

NORTH HEAD SITE STUDY AREA BASELINE SURVEYS (SEPTEMBER 2017)

LOWER COLUMBIA SOLUTIONS GROUP
SCIENCE & POLICY WORKSHOP
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US Army Corps
of Engineers®
Portland District



MCR DISPOSAL SITE NETWORK

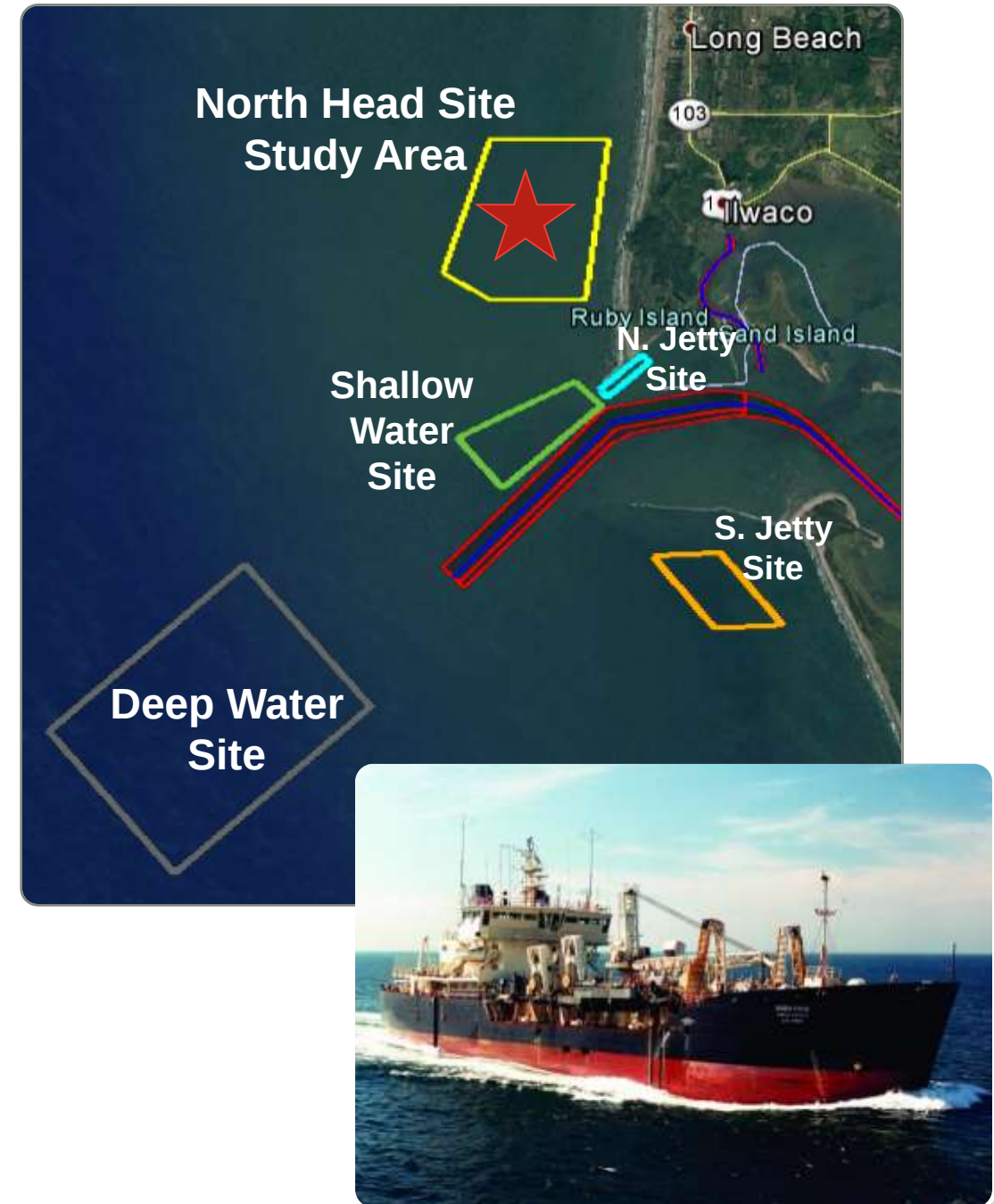
GOALS: Increase dredged material placement in the nearshore zone to:

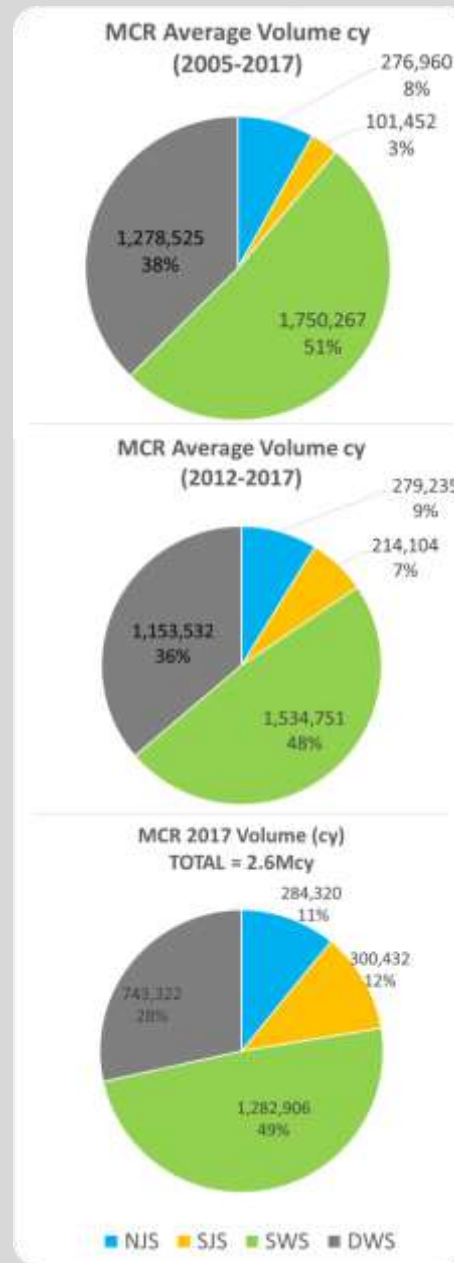
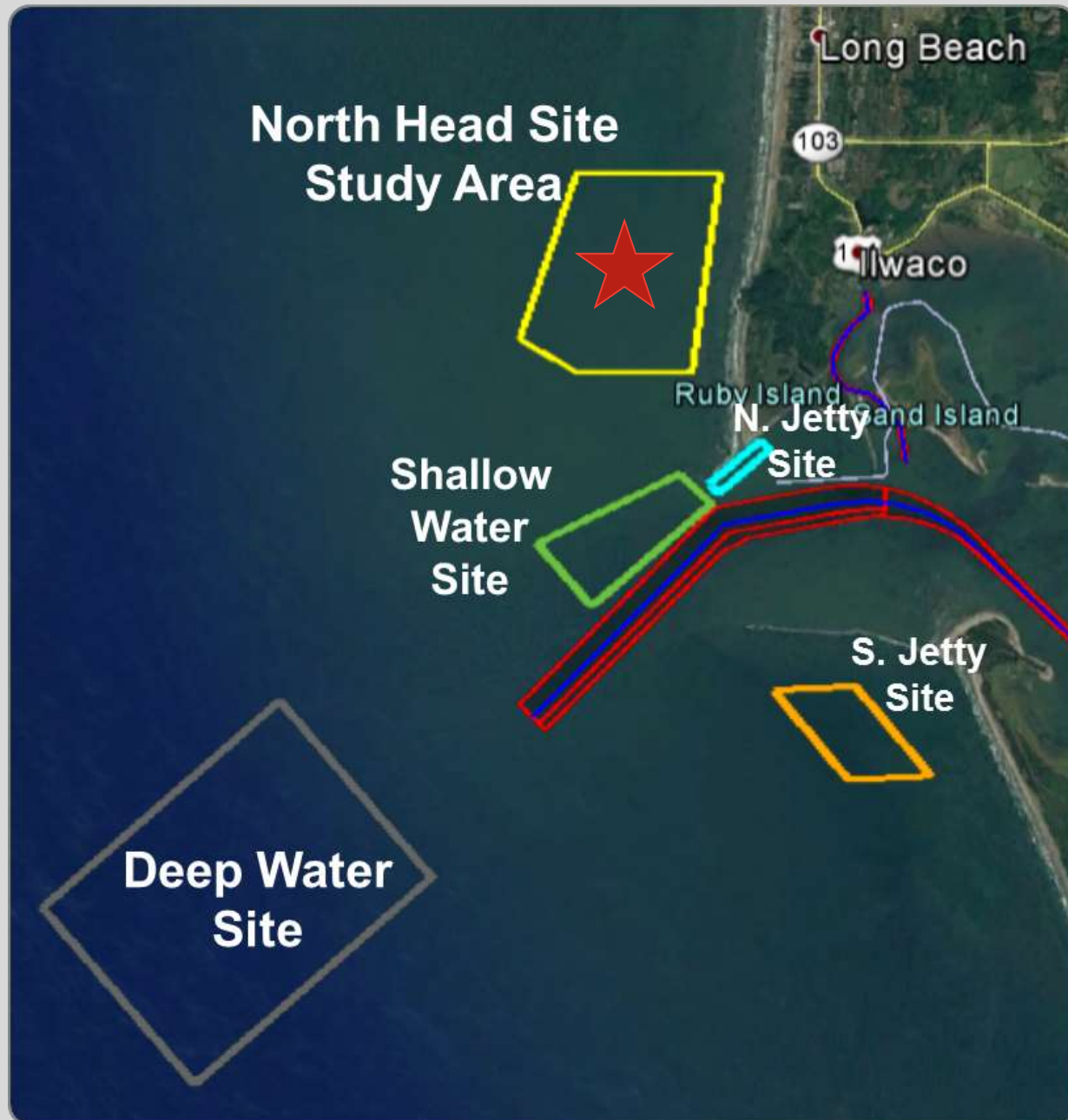
1. Maintain nearshore sediment budget & coastal morphology
2. Protect infrastructure (e.g., the MCR jetties)
3. Improve efficiency of dredging operations

While minimizing:

4. Impacts to navigation from increased wave height (no dead fishermen)
5. Impacts to benthic/ epibenthic communities (no dead crabs)

DREDGED MATERIAL IS A RESOURCE!





SO...

HOW DO WE KEEP MATERIAL NEARSHORE?

Thin layer placement at multiple nearshore sites

WHY NORTH HEAD?

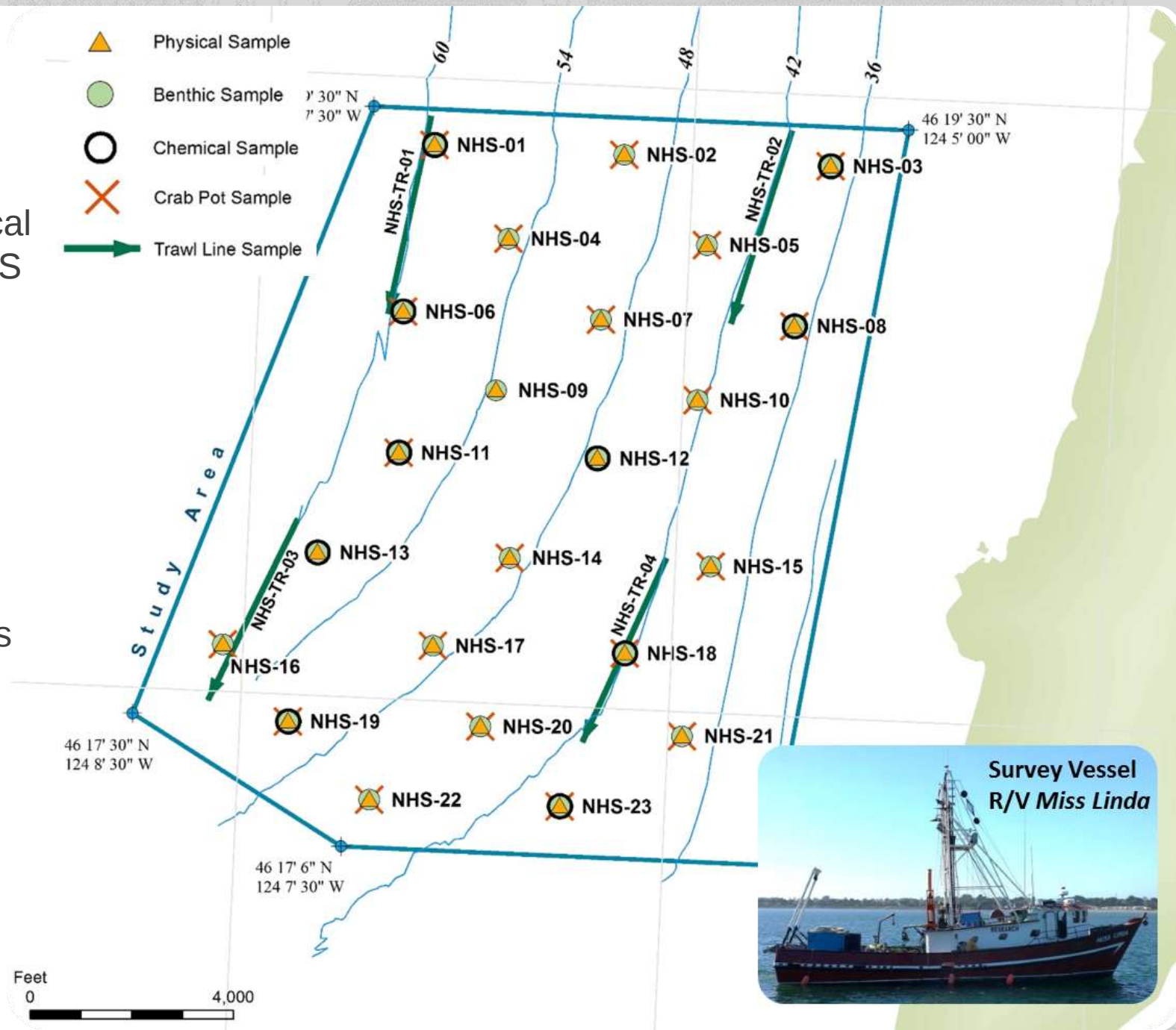
TLP at more sites =
Less chance for mounding
(no dead fishermen)
Reduced impact to the
benthos (no dead crabs)

BASELINE SURVEY (25-29 SEPTEMBER 2017)

OBJECTIVE: Survey baseline ecological and substrate characteristics in the NHS study area to support selection of a dredged material placement site.

OVERVIEW:

- 23 stations total
- 23 grain size
- 23 benthic infauna
- 20 commercial crab pot deployments
- 10 sediment chemistry (metals)
- 4 epibenthic trawls



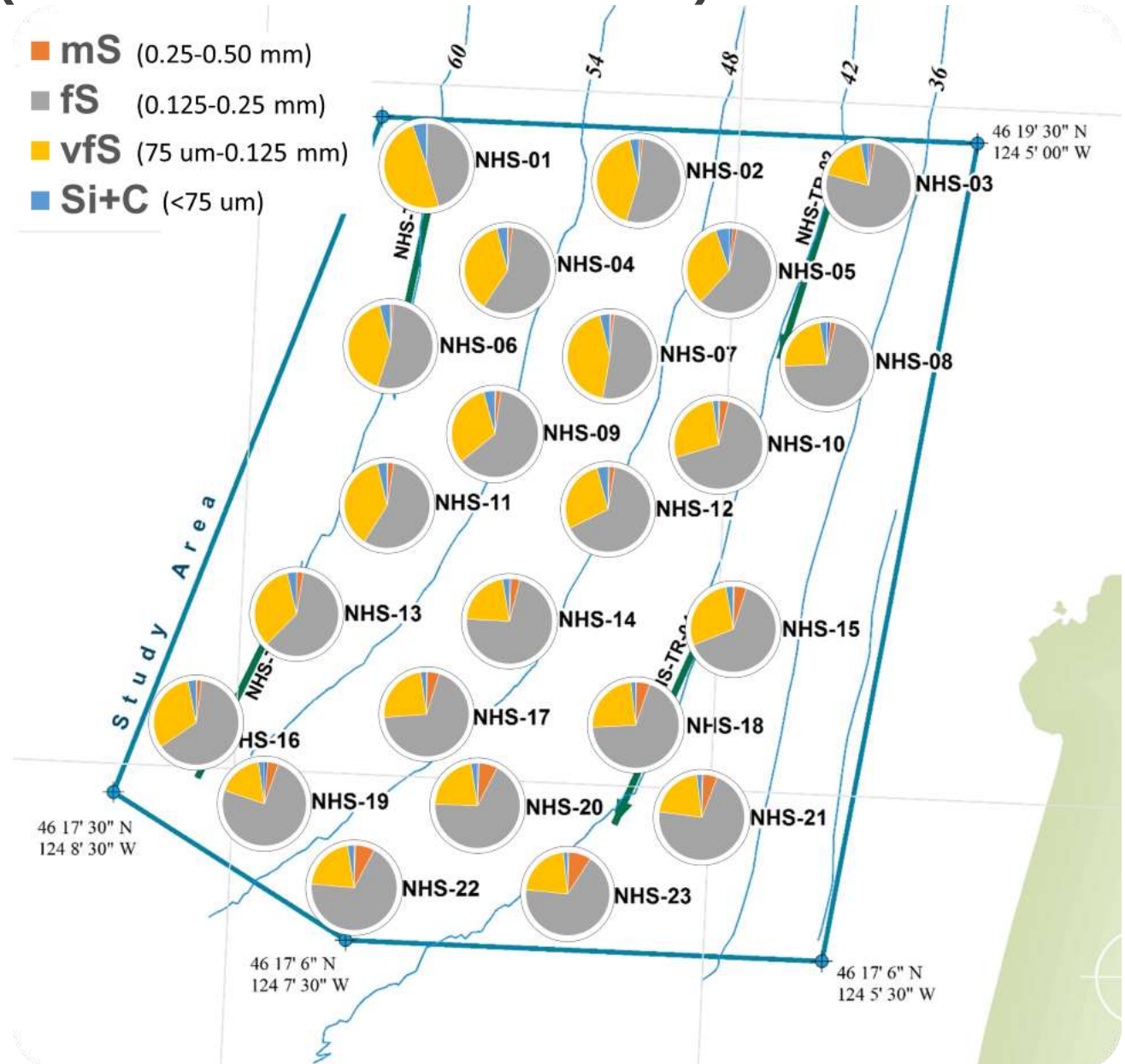
BASELINE SURVEY – SUBSTRATE (GRAIN SIZE AND METALS)

GRAIN SIZE (n=23): Very fine to fine sand
- Coarser toward Peacock Spit
- Finer in the NW corner

CHEMISTRY (metals; n=10): It's clean sand.

Metals	MAX Concentration (mg/kg) (n=10)	NW Regional Marine Screening Level (mg/kg)*
Antimony	0.032	150
Arsenic	4.26	57
Cadmium	0.044	5.1
Chromium	16.7	260
Copper	6.57	390
Lead	4.21	450
Mercury	0.017	0.41
Nickel	14.1	--
Silver	0.014	6.1
Zinc	41.2	410

* - corresponds to a concentration below which adverse effects to benthic communities would not be expected (RSET, 2016)



BASELINE SURVEY – BIOTA (EPIBENTHIC FAUNA)

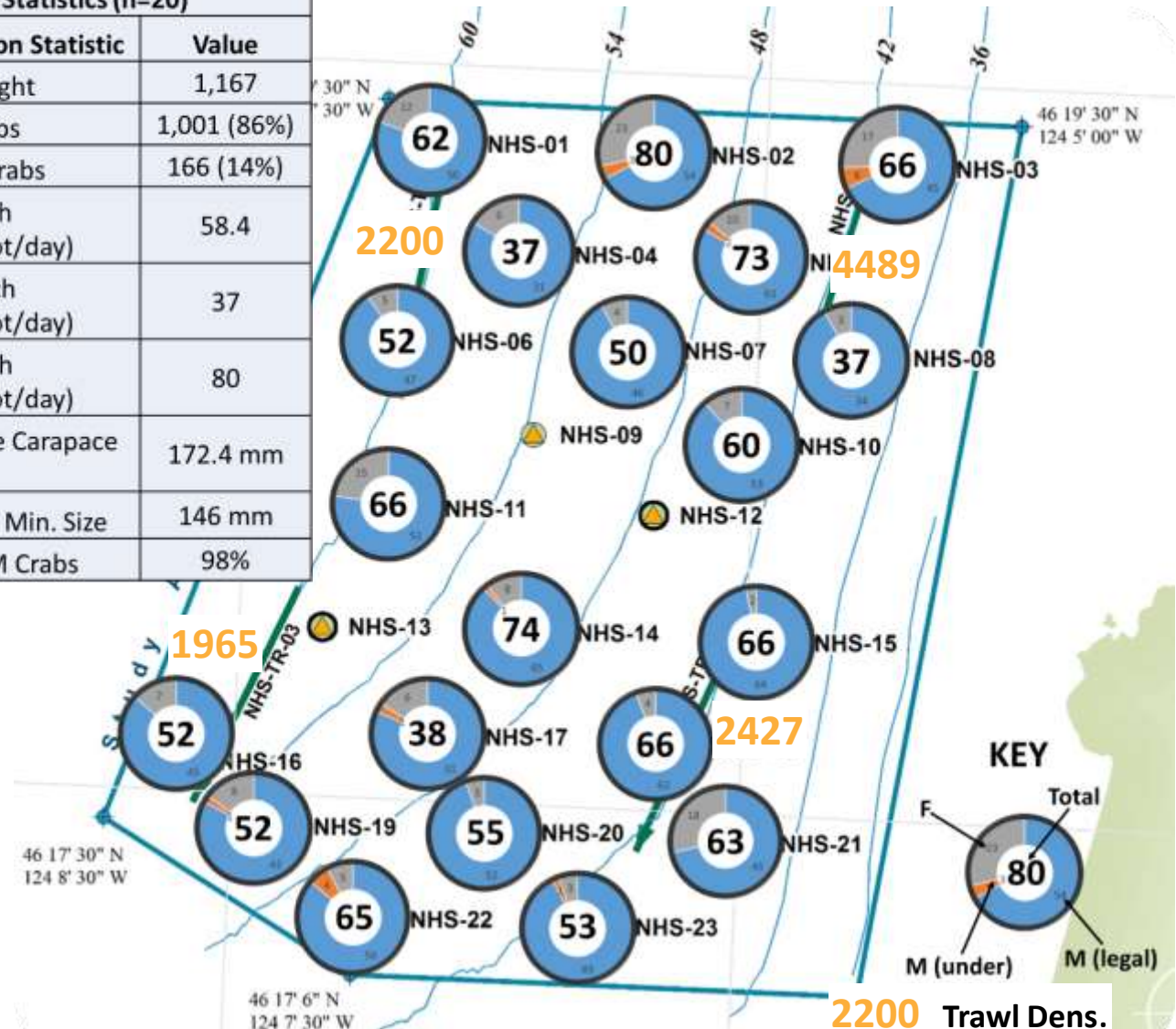
CRAB POT SURVEY (n=20): LOTS of keepers.

EPIBENTHIC TRAWL (n=4): Typical (mostly).



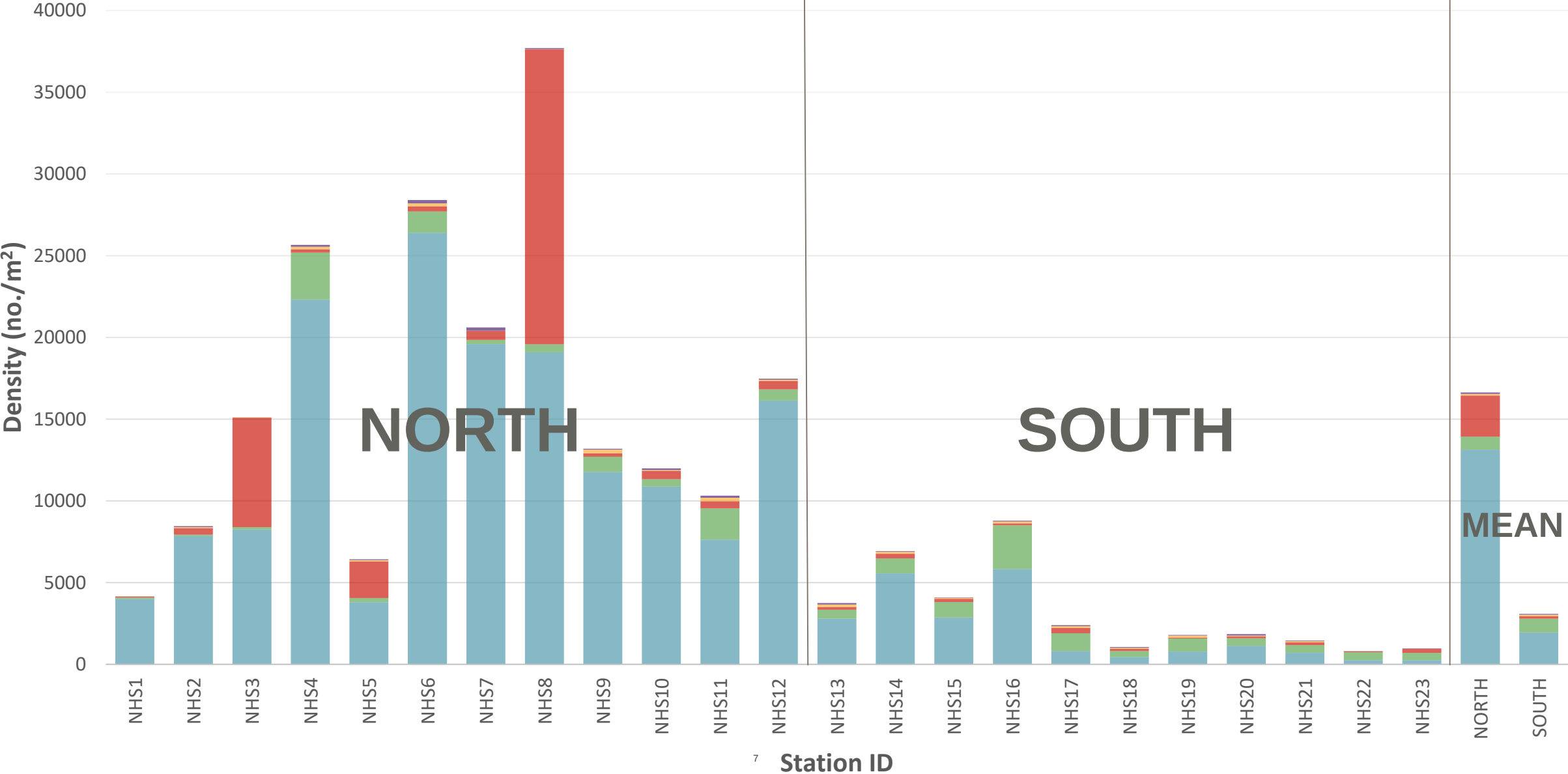
NHS Trawl Survey Statistics and Indices (combined fishes & inverts)					
Parameter	TR-01	TR-02	TR-03	TR-04	NHS Mean
Abundance	769	930	420	533	663
Density (no./ha)	2200	4489	1965	2472	2782
Shannon Diversity Index (H')	2.21	2.47	2.46	1.81	2.24

Commercial Crab Pot Survey Statistics (n=20)	
Population Statistic	Value
Total Caught	1,167
Male Crabs	1,001 (86%)
Female Crabs	166 (14%)
Avg. Catch (crabs/pot/day)	58.4
Min. Catch (crabs/pot/day)	37
Max Catch (crabs/pot/day)	80
Avg. Male Carapace Width	172.4 mm
WA Legal Min. Size	146 mm
% Legal M Crabs	98%



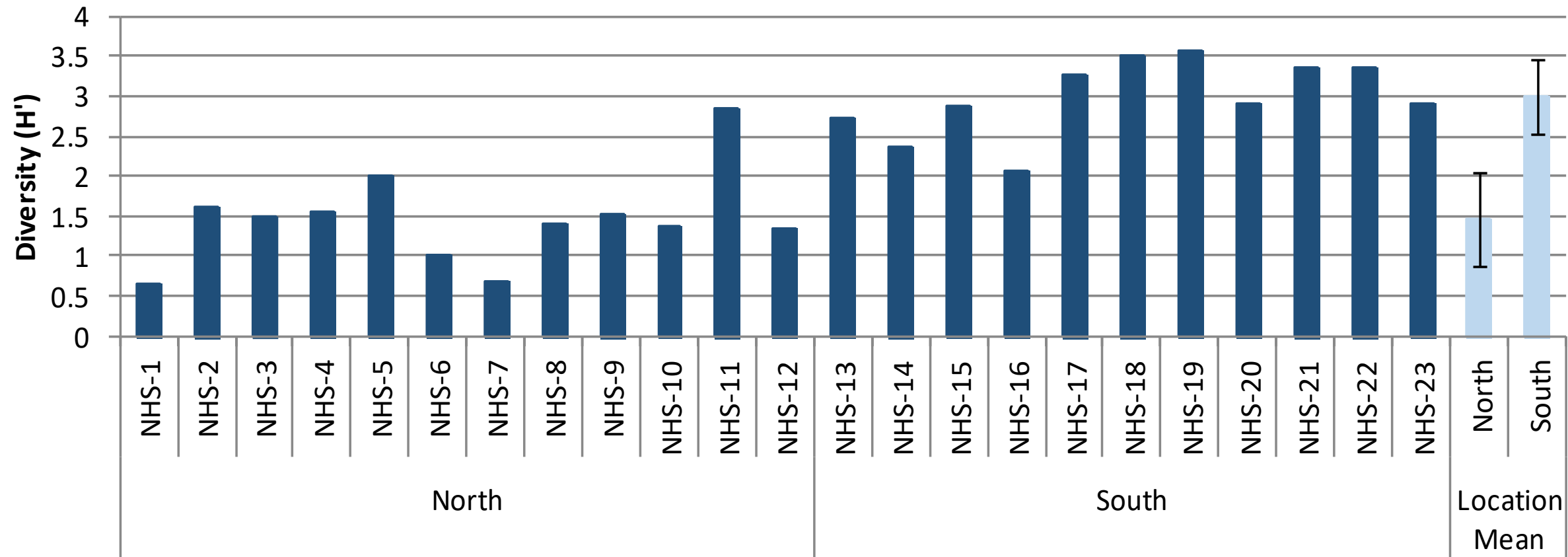
BASELINE SURVEY – BIOTA (BENTHIC INFAUNAL DENSITY [n=23])

ANNELIDS ARTHROPODS MOLLUSCS ECHINODERMS MISC

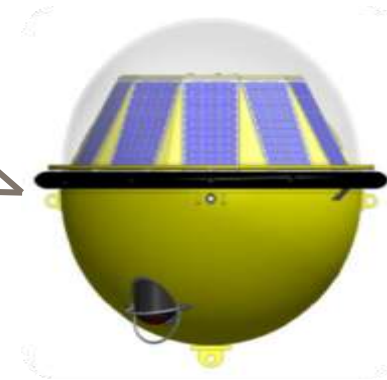
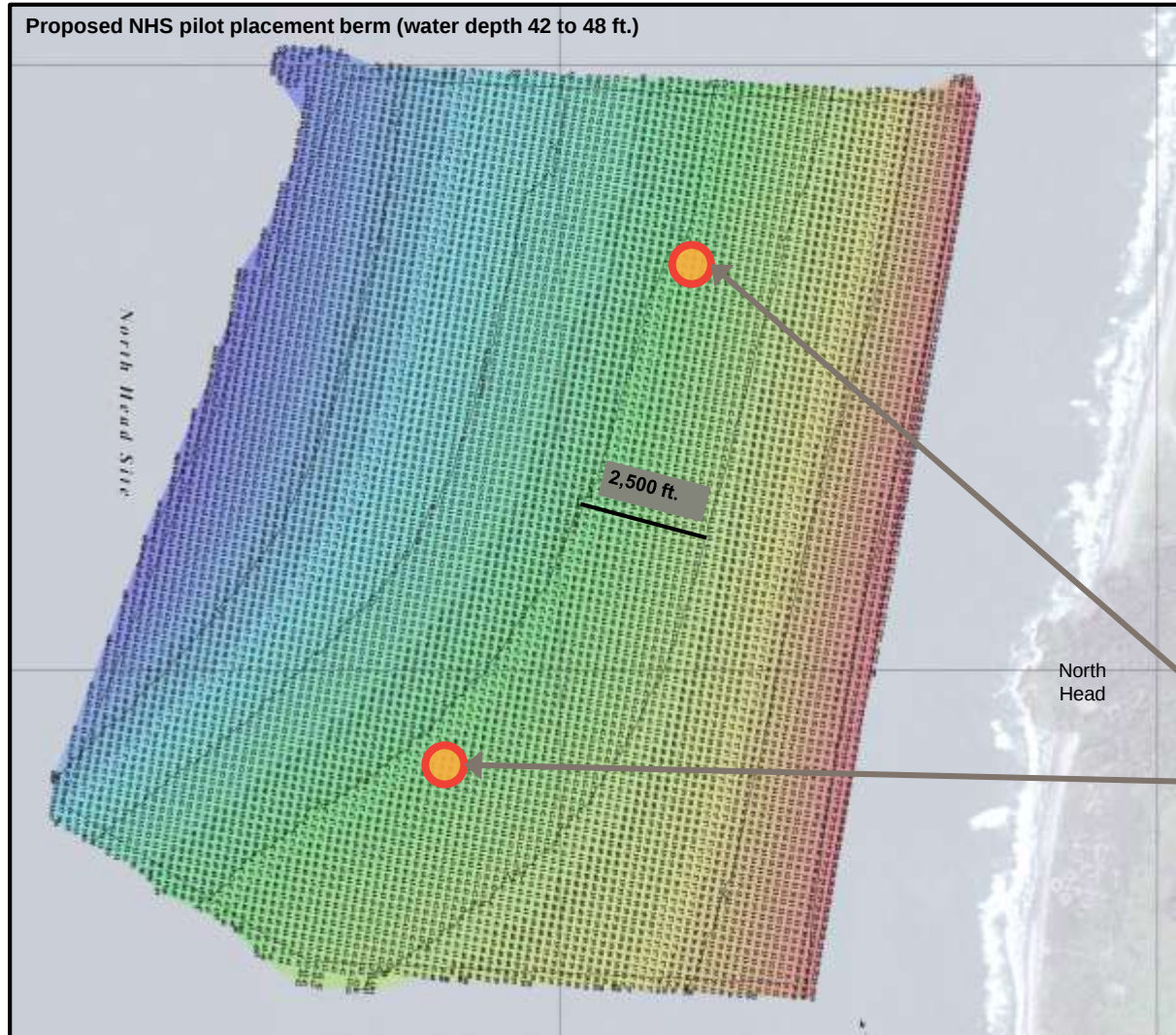


BASELINE SURVEY – BIOTA (BENTHIC INFAUNAL DIVERSITY [n=23])

North Head Site Diversity (H')



NORTH HEAD PILOT PLACEMENT & CURRENT/WAVE BUOY DEPLOYMENT



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WHAT'S NEXT?

