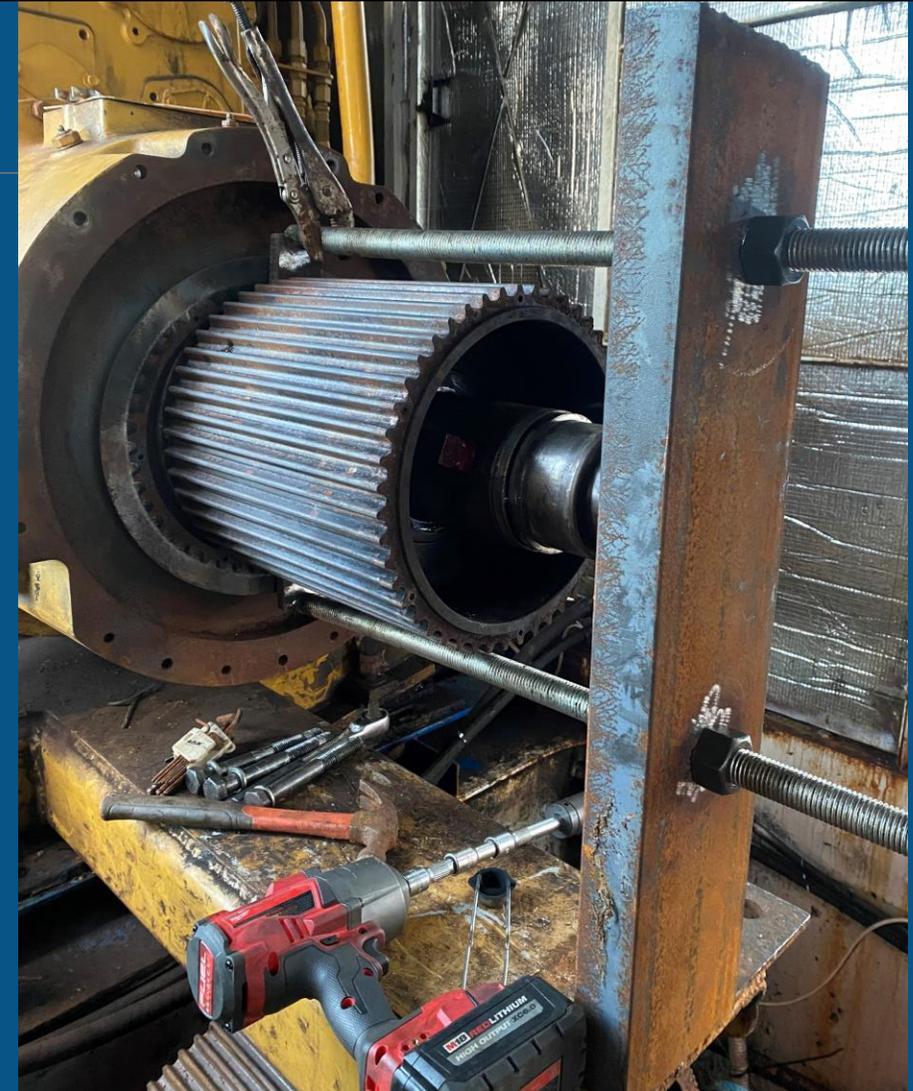


Transit from Stage Harbor to Round Cove



This is a video – click on play button on the bottom of the screen.

Breakdown onboard the Cod Fish II PTO & Spacer/Sprocket that controls the gear shifting on the CAT engine





Cotuit Approach Channel

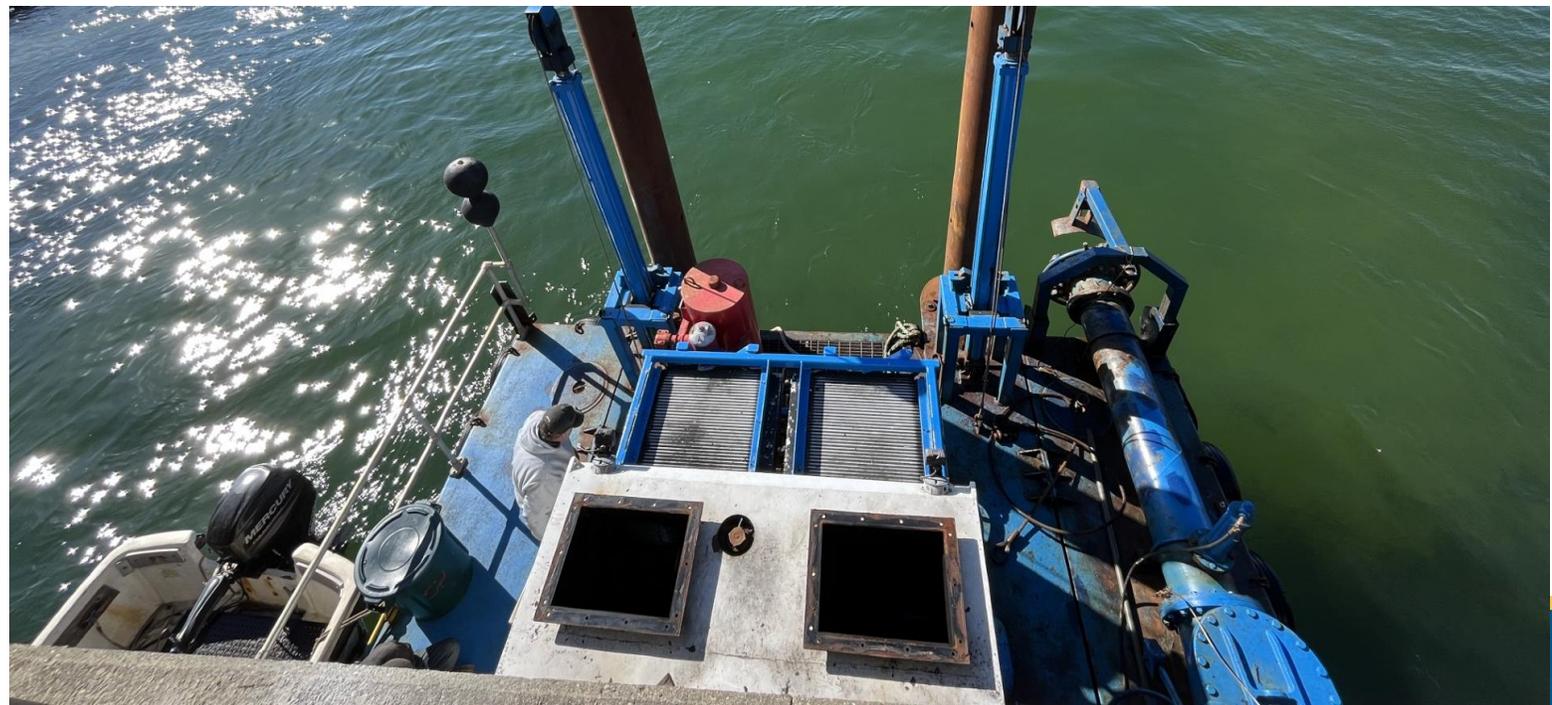
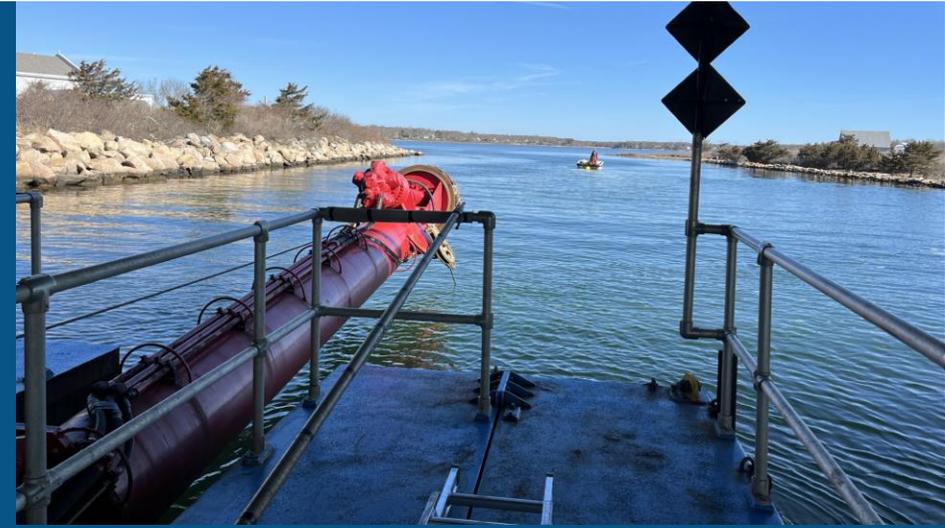




Poppy Approach Channel

Great Pond Embayment & Entrance Channel

The Cod Fish II had to transit under the fixed bridge that had only 12 inches of clearance at low tide (after the spuds and exhaust / muffler system were removed).



Great Pond Embayment & Entrance Channel

