

# Northern Edge Habitat- Scallop Framework

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**Council**  
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**Newport, RI / Via Webinar**



# Plan for today's discussion

- Recap work so far, including spatial concepts approved by Council in September
- Provide update on recent meetings
- Review planned analyses and near-term next steps
- Describe updated timeline
- No Council action required

# Goal

Develop a scallop rotational harvest program within and/or around the Closed Area II Habitat Closure Area (i.e., “habitat management area” or “HMA”) that avoids habitats important to juvenile cod, minimizes adverse effects to essential fish habitats, minimizes adverse biological and economic impacts to other managed fisheries, and contributes to optimum yield for the scallop fishery.

## Objectives

*In brief*

1. Develop access area(s)
2. Review HMA boundaries
3. Develop harvest program including frequency and intensity of access
4. Manage scallop yield and harvest over short and long term
5. Ensure enforceability
6. Minimize bycatch
7. Consider egg-bearing lobster and lobster fishery interactions

# Prior work to develop action

- Since April approval of goal and objectives, have discussed how this action can address them / what alternatives might look like
- Stepping back from this work to evaluate the spatial concepts approved in September
- The four concept areas are likely to serve as the foundation for spatial alternatives designating scallop access areas within the habitat closure

# Spatial concepts approved in September

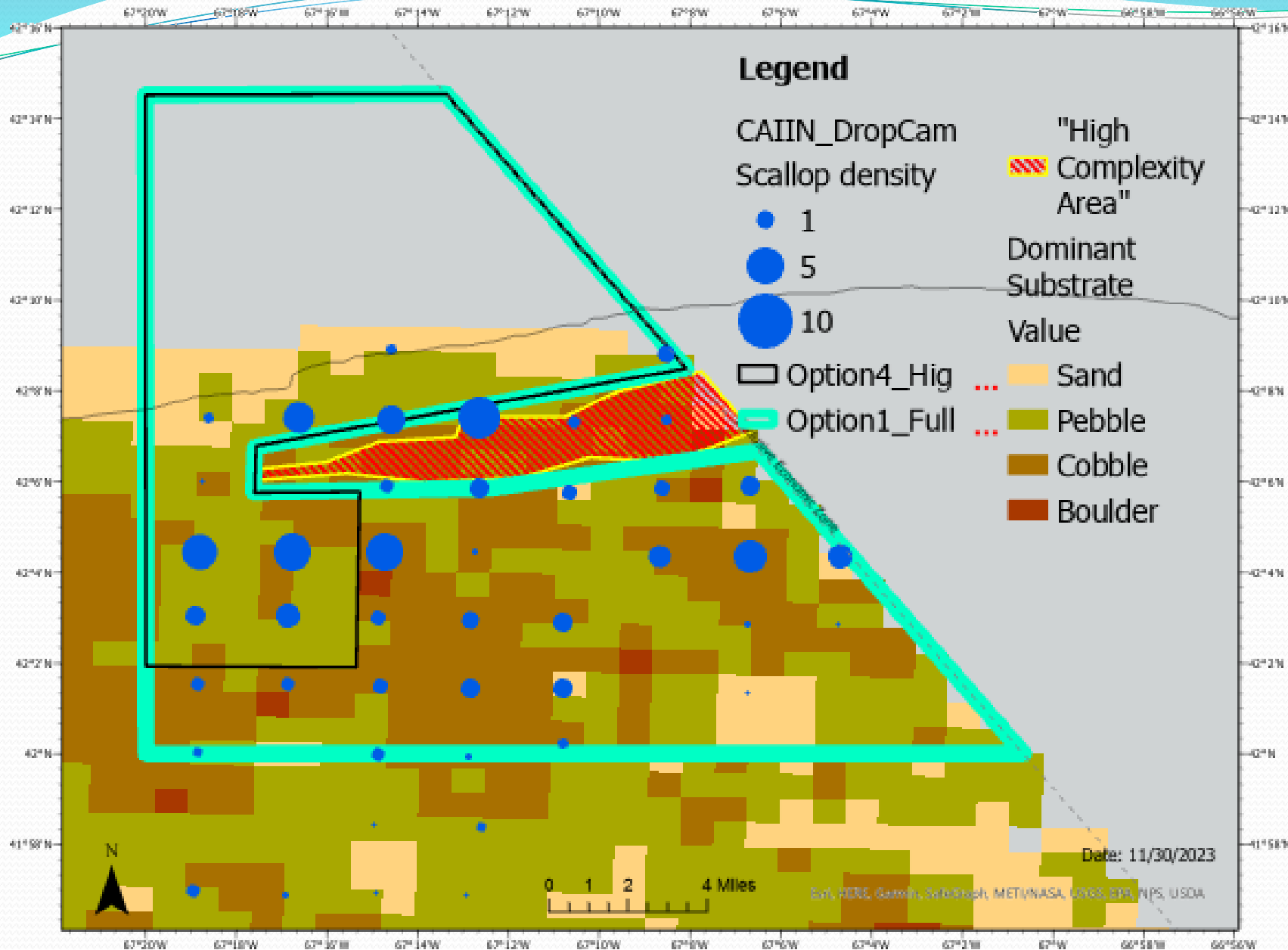
That the Scallop and Habitat PDTs analyze four areas (=concepts) in the development of access areas for the Northern Edge Framework. The analysis should include estimates of biomass in each area by the Scallop PDT, estimates of percent disturbance from the Fishing Effects model by the Habitat PDT, and consider possible impacts to other fisheries resources, in accordance with the objectives for the action.

# Spatial concepts

- Concept 1 – all areas with high scallop biomass in 2022-23 surveys; mix of sand, pebble, cobble substrates
- Concept 2 – north of highly complex habitat polygon only; mix of sand and pebble substrate, enforceable shape
- Concept 3 – south of highly complex habitat polygon only; mix of sand, pebble, cobble substrates
- Concept 4 – north and south of highly complex habitat polygon – but avoids most of the cobble-dominated habitat to the south
- None of the concepts include parts of the scallop bed west of the habitat closure boundary; generally assuming these areas are off the table for the purpose of access area alternatives in this framework
- All concepts avoid previously identified area of highly complex habitat

# Recent scallop meetings

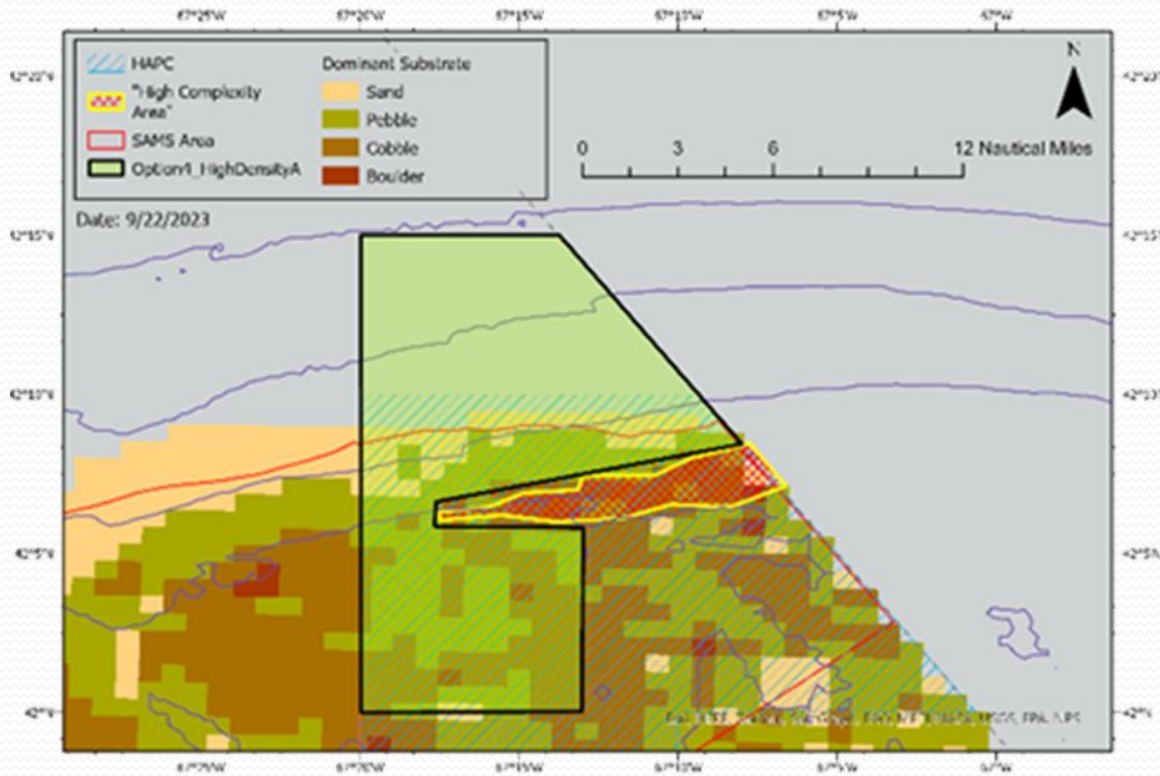
- Scallop PDT met in late September to discuss spatial concepts approved at the Council meeting.
- Discussion around the overlap of high-density scallops with various dominant substrate types.
- Scallop PDT recommended modifying the Concept 4 boundaries to minimize the cobble and boulder substrate within the proposed access area.
- *Note: After this meeting, Scallop PDT has been focused on the development of specifications for FY2024; the PDT plans to continue work on this action in early 2024.*



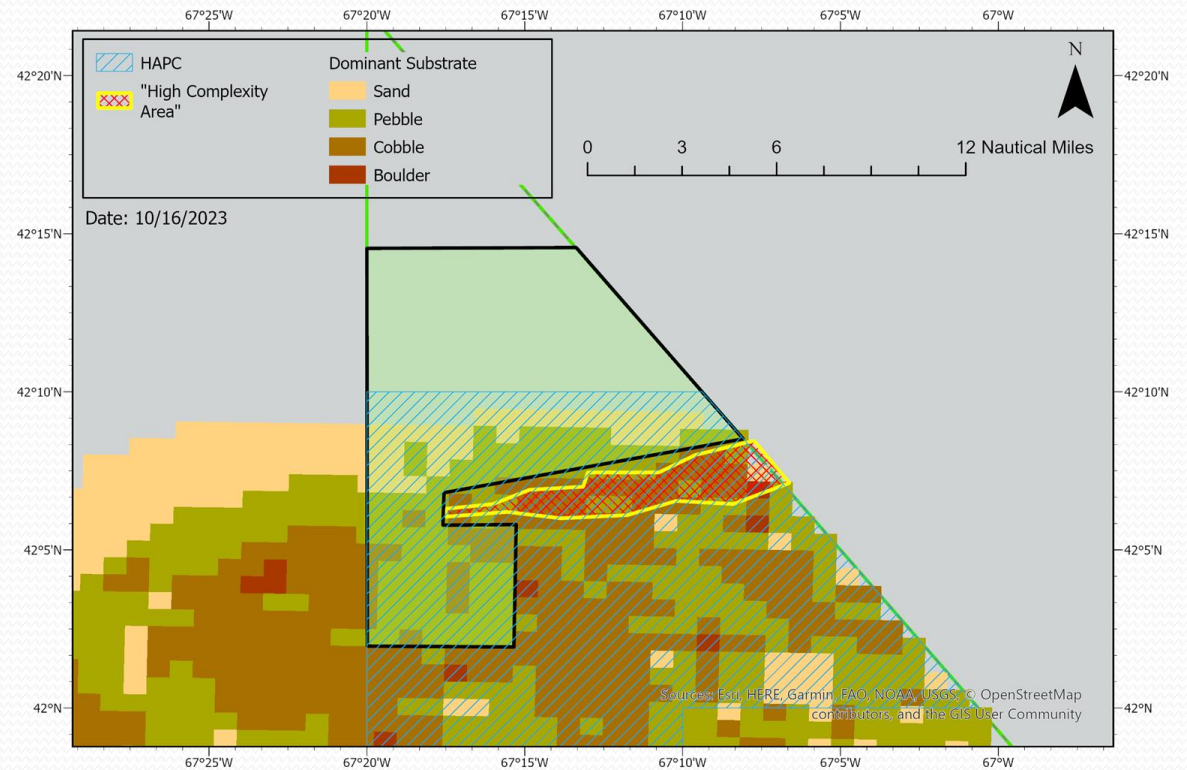
*With dominant sediment data from Harris, et al. 2010*

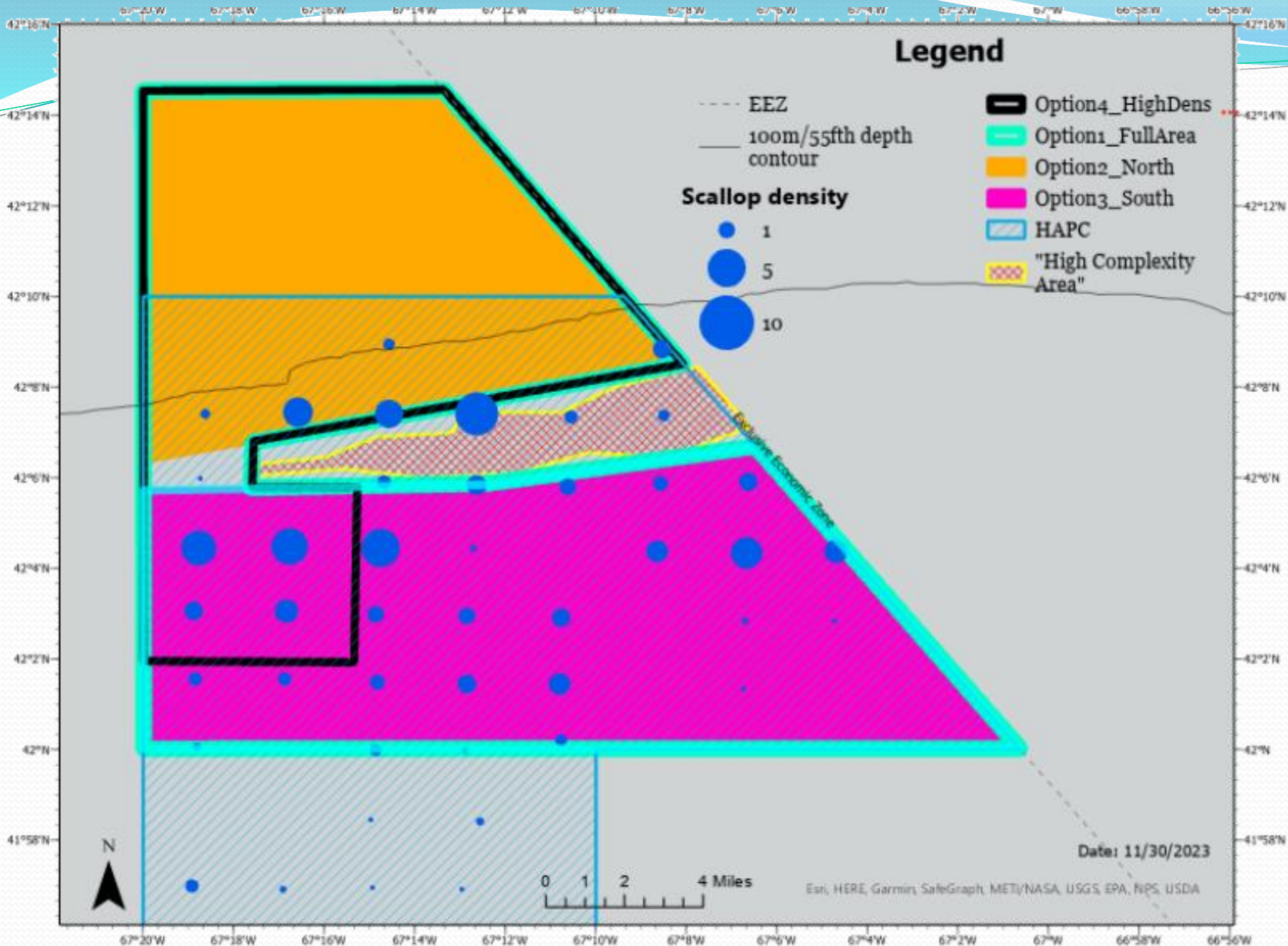


# Concept 4 area boundaries as of September 2023



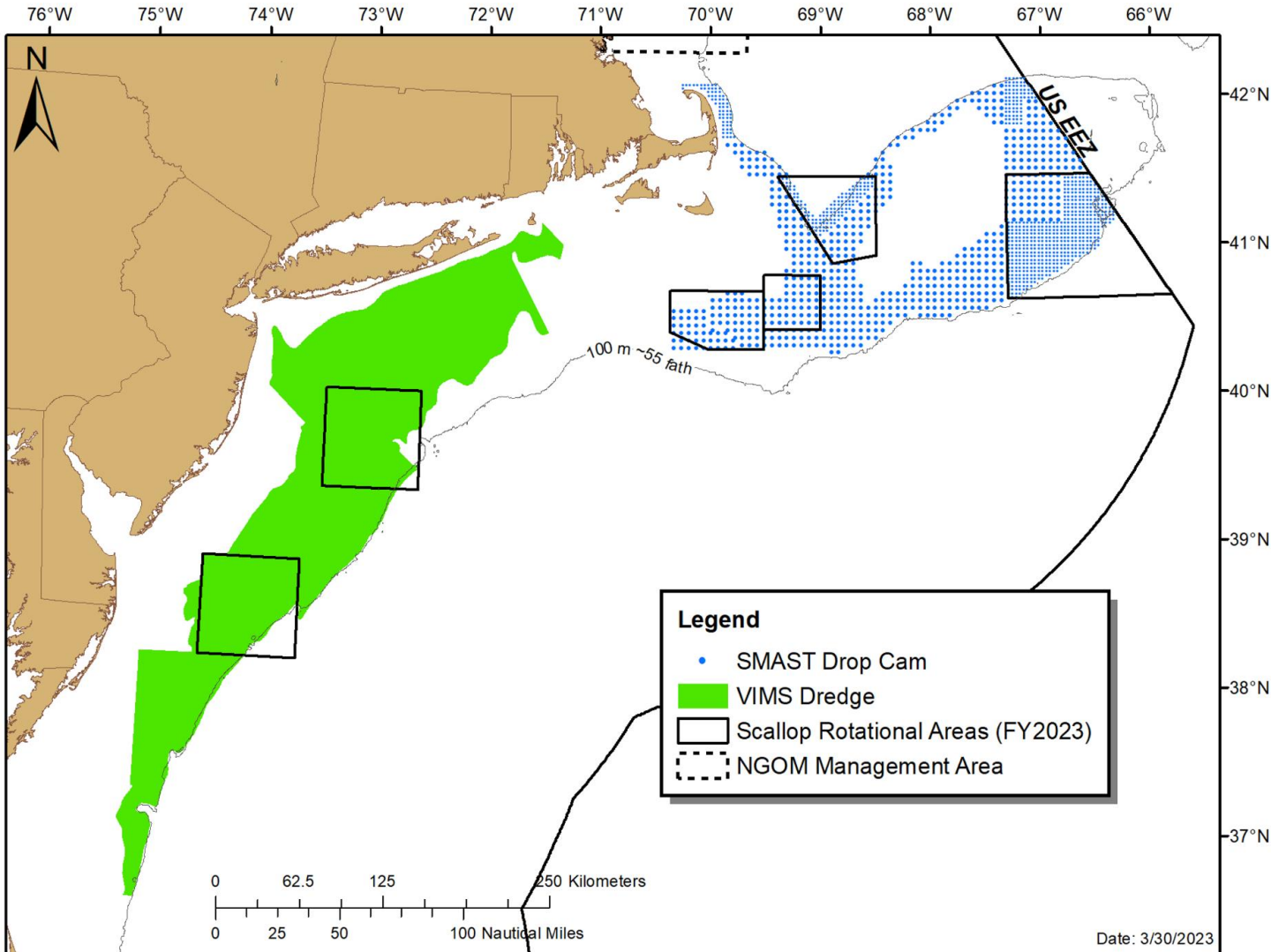
# Concept 4 area boundaries as of December 2023





*Note: area extends north of the “High Complexity Area” to account for operational considerations (for vessels to cut, get off the tows, etc.)*

# 2024 Survey Coverage



- Anticipate multiple surveys of Area II – North in 2024
  - SMAST funded through RSA for DropCam
  - NEFSC has historically surveyed this area using HabCam and Dredge

*Note: initial biomass estimates to be based on 2023 data (only one survey covered Northern Edge area in 2023) and 2024 data when available*

# Recent habitat meetings - purpose

- PDT met in October; CTE/AP in November
- Purpose of meetings with respect to this action was to discuss spatial concepts and how to analyze them
- Specifically, reviewed how the Fishing Effects model works, and how it can be applied in this context
- PDT continues to evaluate seabed sediment characteristics (max grain size, dominant grain size, heterogeneity, coarseness)
- Reviewed other data and information we can use to develop the framework (cod spawning areas, NEFSC survey information)

# Recent habitat meetings - outcomes

- Developed a collective understanding of how Fishing Effects model works
  - Recognized that careful consideration will be required on how to interpret the results with respect to minimizing impacts to EFH
- Discussion about potentially needing to mitigate or offset fishing impacts in another area outside of Northern Edge
  - Ideally, none needed; still trying to understand how minimal/temporary the impacts would be
- Relative to spatial approaches, avoid using the “habitat protection zone” term given the area is already designated as a Habitat Closure and Habitat Area of Particular Concern

# What is the Fishing Effects Model?

- Used to generate spatially and temporally explicit estimates of percent habitat disturbance across the northeast region
- Underlying habitat map based on sediment type and energy regime, range of biological and geological features are inferred to each sediment/energy combination
- Fishing effort in area swept units is added to the model by gear type and month
- Area swept is scaled using feature-specific susceptibility coefficients, and then decays (recovers from impact) according to feature-specific recovery coefficients
- For more information: [Fishing Effects Model - Library - NEFMC](#)

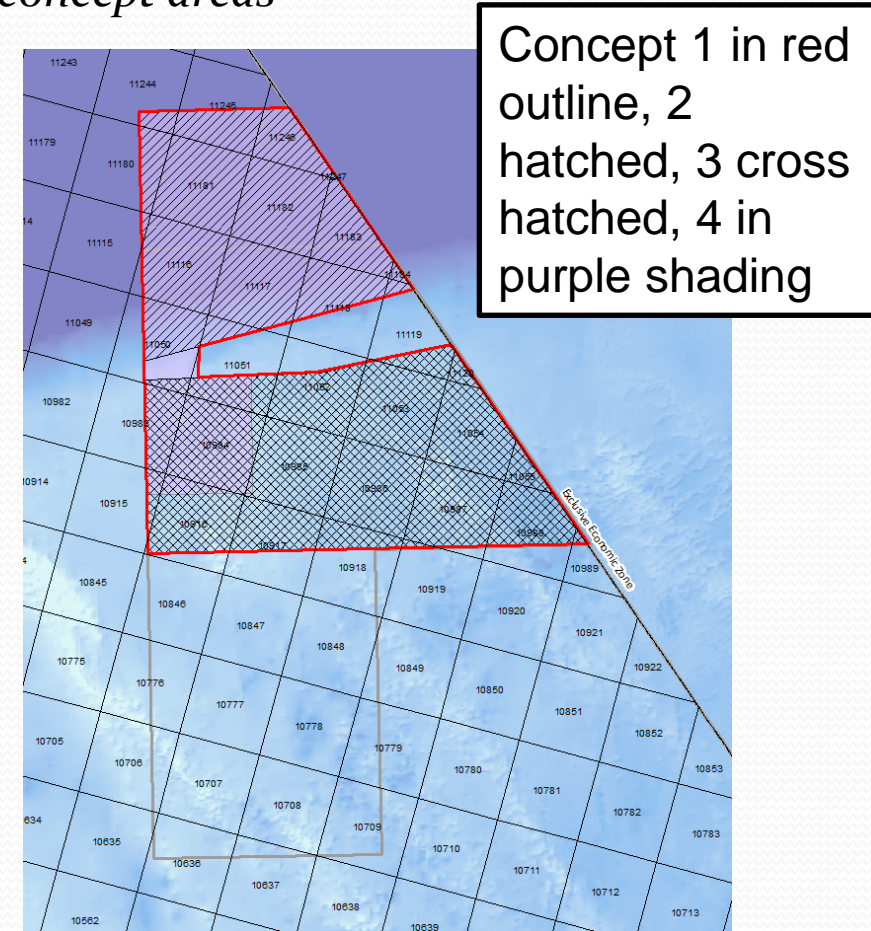
# Using the Fishing Effects Model to evaluate Northern Edge spatial concepts

- **Purpose:** to evaluate potential habitat impacts of fishing including recovery within 4 concept areas with different fishing intensities
- **Execution:** re-run model with different swept area scenarios
  - Model outputs (percent disturbance) designed to be compared across concept areas
- **Model validation:** use Gallager et al BACI study for comparing Fishing Effects habitat impacts and recovery results; need to validate results for individual taxa
- **Interpreting results:** No clear threshold for percent disturbance value that indicates minimal and temporary impacts → Council input needed on this at some point

# Plan for analysis

- Generate area swept scenarios (set value for each grid cell, by month)
  - Able to reflect shifts in effort within and among years including a range of annual rotational intervals and concept area configurations
  - Will base monthly values per grid cell on past swept area values within rotational access areas and/or SAMS model estimates
- Run these alternative scenarios through the model to see how percent disturbance estimates compare
  - Concept areas are likely sufficiently unique to compare habitat impacts between them

*FE Model grids and their overlap with the concept areas*

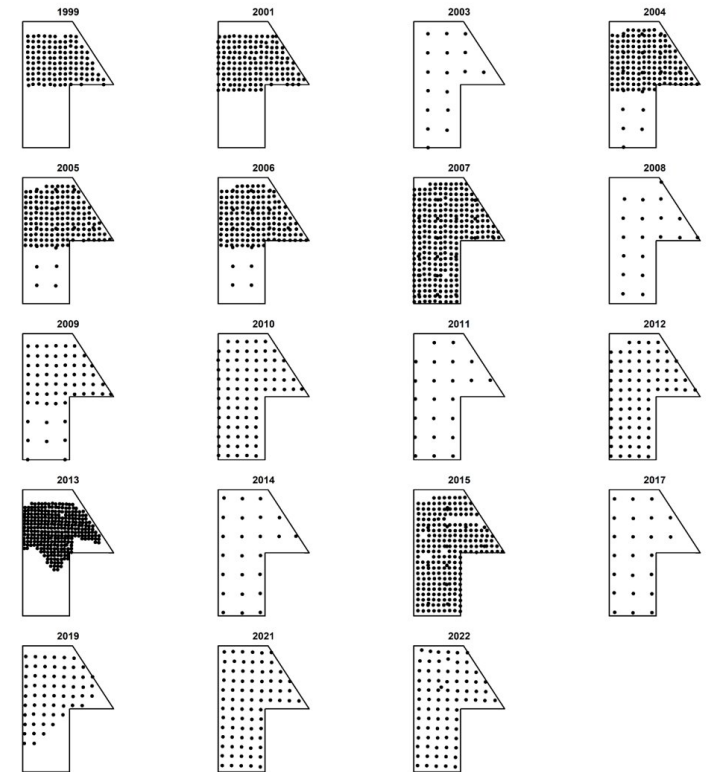




# SMAST RSA Project

- Two-year study to review and reanalyze imagery and data collected 1999-2024
  - Describe and show changes in substrate and benthic epifauna
  - Analyze patterns of substrate and benthic community change in relation to scallop density
- Measure scallops and starfish; estimate % cover of mussels, tunicates, worm beds; quantify cod using side view camera; statistical analysis
- First progress report later this month, Scallop and Habitat PDTs will be briefed on results to date in early January

*Title: "Long-term substrate, benthic community, and scallop population dynamics of the Northern Edge Habitat Area of Particular Concern on Georges Bank"*



# Lobster resource and fishery analysis

In October, ASMFC's Lobster Board tasked the Lobster Technical Committee with the following work:

- Compile information on the lobster resource and fishery in and around the Northern Edge, starting with a review of lobster data included in OHA2.

## Specifically:

- Info on presence / absence of lobsters incl. ovigerous in area by month/season
- Lobster fishing effort by month/season
- Potential impacts of mobile gear on lobster population in area
- Info on habitat type and depth preference of lobsters (will help clarify any limitations in data)
- % of Area 3 fleet in area that report eVTR or VMS and how federal eVTR & vessel tracking requirement will impact data availability

# Near-term next steps

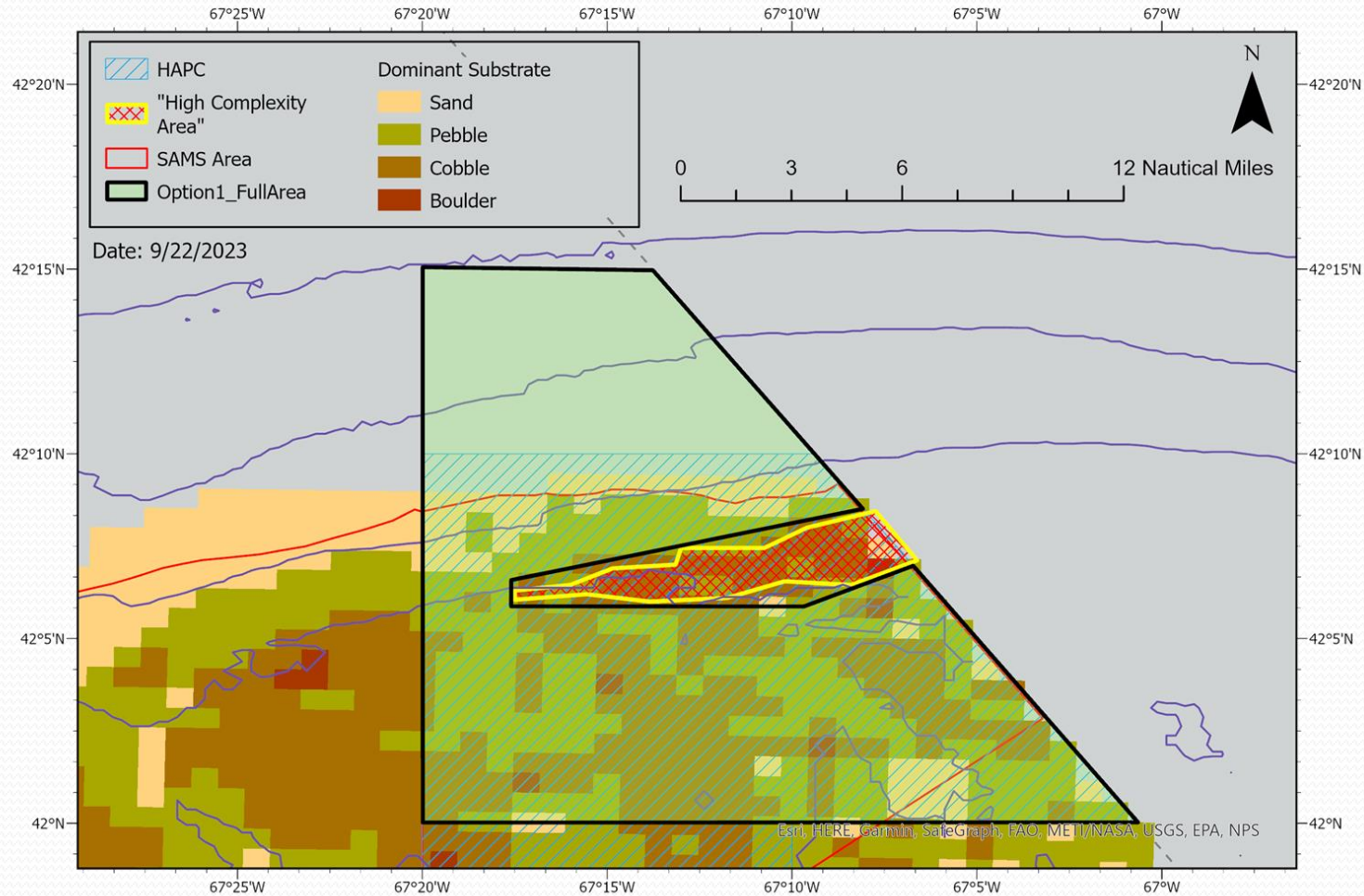
- Continue to plan Fishing Effects model analysis
- Develop a list of seafloor taxa on the Northern Edge, referencing literature, NEFSC survey reports, BACI study
  - Applicable to SMAST's re-analysis of images
  - Will help us groundtruth Fishing Effects model results
- Develop scallop biomass estimates for concept areas
- Coordinate with ASMFC Lobster Technical Committee (meeting Dec 8)
- Receive progress report on SMAST RSA project (meeting Jan 12)

<b>2022</b>	
<b>DEC</b>	<b>Council prioritizes action</b>
<b>2023</b>	
FEB/MAR	Kickoff meeting with PDTs, staff as appropriate to define scope/goal and objectives
MAR	CTEs, Aps review draft goal and objectives
<b>APR</b>	<b>Council approves goal and objectives</b>
MAY-JUN	Assemble spatial and other data
JUN-AUG	PDTs draft range of alternative actions
AUG-SEP	CTEs, APs review range of alternatives
<b>SEP</b>	<b>Council has initial discussion on alternatives</b>
OCT-DEC	PDTs evaluate spatial concepts and alternatives
NOV	Habitat AP, CTE input
<b>DEC</b>	<b>Council update</b>
<b>2024</b>	
<b>JAN</b>	<b>Council update</b>
JAN-MAR	PDTs continue to develop alternatives and preliminary impacts analysis; Habitat and Scallop CTE and AP meetings
<b>APR</b>	<b>Council reviews analysis of spatial concepts and other alternatives</b>
MAY-SEP (SEP final) or MAY-NOV (DEC final)	PDTs, APs, and CTEs finalize range of alternatives and impacts analysis; APs and CTEs recommend preferred alternatives; staff complete impact analyses
<b>APR</b>	<b>Council final action</b>
<b>SEP or DEC</b>	
OCT-DEC (SEP final)	Staff completes and submits action to NOAA Fisheries
<b>2025</b>	
JAN-FEB (DEC final)	Staff completes and submits action to NOAA Fisheries
TBD	NOAA Fisheries Review, Implementation

Alternatives development to occur in the spring through summer. Several opportunities for input before Sept or Dec final action

# Extra Slides

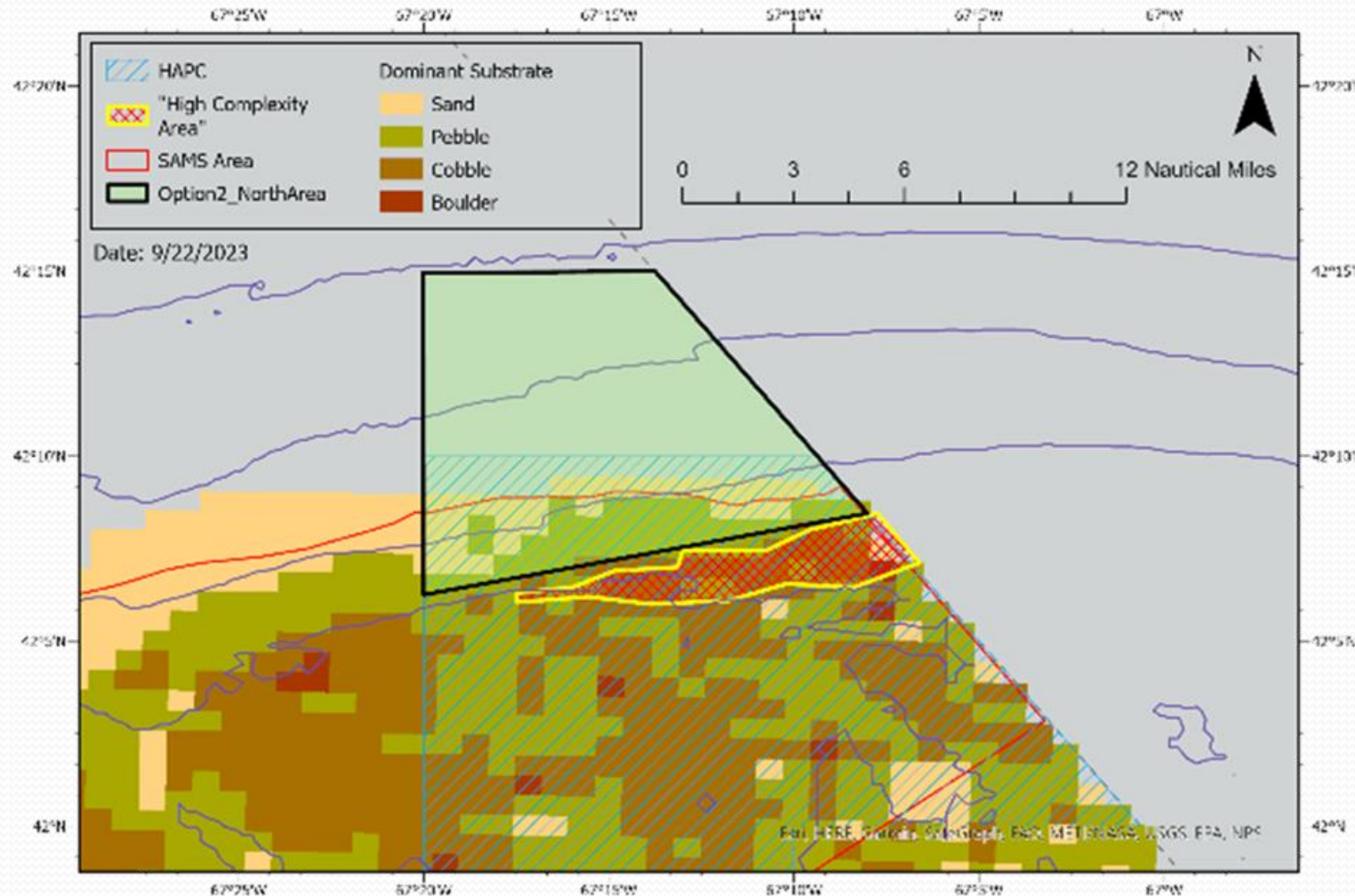
# Concept 1- Scallop distribution in 2022-2023



Extends north of Habitat Closure Area to account for operational considerations (for vessels to cut, get off the tows, etc.)

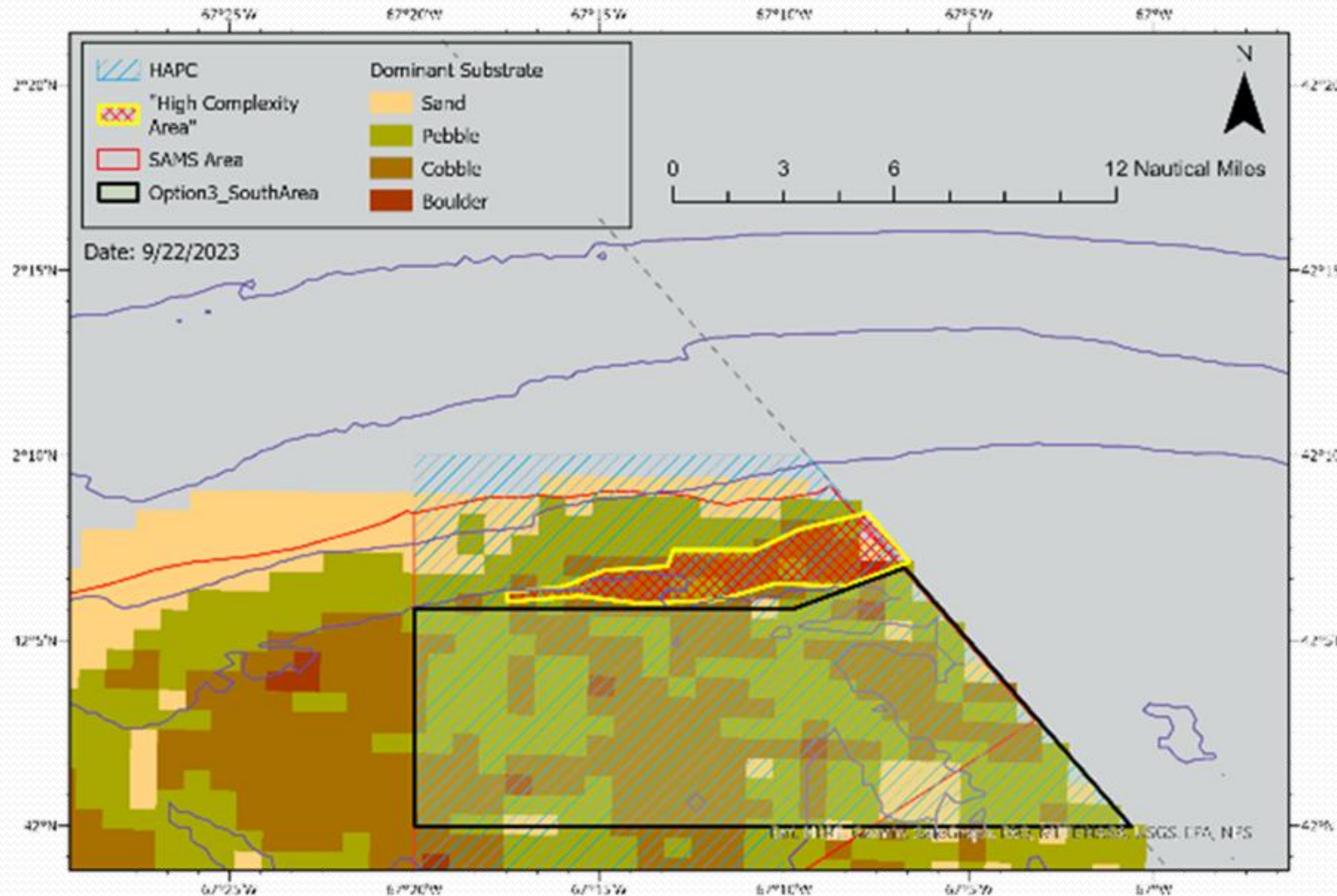
None of the concepts extend west of Habitat Closure Area; assuming open areas are off the table for now

# Concept 2 – North of highly complex habitat



- Encompasses sand/pebble bottom to the north of the highly complex habitat area.
- Shape of the boundary may be more enforceable vs. Concept 1.

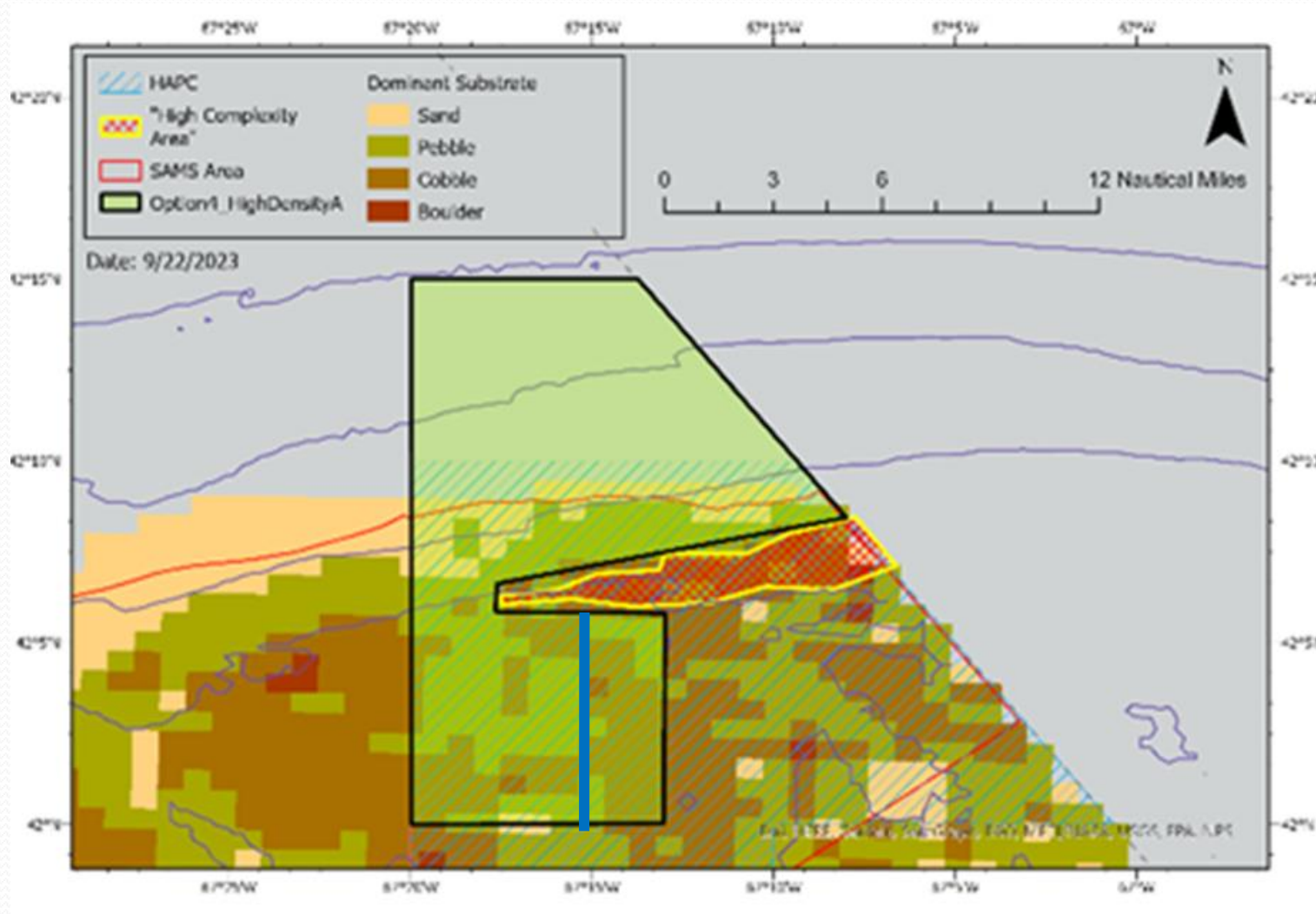
# Concept 3 – South of highly complex habitat



- Includes areas with high densities of scallops.
- Mix of sand, pebble, cobble-dominated bottom
- Like Concept 2, shape may be more enforceable than Concept 1.



# Concept 4 – North and south of highly complex habitat



- Sand/pebble bottom to the north of the highly complex habitat.
- Some high-density scallop areas south of the highly complex habitat area are in pebble substrate.
- Boundary adjustment (blue line) avoids cobble-dominated areas