

Overview of Georgia-Pacific Toledo's NPDES Permit & Outfall Study

City of Newport Technical
Advisory Task Force Meeting

April 13, 2011

Toledo Mill History

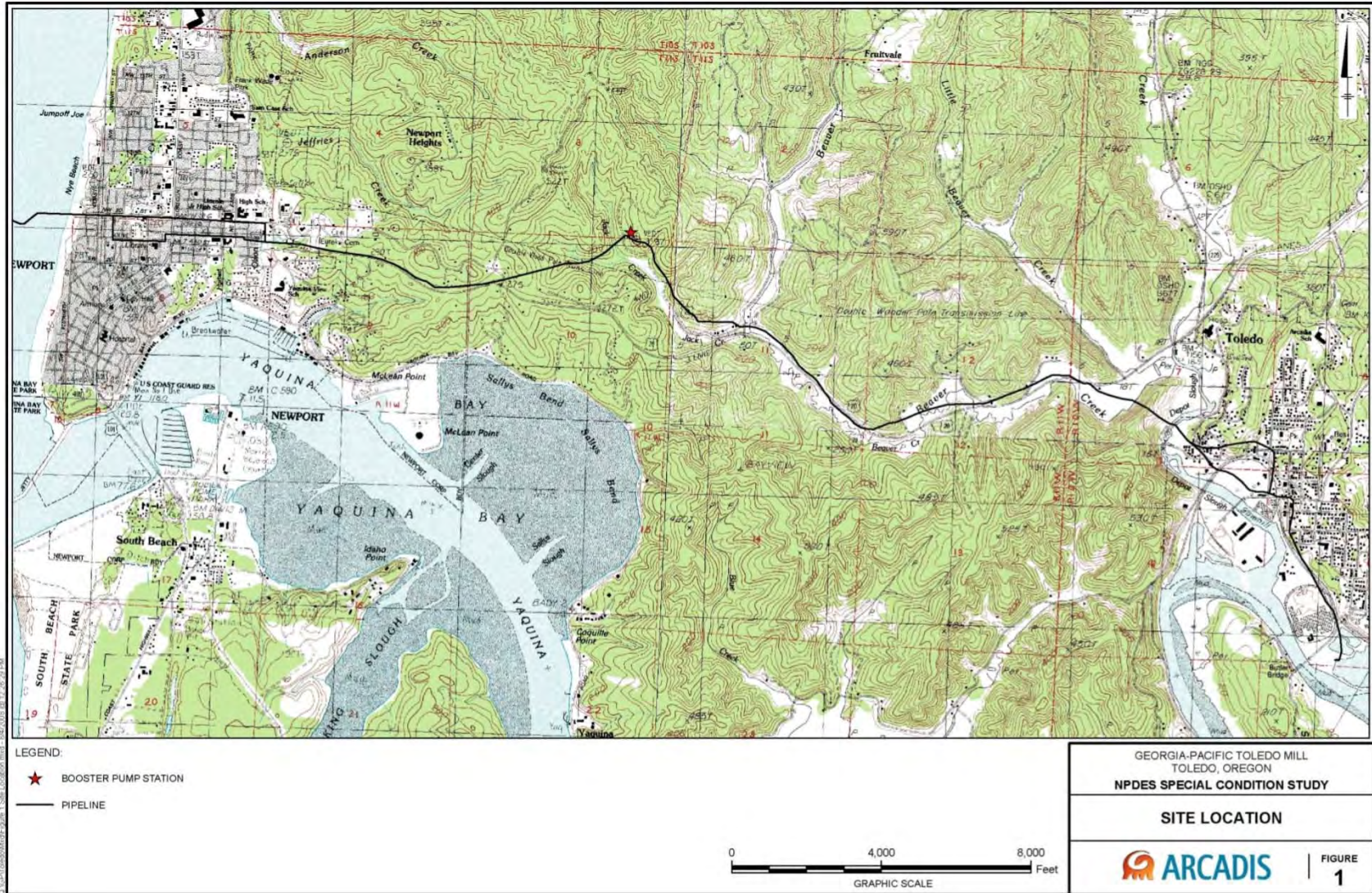
- 1952 Purchased C.D. Johnson Sawmill - *Largest Spruce Mill in the World*
- 1957 Built Toledo Paper Mill - *first and only mill ever built by GP*
- 1960 Installed No. 2 Paper Machine
- 1962 Installed Bag Plant
- 1973 Installed No. 3 Paper Machine
- 1976 Installed #1 OCC Plant, Rebuilt T2 machine, Major Upgrade to WWTS & Installed Reuse Water System
- 1994 Closed Bag Plant
- 1995 Installed No. 2 OCC Plant; Rebuilt No. 3 Paper Machine
- 2000 Started Effluent Line Replacement Project (completed in 2009)
- 2005 Georgia Pacific purchased by Koch
- 2006 Installed Turbine Generation



Toledo Mill



Toledo Mill – Effluent Line



NPDES Permit Timeline

- 2005
 - August 9 - 1st Public hearing (Toledo)
 - August 17 - Permit issued
 - September 28 - Permit reopened
 - October 18 - Joint information session (Newport)
 - November 2 - 2nd Public hearing (Toledo)
 - November 16 - Close of public comment period
- 2006
 - July 14 - DEQ renews permit
 - September 8 - Petition for Reconsideration filed with DEQ
 - October 18 - DEQ grants petition
- 2009
 - March 9 - DEQ Issues Revised NPDES Permit (two new conditions - #11 and #12)
- 2010
 - January 25 - Submitted permit renewal application to DEQ
 - July 31 - Permit expiration date

New NPDES Permit Conditions

#12. Wastes treated by this facility are limited to those listed on the cover page of this permit. The facility is prohibited from accepting waste from external sources.

Action:

GP no longer receives Marion County wastewater

New NPDES Permit Conditions

#11. “The permittee shall conduct a comprehensive survey of the aquatic community in the area of the outfall. The survey should be developed to evaluate any effects (long-term) of the discharge on this receiving water over a full season. Sampling should at a minimum include sites within the regulatory mixing zone, outside the mixing zone and at a reference site. Evaluations at each site should include sediment quality, water quality, and benthic community components. The potential for contaminant bioaccumulation and sediment toxicity shall be evaluated at each site. At a minimum, focus should be on toxic parameters (including metals and any other organic parameters of concern in pulp mill effluents). Other parameters such as nutrients, dissolved oxygen, temperature, and turbidity should also be included. In addition, the area encompassed by the mixing zone as well as areas in close proximity shall be evaluated for the presence of important marine habitats (i.e. nursery / forage areas). These areas shall be documented and evaluated under this study for potential impacts.

The permittee shall submit a proposed study plan and schedule to the Department for review no later than August 7, 2009. Upon approval by the Department, the permittee must carry out the plan and schedule. “

Ocean Outfall Study Timeline

2009

March 9 - Permit Renewed

March 30 - First Draft of Study Plan

April 2 - GP/DEQ/SF Meet to Discuss Panel Meeting

April 28 - Second Draft of Study Plan

May 27 - Third Draft Study Plan submitted to DEQ for Comment

June 12 - Received DEQ Comments on Draft Plan

June 14 - Revised Final Study Plan

June 23 - Meeting with Surfrider Foundation to Discuss Plan

July 21 - Submitted Study Plan to DEQ

August 3 - Received DEQ Approval

August 25 - GP/DEQ/SF Meeting to Discuss Panel Meeting

August 25 - Sent out Requests for Proposals

Sept. - Oct. - Received Proposals, Reviewed, & Selected CH2M HILL

November 4 - GP/DEQ/SF Meeting to Discuss Panel Meeting

Ocean Outfall Study Timeline

2010

February 10th - GP/DEQ/SF (and OSU) Panel Meeting at HMSC Auditorium

March - Quality Assurance Project Plan & Field Sampling Plan (QAPP/FSP) submitted to DEQ & review comments received

April - Final QAPP/FSP submitted to DEQ (4/2) and approved (4/21)

May 5th thru June 1st - Spring Survey Sampling

August 17 - Meeting with DEQ to Share Preliminary Results and Plan for Fall Sampling

October - Conducted Fall Survey Sampling

December - Spring Survey Study Report



Study Report
Comprehensive Survey of the
Aquatic Community in the Area
of Georgia-Pacific's Outfall 001

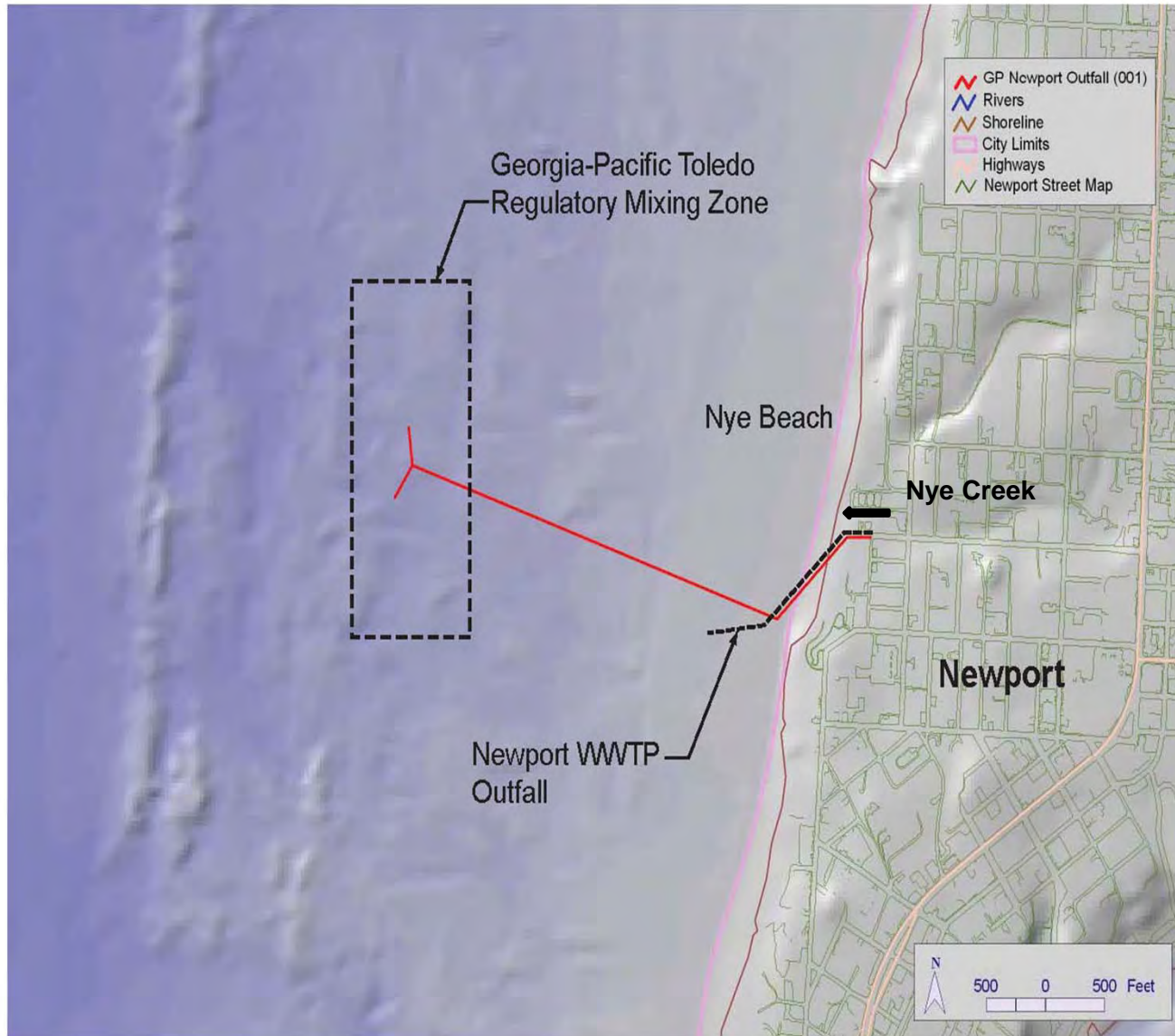
Prepared for



Georgia-Pacific Toledo LLC
Toledo, Oregon

CH2MHILL
December 2010

Georgia-Pacific Outfall 001 and Other Point Sources



GP Outfall 001

- 3,890' off Nye Beach
- Diffuser at 32' depth
- RMZ is 500' E&W and 1,175' N&S of mid-point (DF 175:1)
- ZID is 45' from ports (DF 52:1)

City of Newport

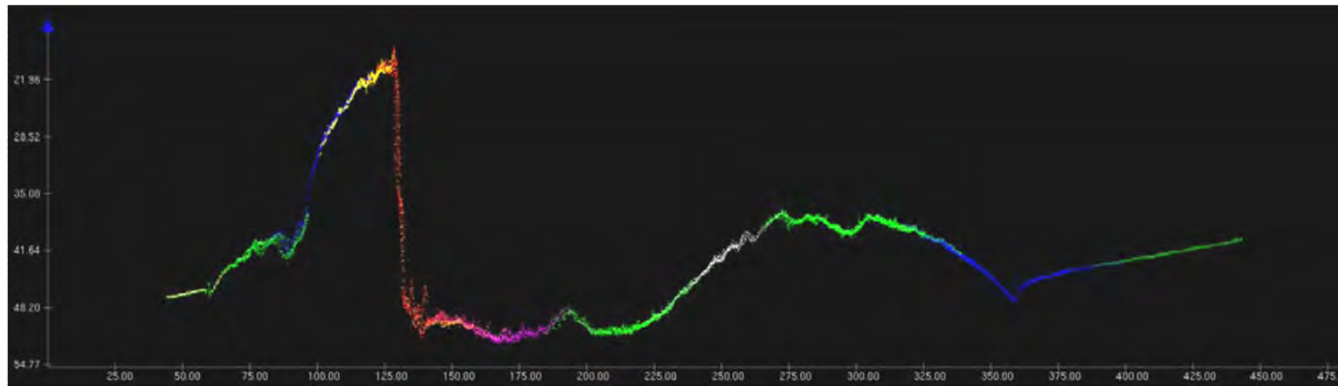
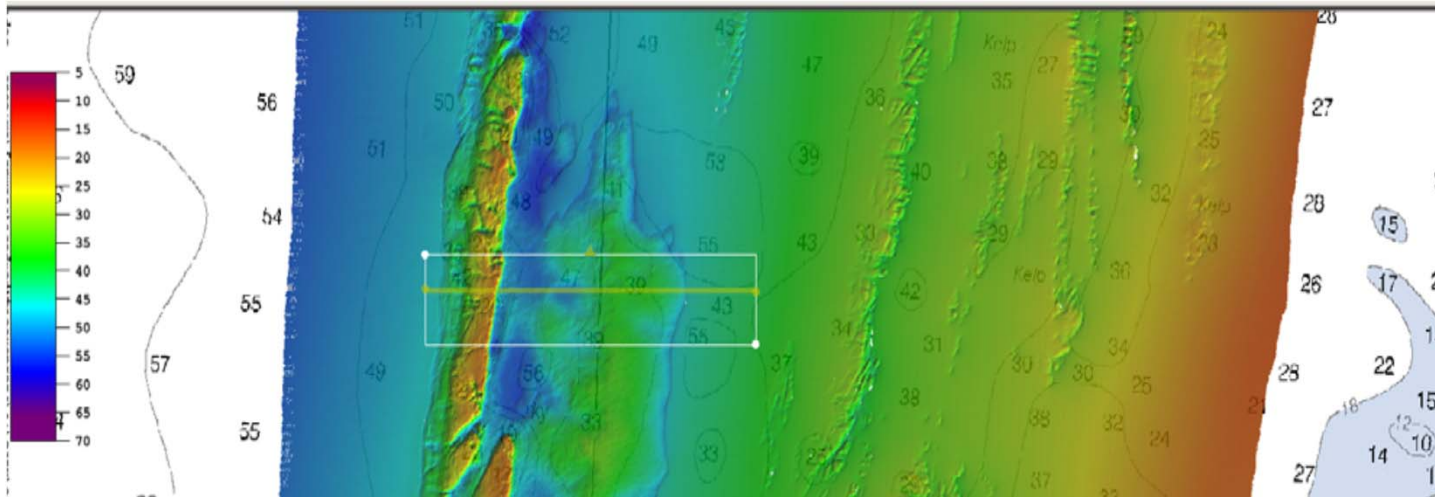
- Outfall 001 ~650' off Nye Beach with 3-ports in surf zone
- Nye Creek

Aquatic Surveys – Field Data Collections

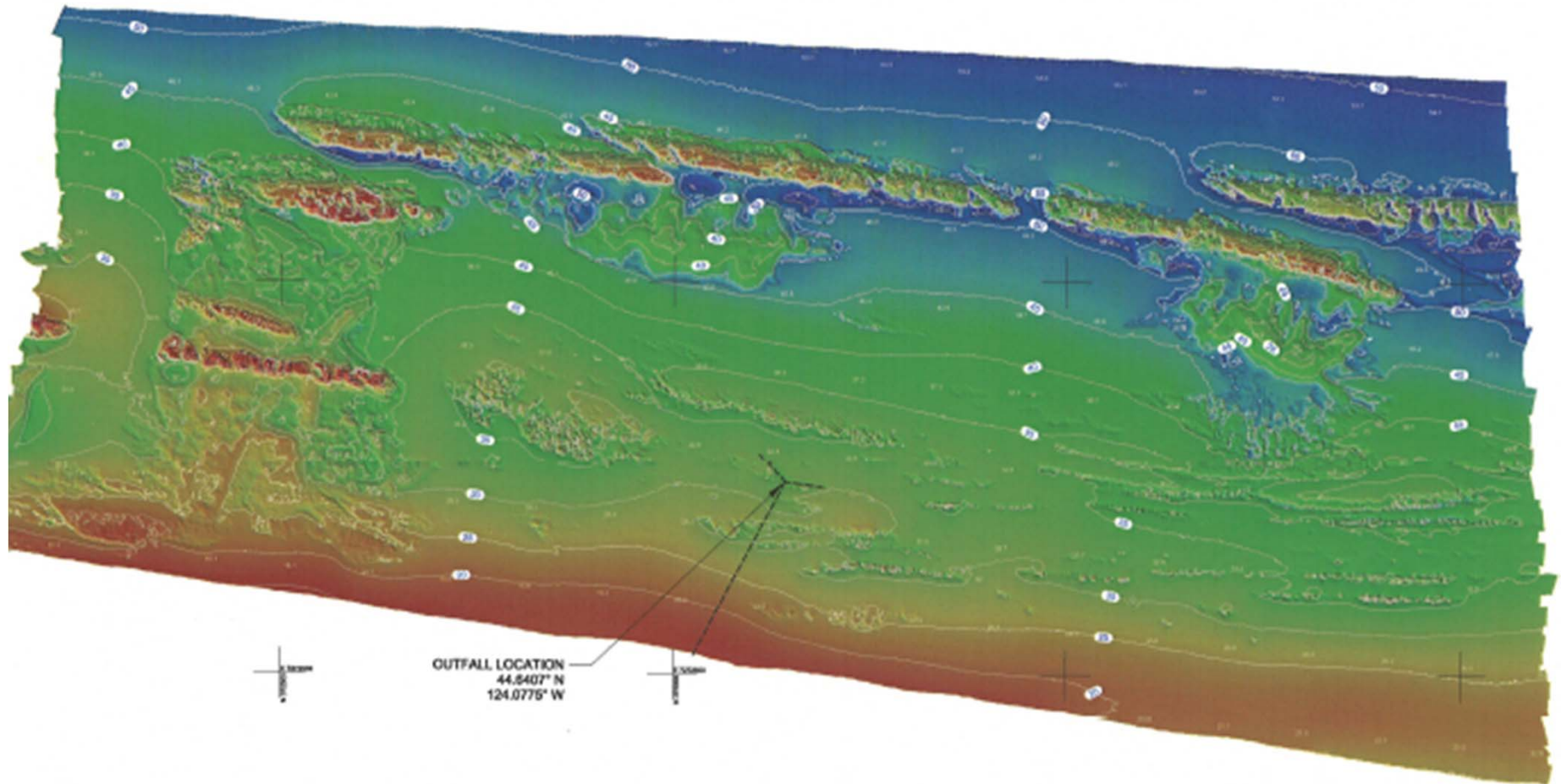


Aquatic Surveys – Marine Habitat Survey

Marine Habitat Survey – detailed multi-beam sonar recordings to yield high resolution bathymetric & backscatter imagery of marine habitat survey areas

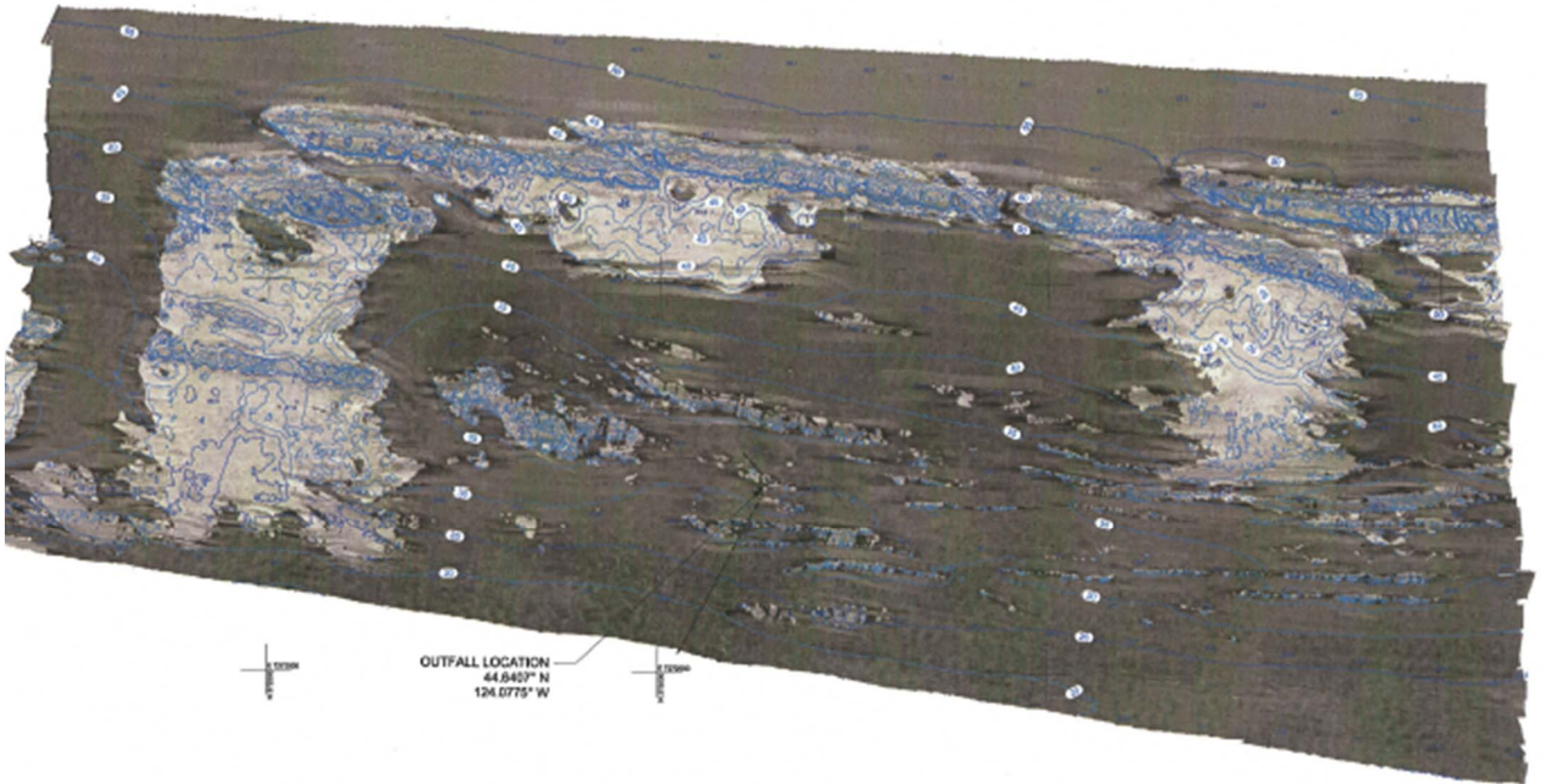


Aquatic Surveys – Marine Habitat Survey



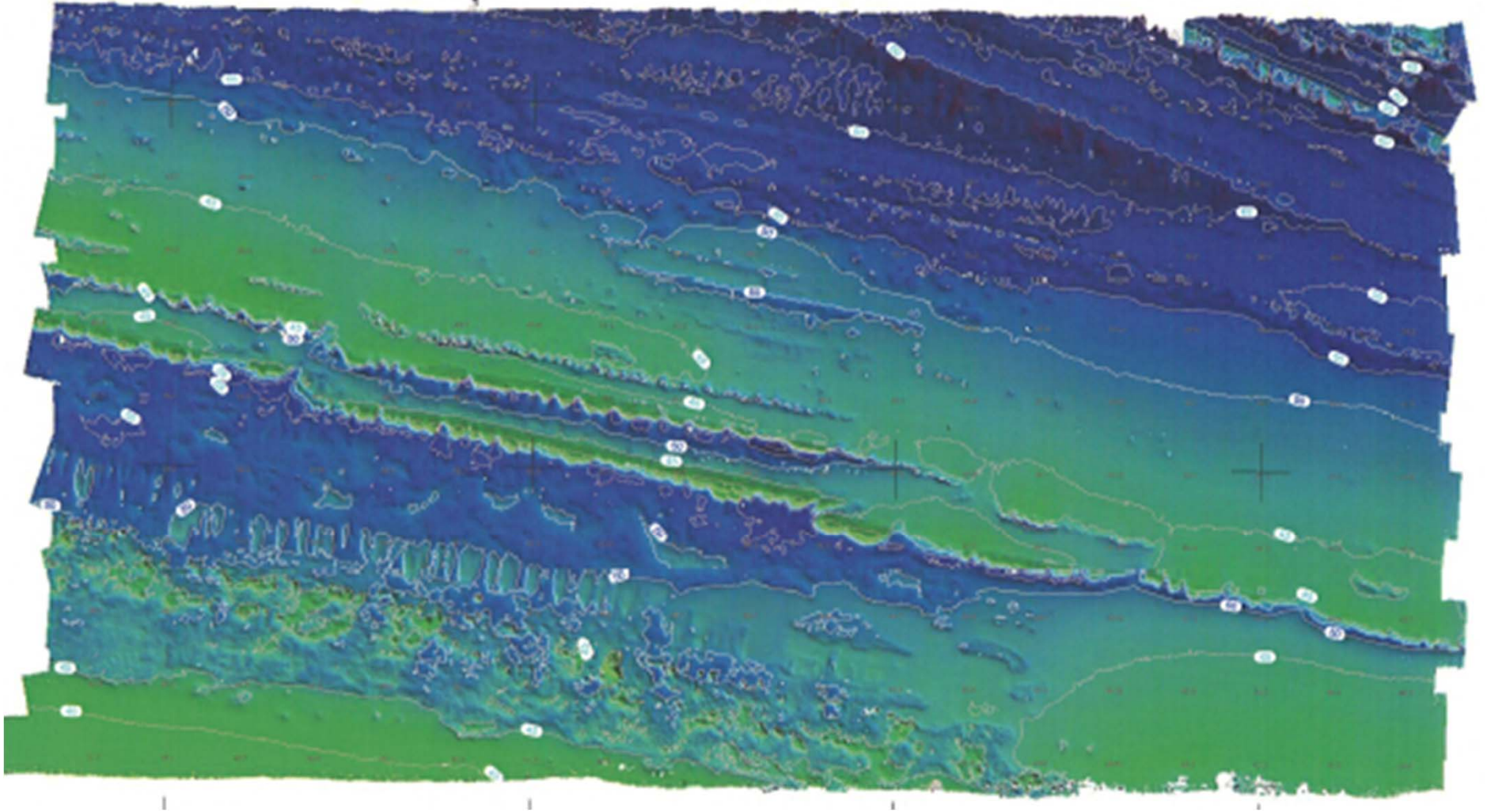
Bathymetry of Nye Beach Offshore Area

Aquatic Surveys – Marine Habitat Survey



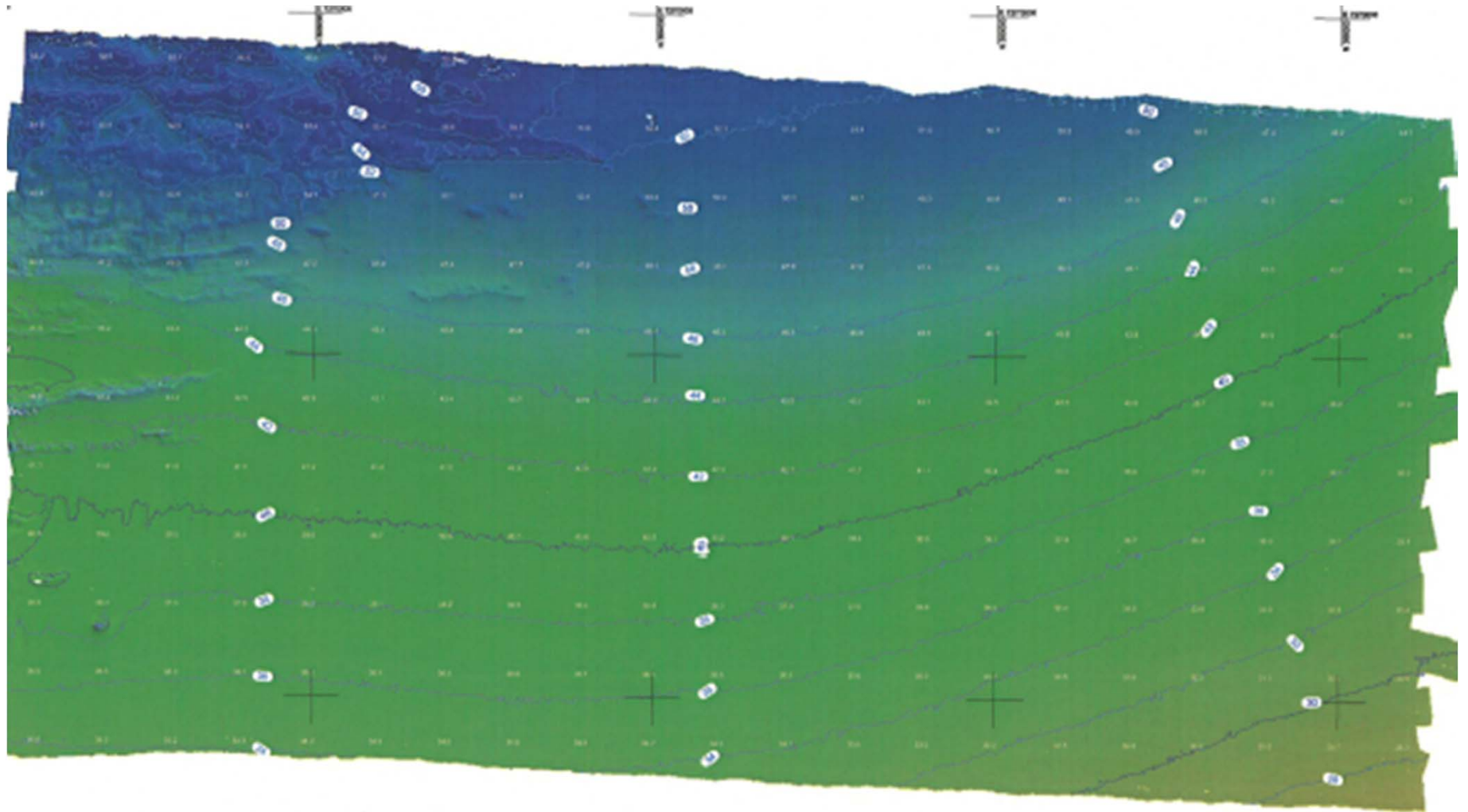
Backscatter Image of Nye Beach Offshore Area

Aquatic Surveys – Marine Habitat Survey



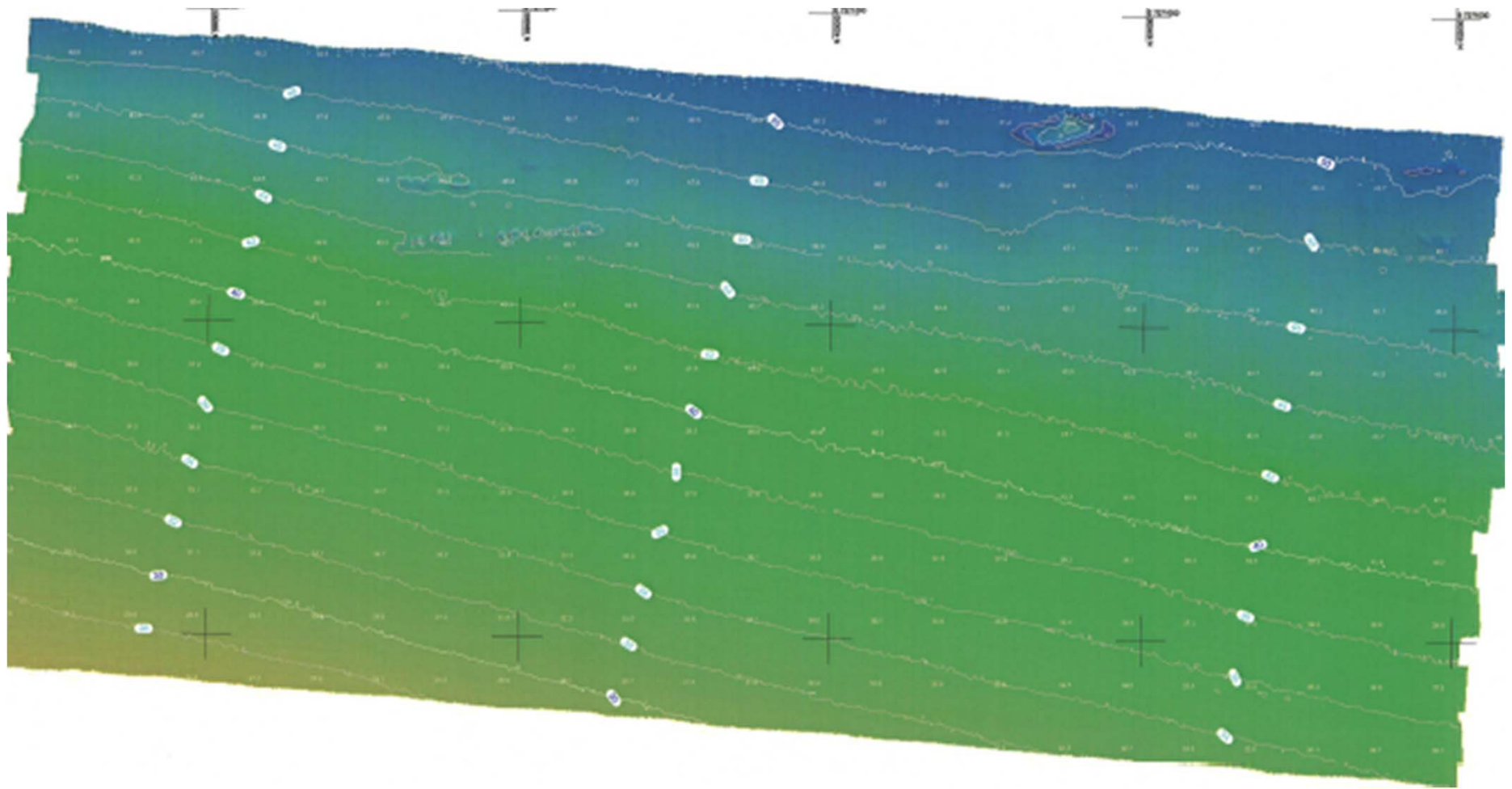
Bathymetry of South Beach Reference Area

Aquatic Surveys – Marine Habitat Survey



Bathymetry of South Yaquina Reference Area

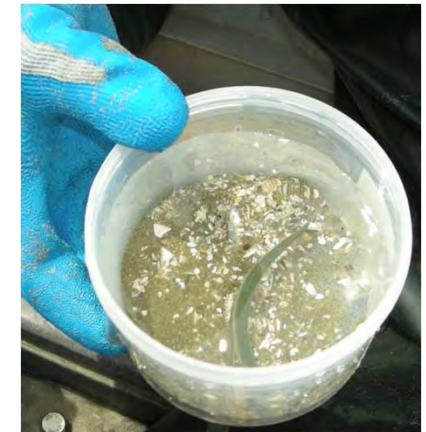
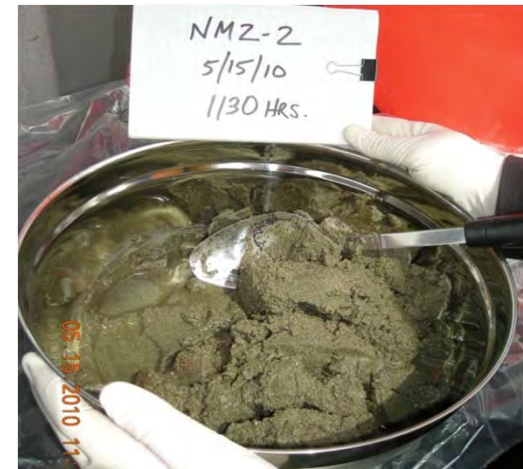
Aquatic Surveys – Marine Habitat Survey

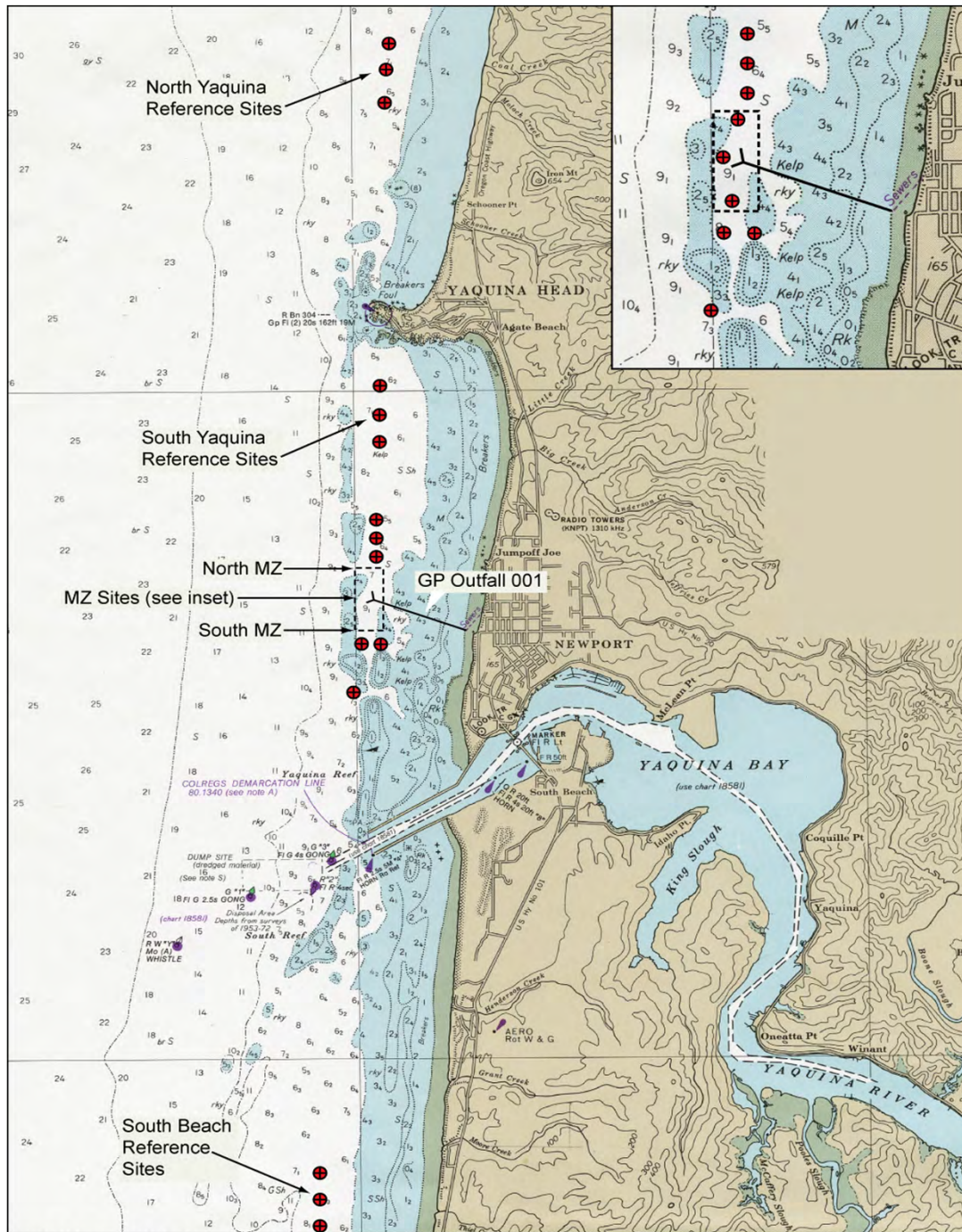


Bathymetry of North Yaquina Reference Area

Aquatic Surveys – Field Data Collections

Sediment Quality & Benthic Infauna Community Surveys -
collected surface sediments for chemical & physical analyses
and collected sediments for benthic infauna organisms





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Sediment Quality & Benthic Infauna Sampling Regions & Sites

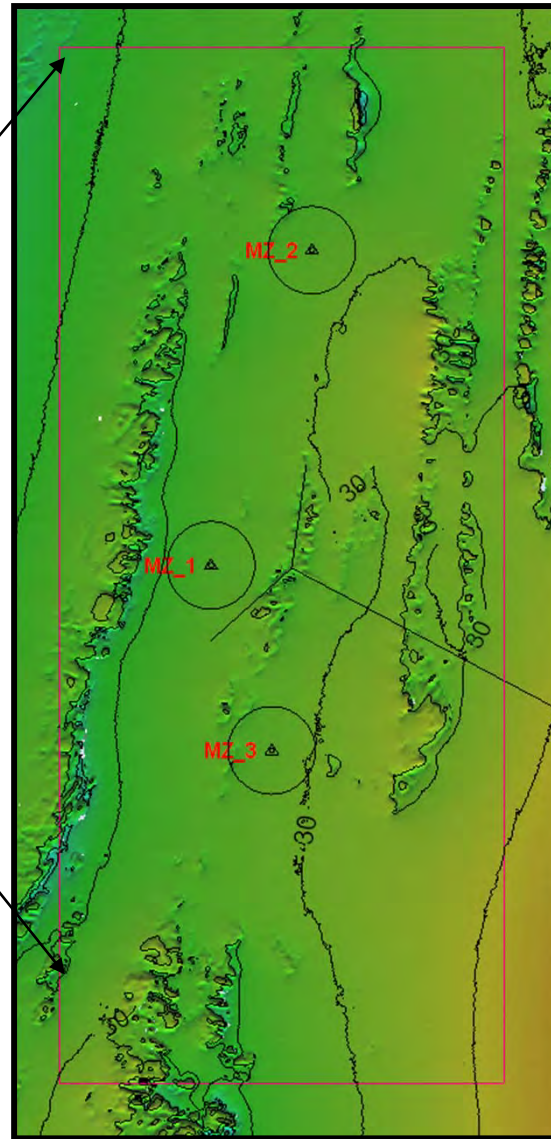
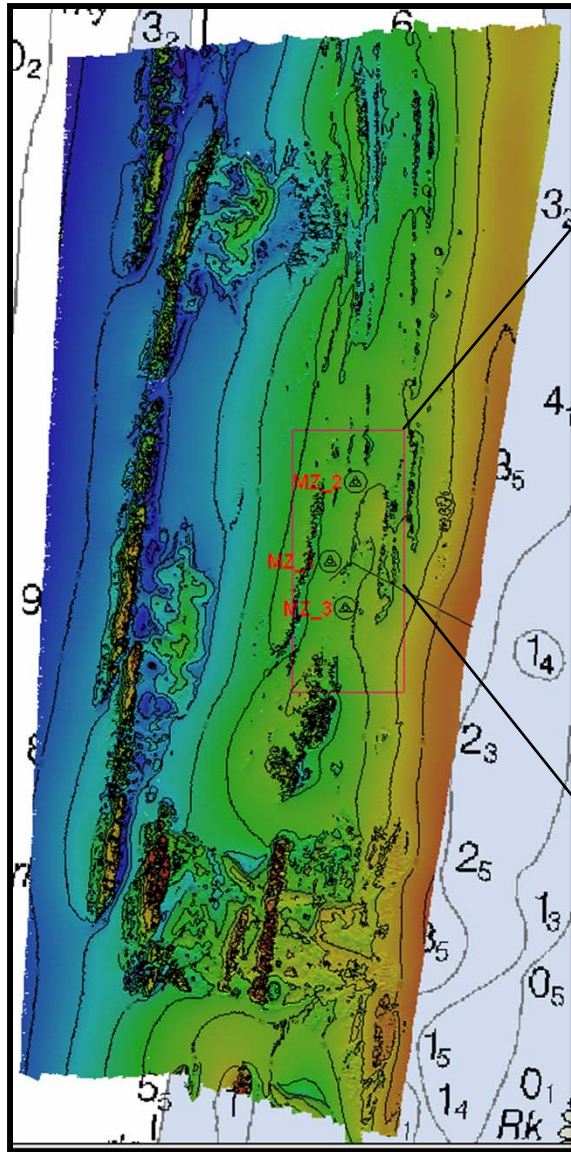
Sediment Sampling

- 3 Sites within each Region
- 1 Sediment sample for each site (composite of 3 replicate samples) for chemistry

Benthic Infauna Sampling

- 3 Sites within each Region
- 5 Replicate samples for each site
- Sieved (1.0 mm) & preserved for identification and enumeration

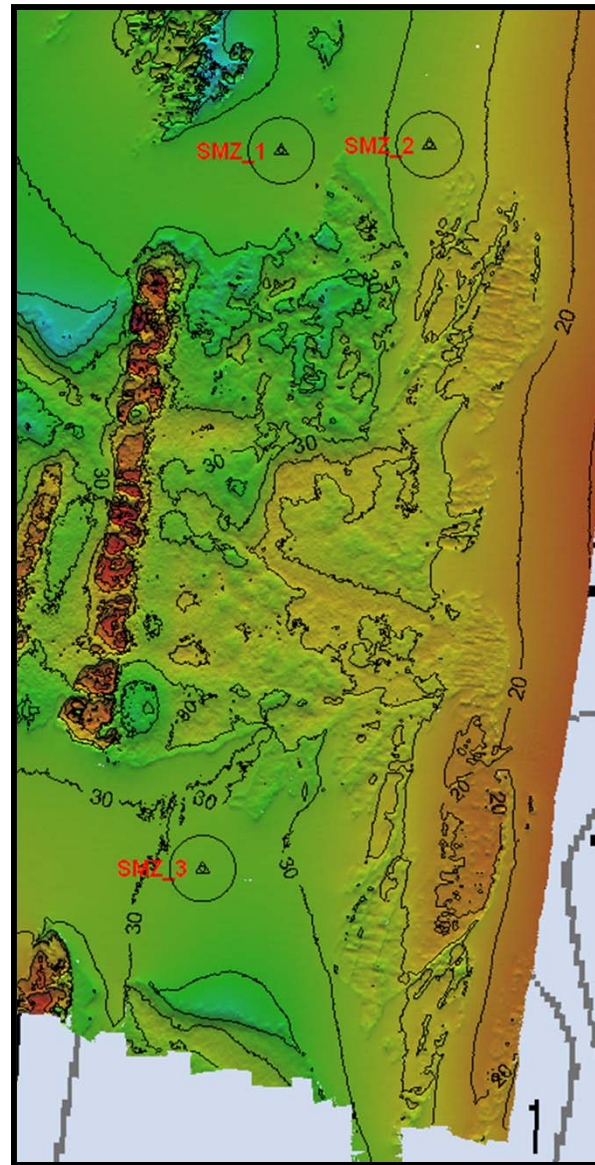
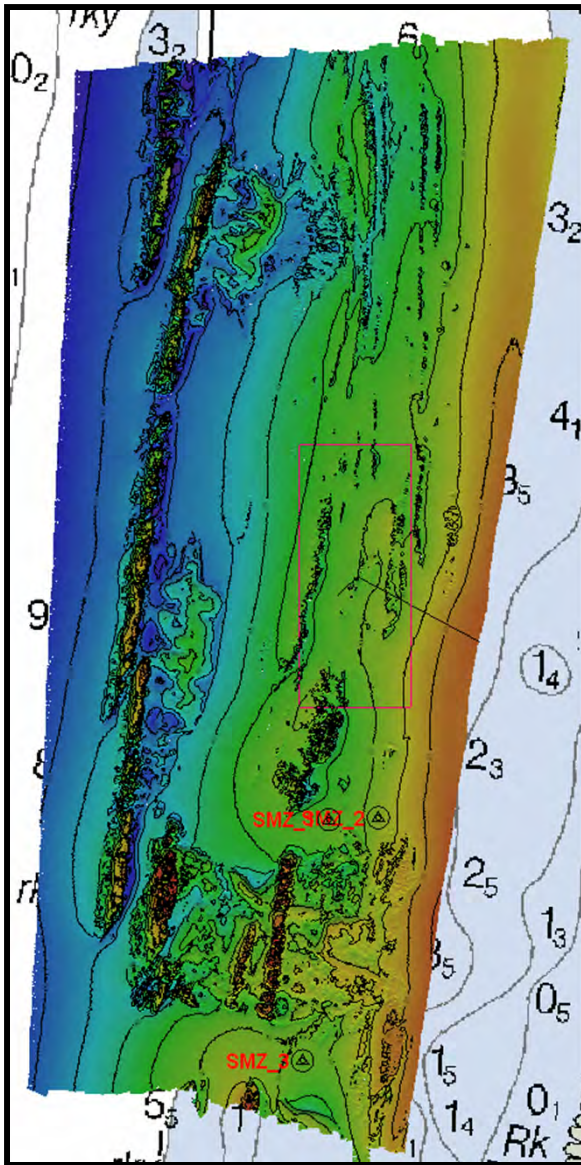
Aquatic Surveys – Sediment Quality Survey



Mixing Zone Region

- 97% well-sorted fine sands
- Low organic carbon and volatile solids content
- No detected phenols or cyanide
- Metals levels well below screening criteria

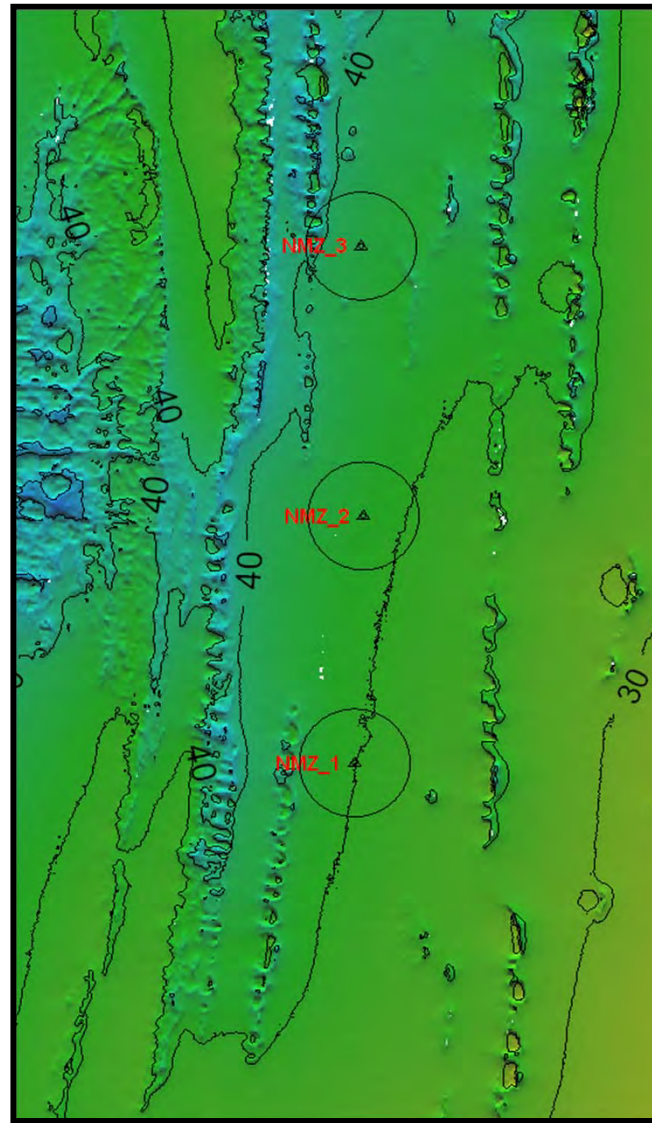
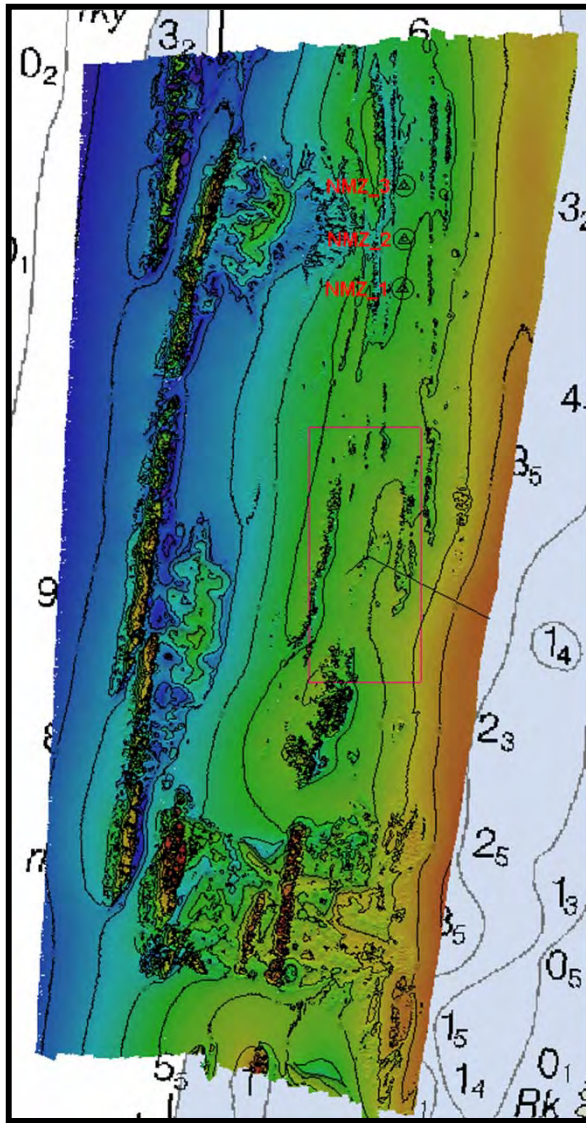
Aquatic Surveys – Sediment Quality Survey



South Mixing Zone Region

- 94 to 97% well-sorted fine sands
- Low organic carbon and volatile solids content
- No detected phenols or cyanide
- Metals levels well below screening criteria

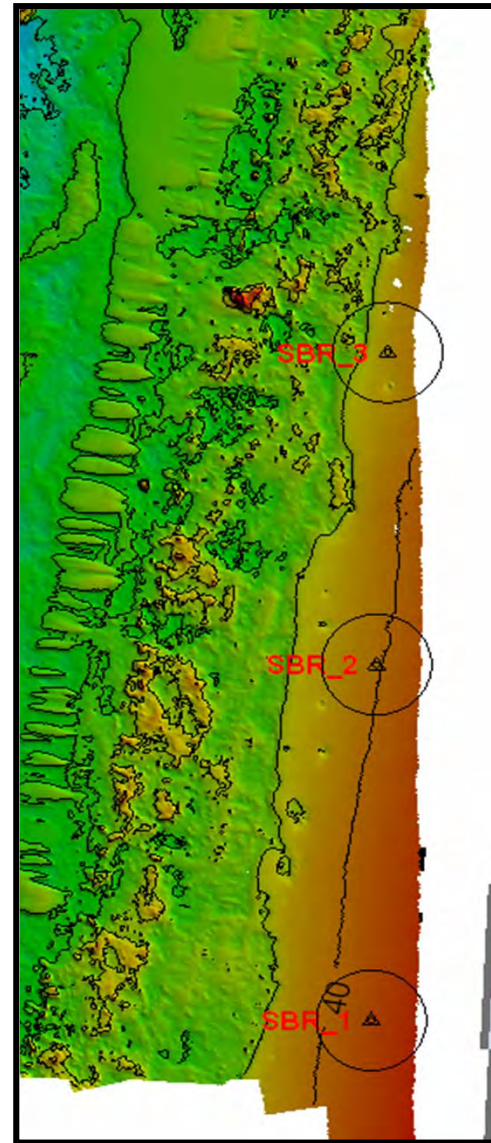
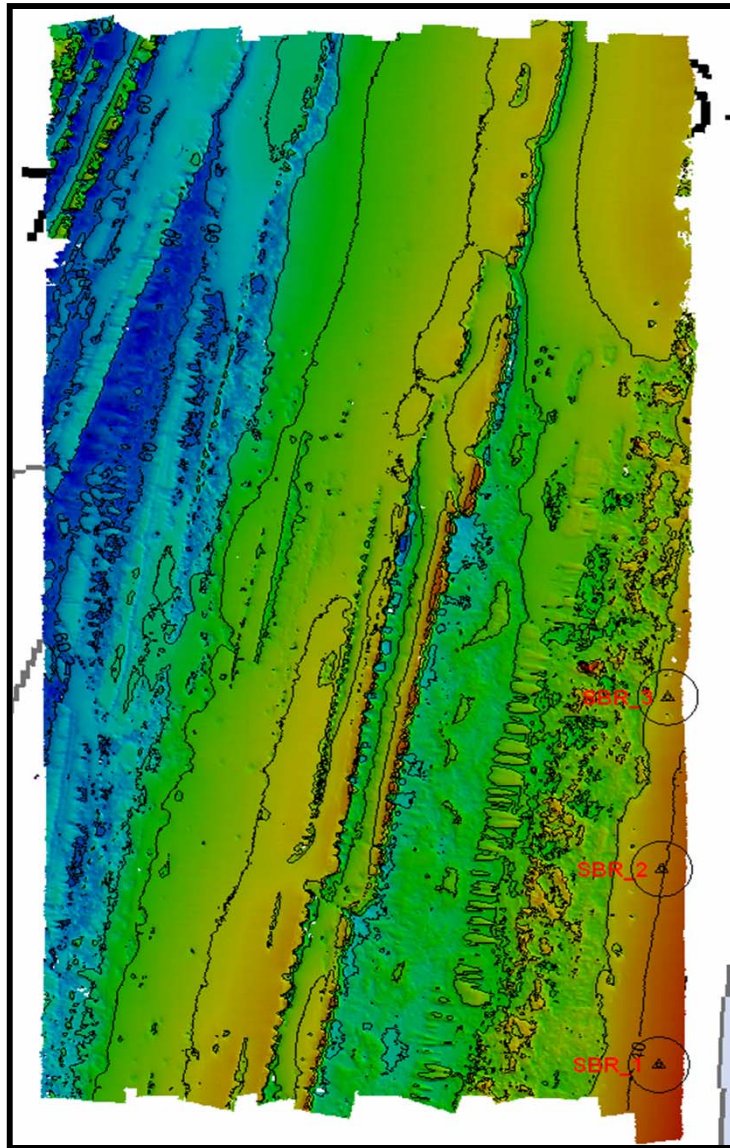
Aquatic Surveys – Sediment Quality Survey



North Mixing Zone Region

- 96 to 98% well-sorted fine sands
- Low organic carbon and volatile solids content
- No detected phenols or cyanide
- Metals levels well below screening criteria

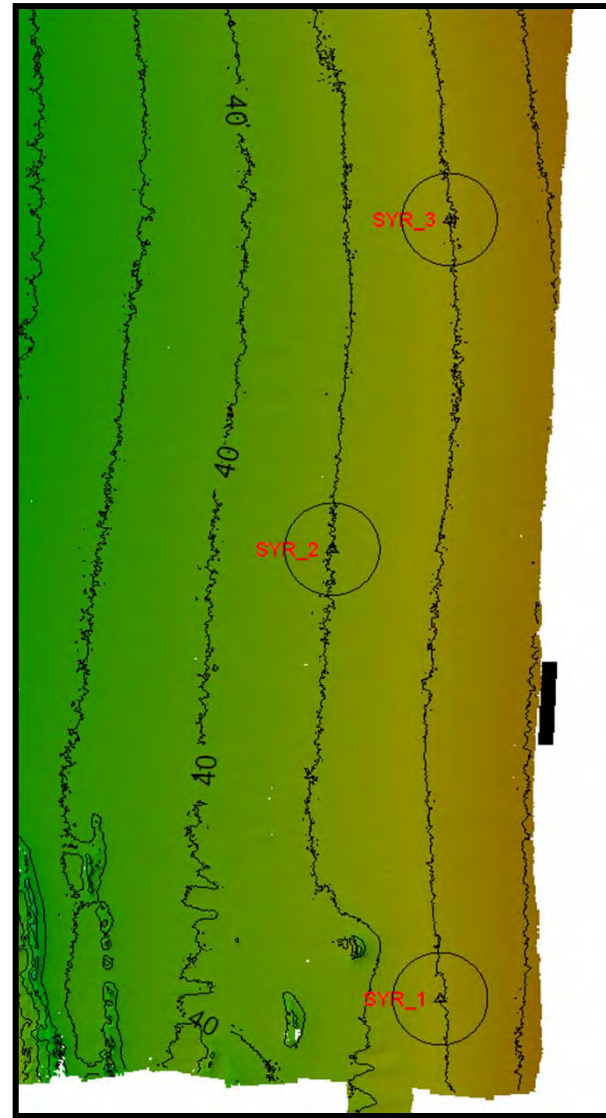
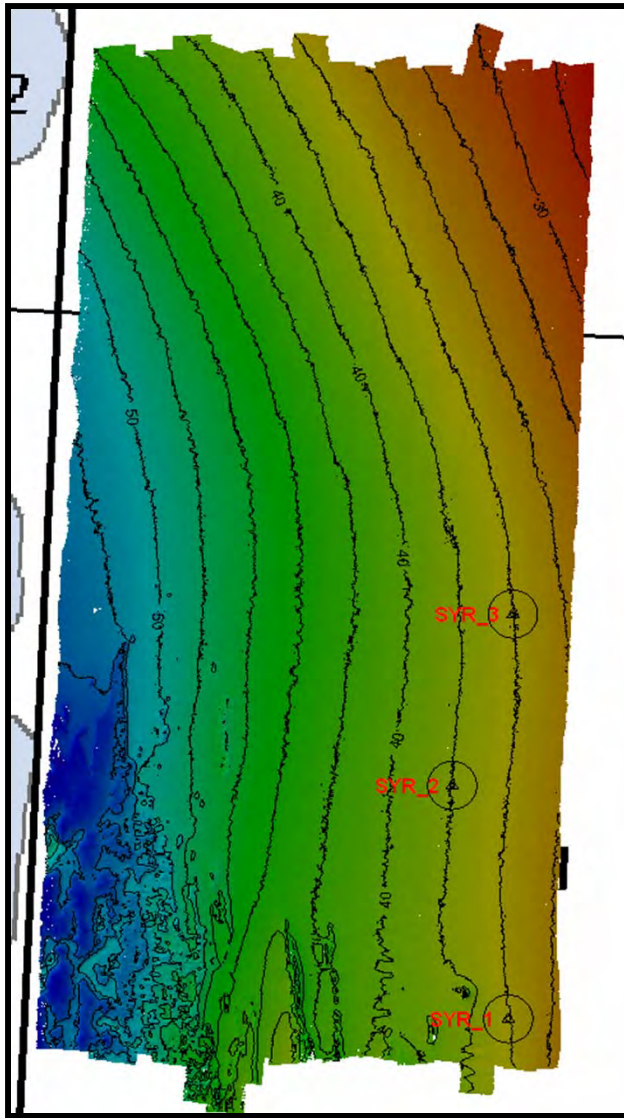
Aquatic Surveys – Sediment Quality Survey



South Beach Reference Area

- 94 to 95% well-sorted fine sands
- Low organic carbon and volatile solids content
- No detected phenols or cyanide
- Metals levels well below screening criteria

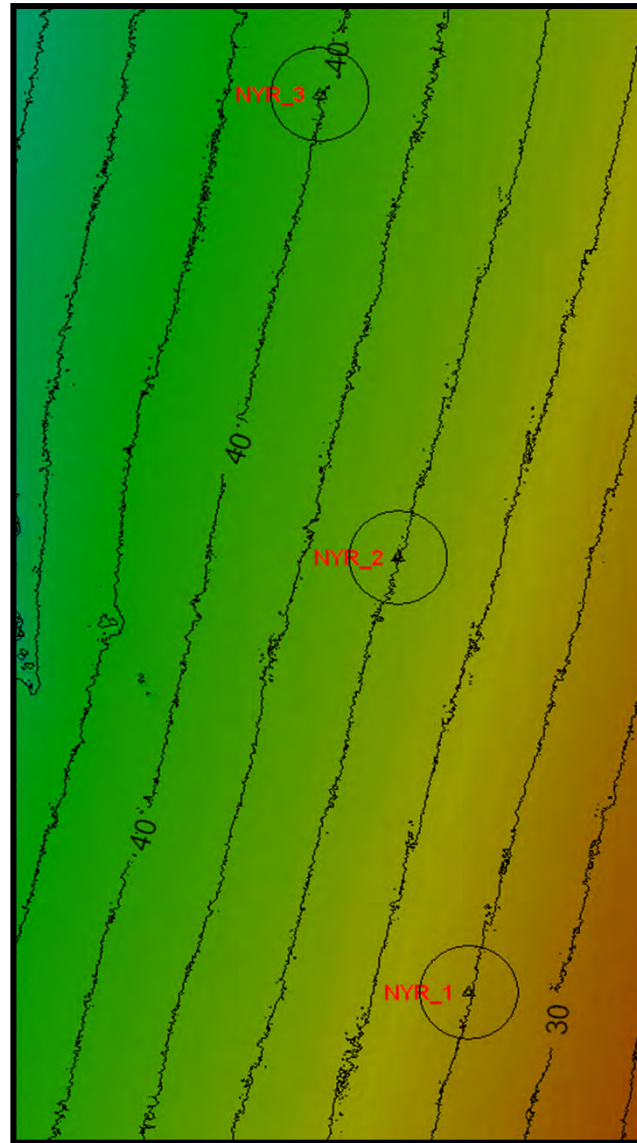
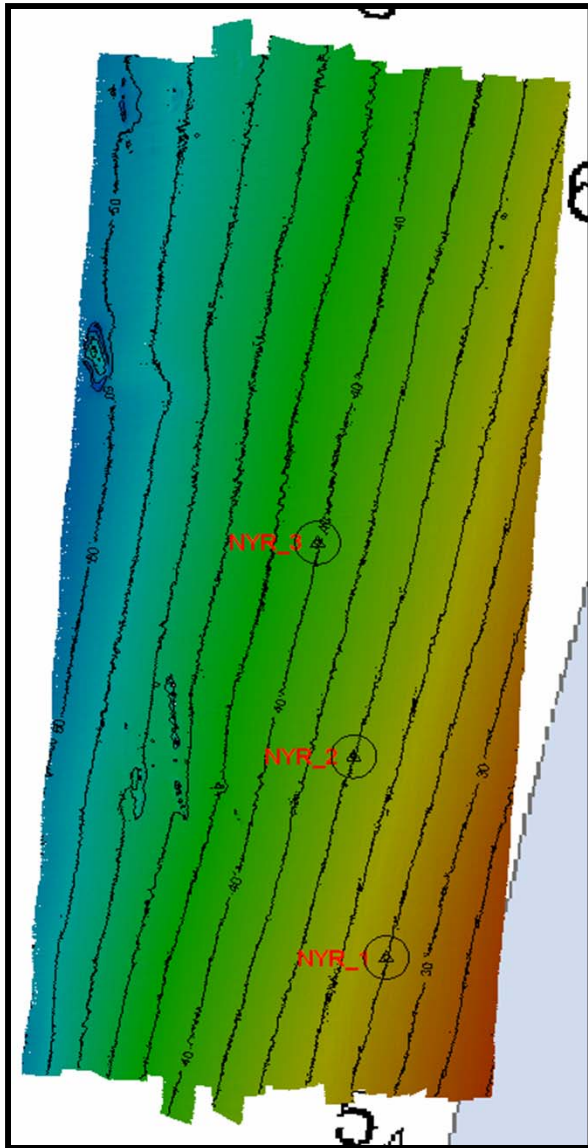
Aquatic Surveys – Sediment Quality Survey



South Yaquina Reference Area

- 98% well-sorted fine sands
- Low to medium organic carbon and volatile solids content
- No detected phenols or cyanide
- Metals levels well below screening criteria

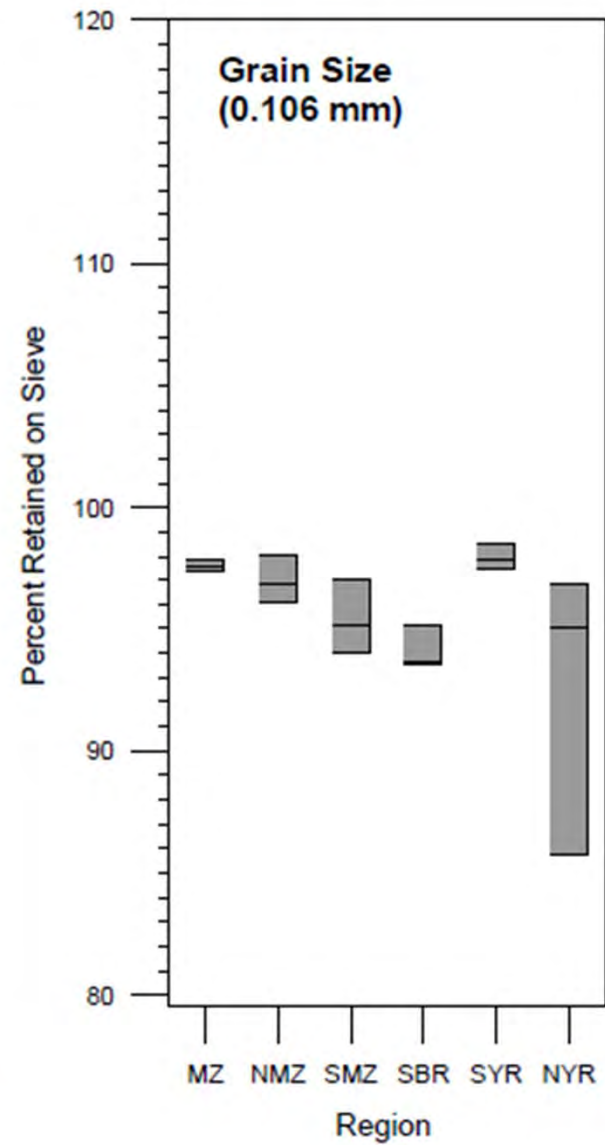
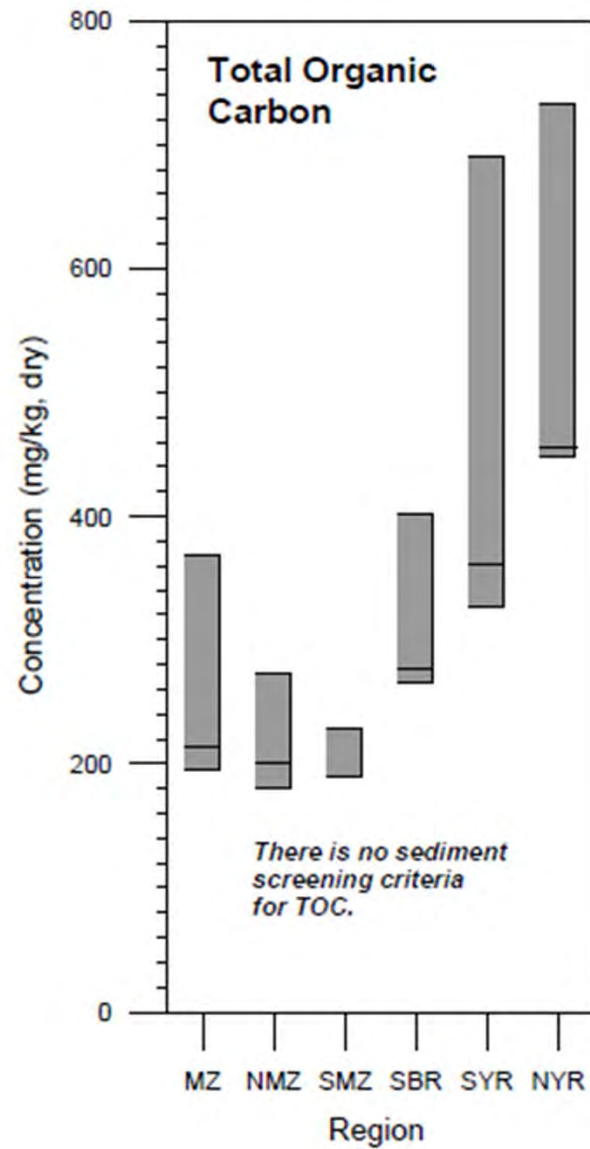
Aquatic Surveys – Sediment Quality Survey



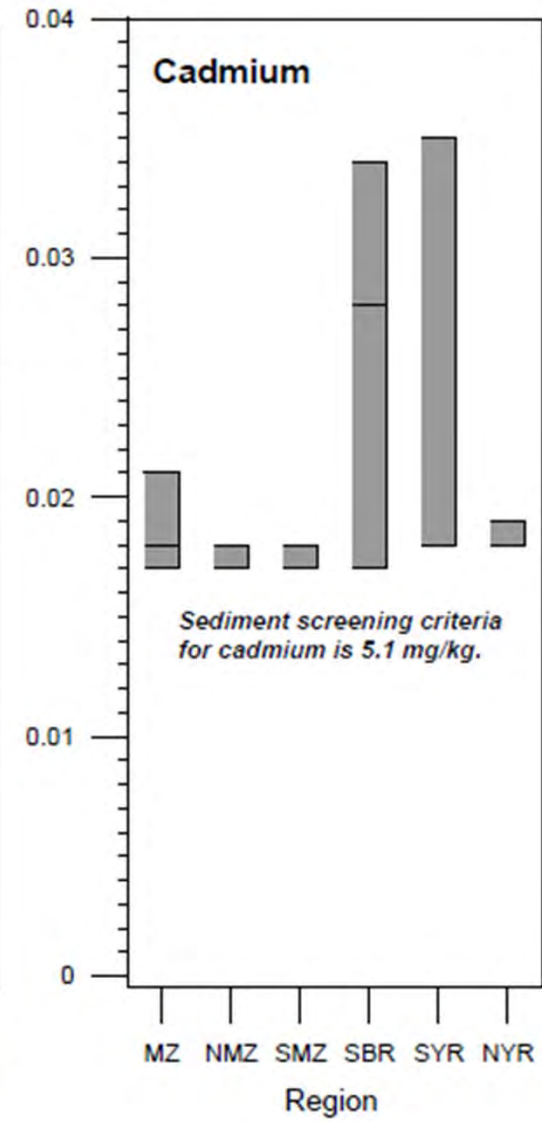
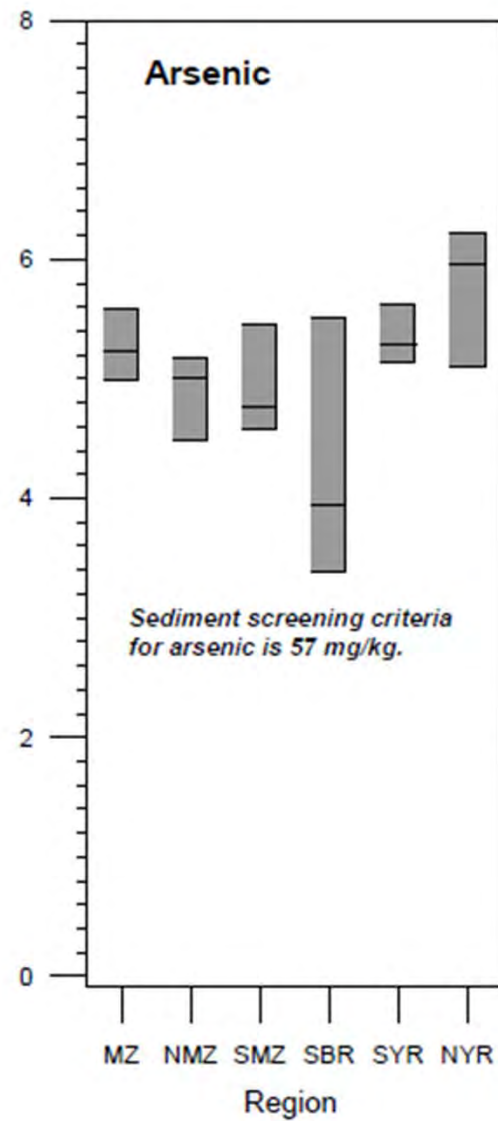
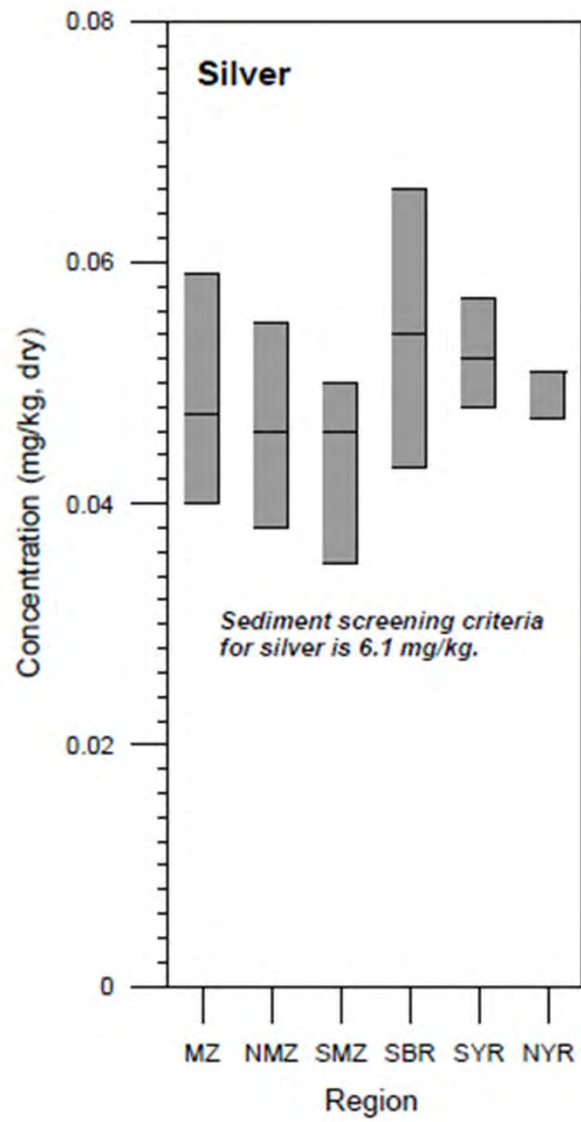
North Yaquina Reference Area

- 86 to 97% well-sorted fine sands
- Medium level of organic carbon and volatile solids
- No detected phenols or cyanide
- Metals levels well below screening criteria

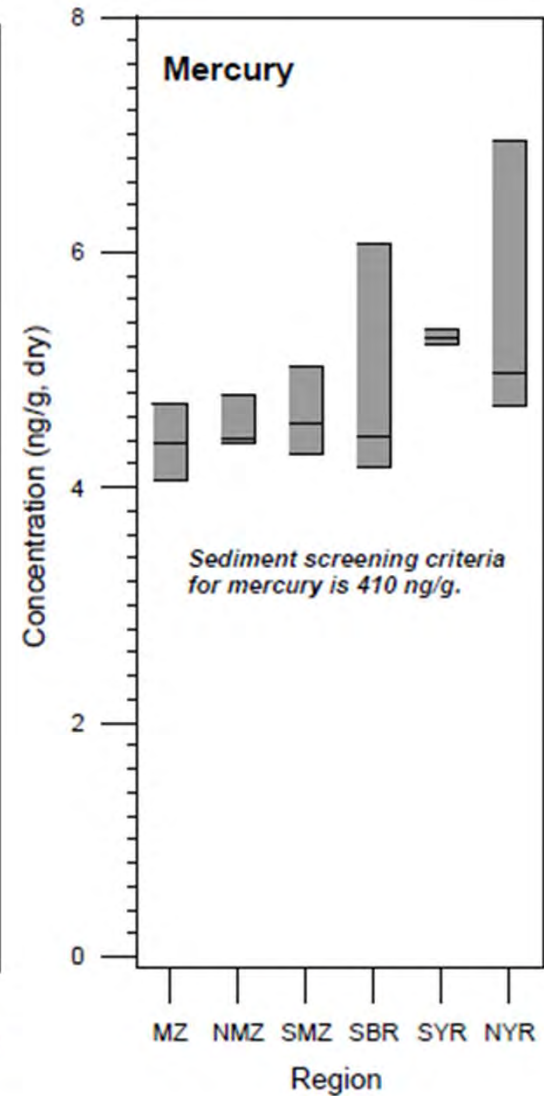
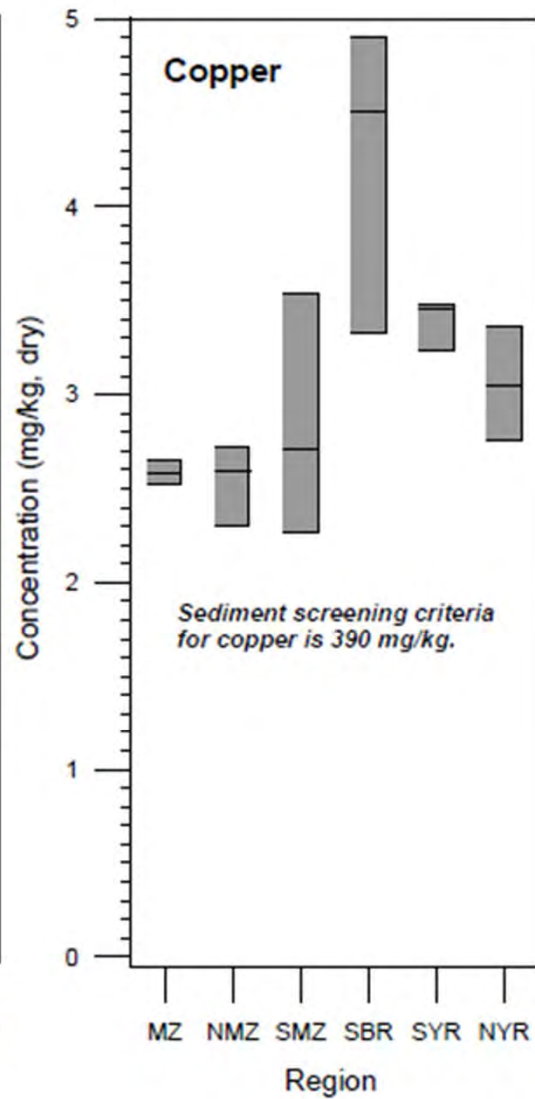
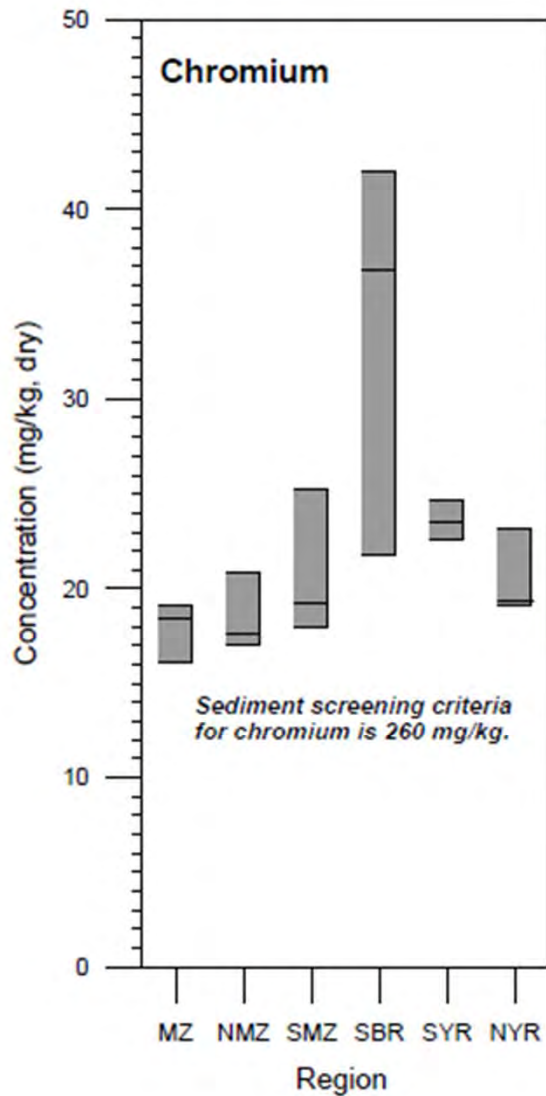
Aquatic Surveys – Sediment Quality Survey



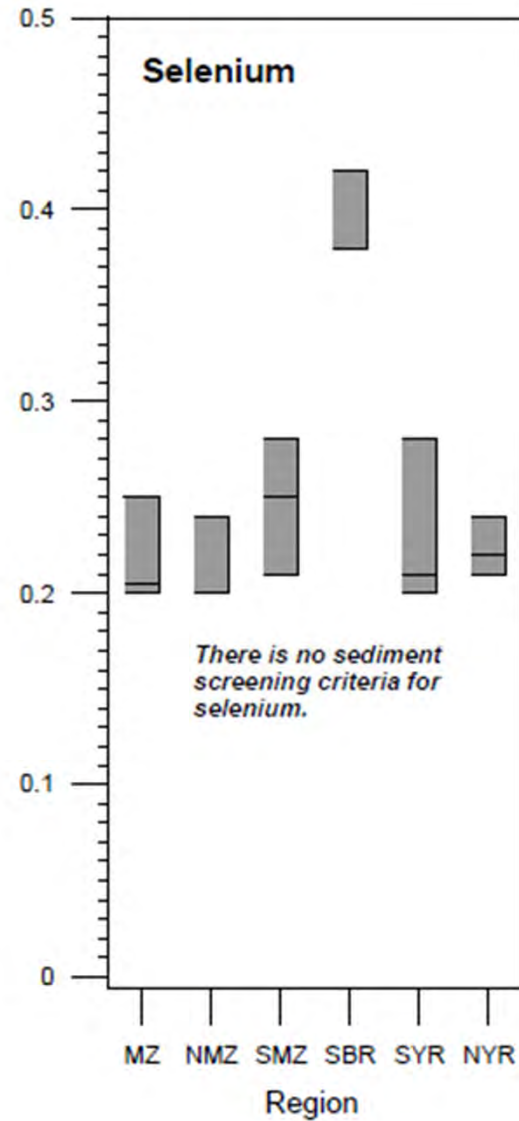
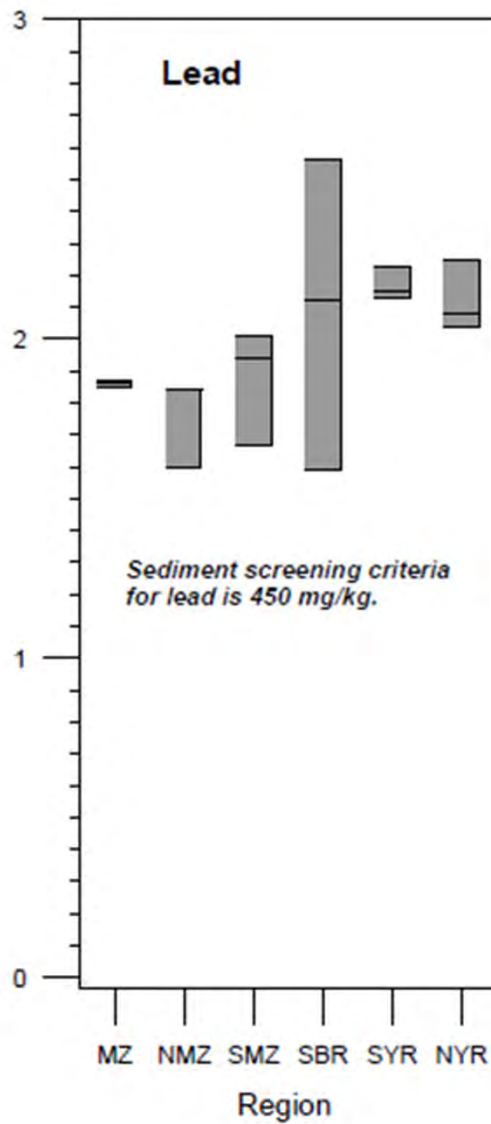
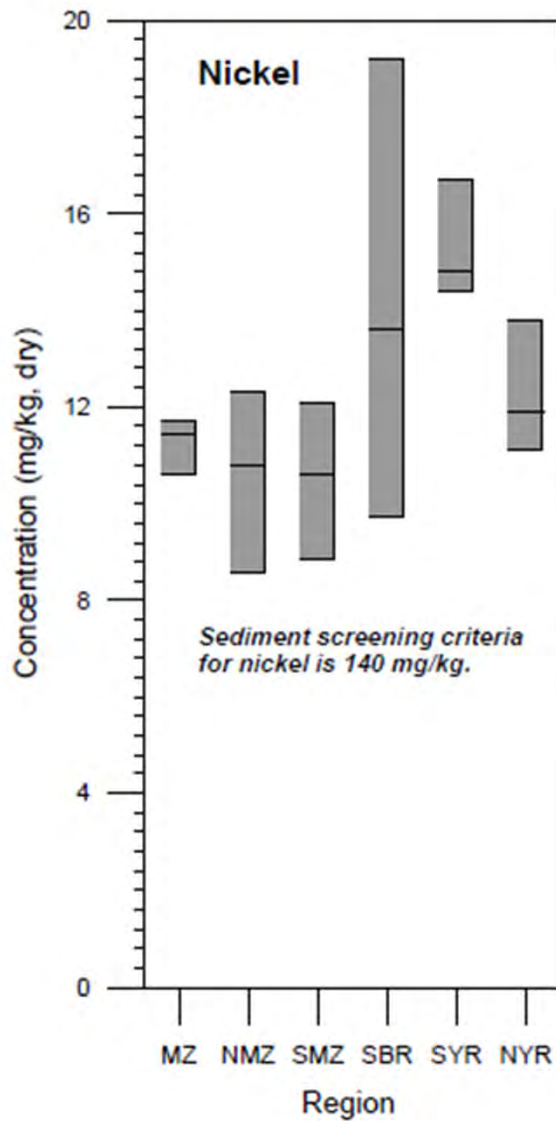
Aquatic Surveys – Sediment Quality Survey



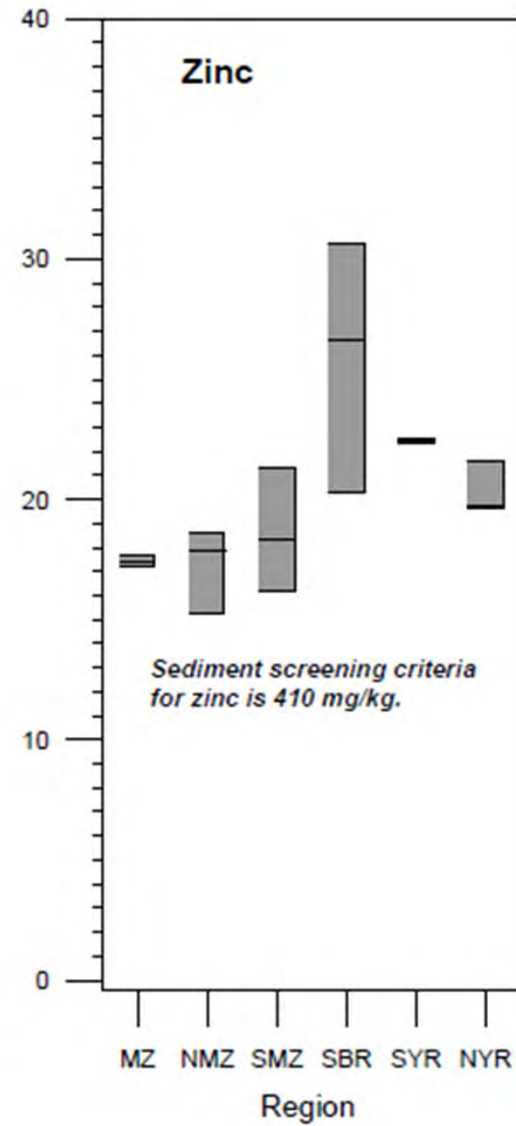
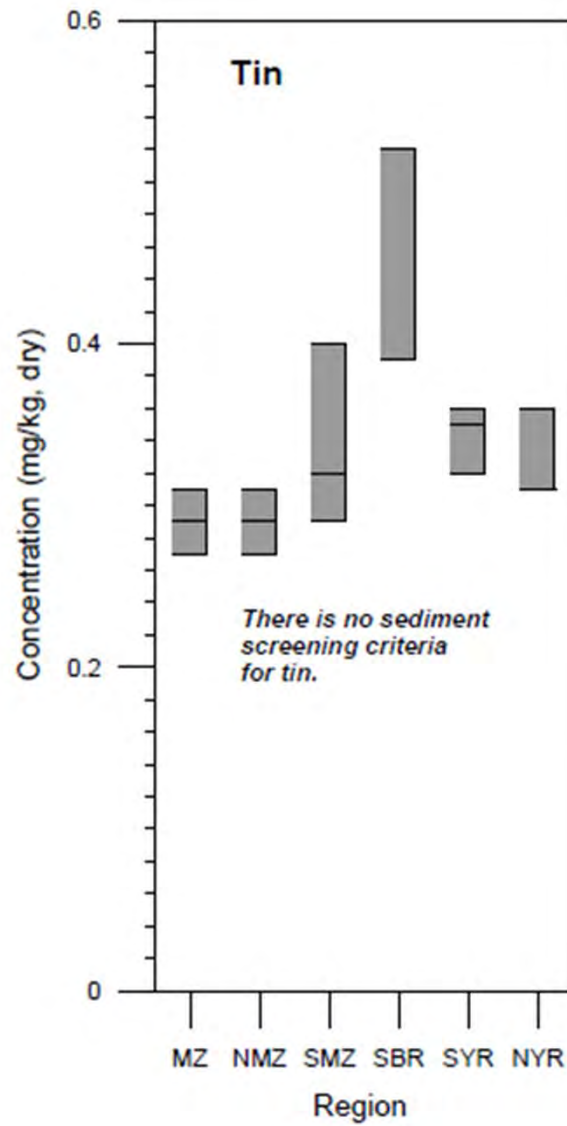
Aquatic Surveys – Sediment Quality Survey



Aquatic Surveys – Sediment Quality Survey



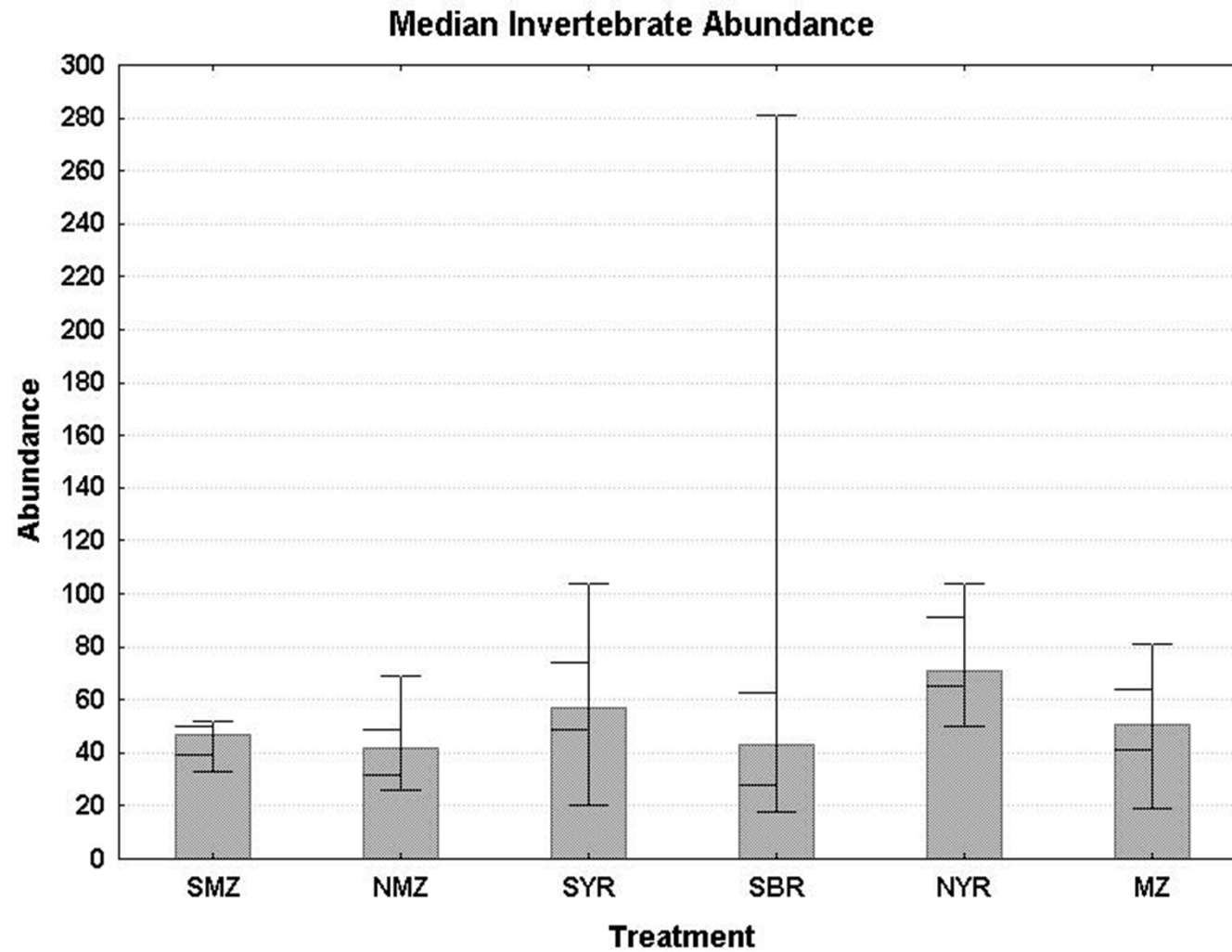
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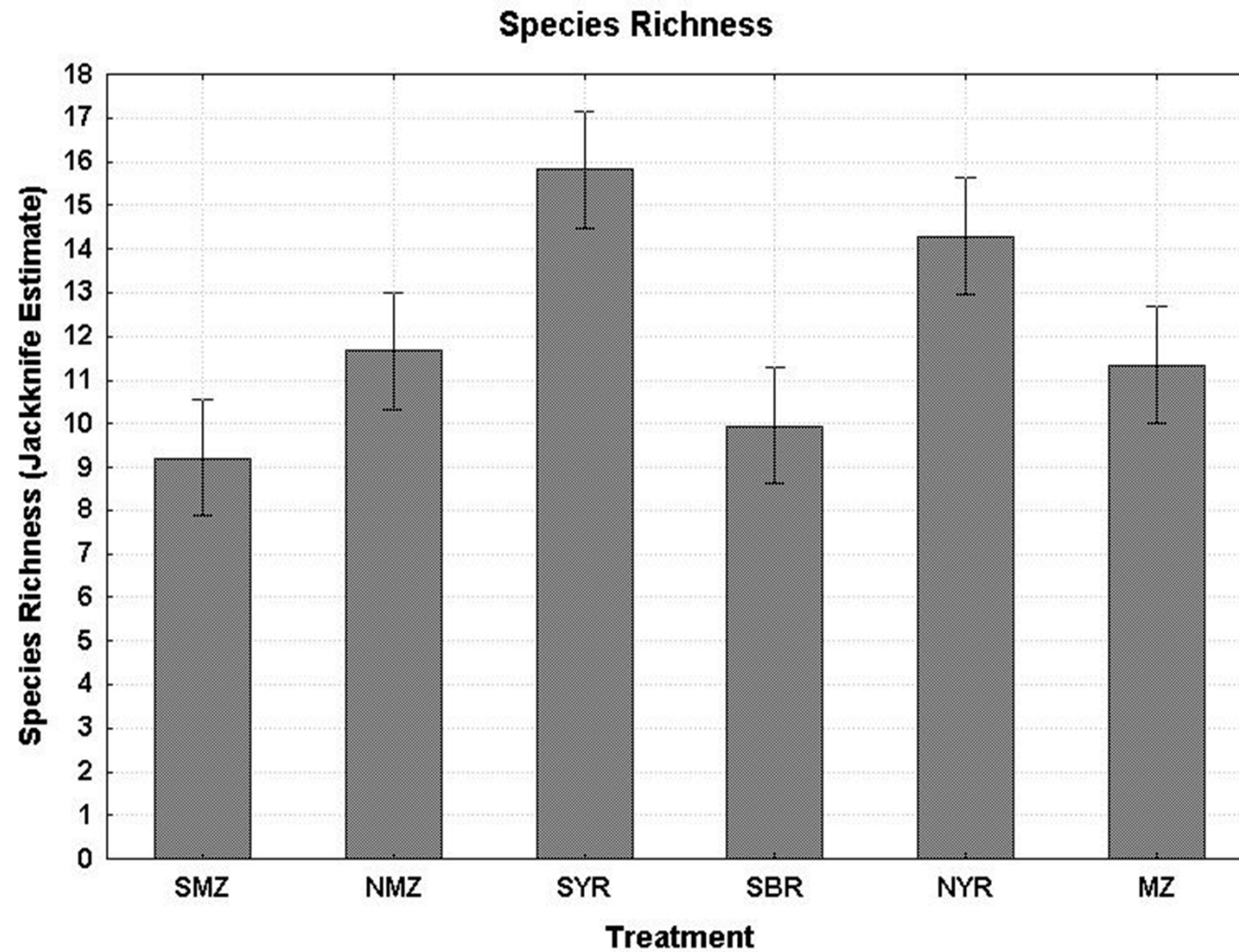
Aquatic Surveys – Benthic Infauna Community Survey



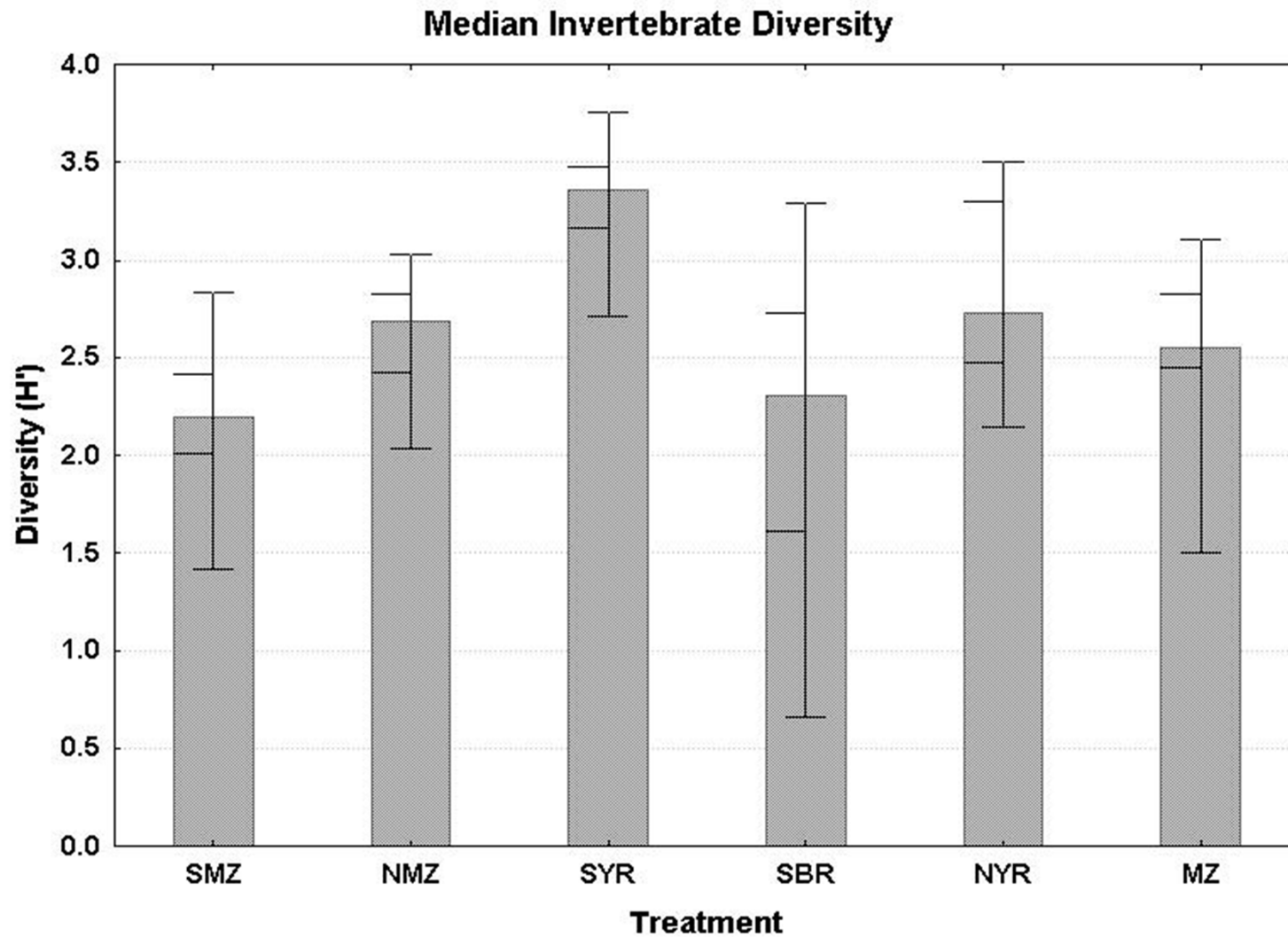
Aquatic Surveys – Benthic Infauna Community Survey



Aquatic Surveys – Benthic Infauna Community Survey



Aquatic Surveys – Benthic Infauna Community Survey



Aquatic Surveys – Benthic Infauna Community Survey

Benthic Invertebrate Diversity

Kruskal-Wallis: $H_{(5, N=90)} = 42.61, p < 0.001$

SMZ	SBR	MZ	NMZ	NYR	SYR
R:20.933	R:32.467	R:42.067	R:45.200	R:53.933	R:78.400



Analysis uses the ranks of invertebrate diversity (H') as the dependent variable. Ascending values below each treatment label represent the average rank for replicates belonging to each treatment from the pool of all treatment ranks. Horizontal bars connect statistically similar treatments (regions).

Aquatic Surveys – Effluent & Creek Runoff Survey

Effluent & Creek Runoff Survey – sample collections of GP effluent, Newport effluent & Nye Creek runoff to represent primary point-sources to study area (coordinated with offshore water sampling)



Effluent Sampling

- 24-hr composite samples of GP effluent and Newport effluent using autosamplers (2 days) for chemistry analyses

Nye Creek Runoff Sampling

- Water samples collected as grabs during 2 field days (composited) for chemistry analyses

Aquatic Surveys – Effluent & Creek Runoff Survey

GP & Newport Effluent

- Water samples collected as 24-hour composites during 2 consecutive days
- Analyses of 12 metals, 10 conventional and nutrient parameters, and resin/fatty acids
- Analytical parameters based on chemicals detected in GP effluent & water quality criteria in state WQ standards
- GP effluent results in normal range for mill discharge chemistry
- Newport effluent results not unusual for municipal discharge

Nye Creek Runoff Sampling

- Water samples collected as grabs and composited during 2 field days (stormwater runoff)
- Analyses of 12 metals, and 10 conventional and nutrient parameters
- Creek sample results show nutrients and some low Cu & Zn

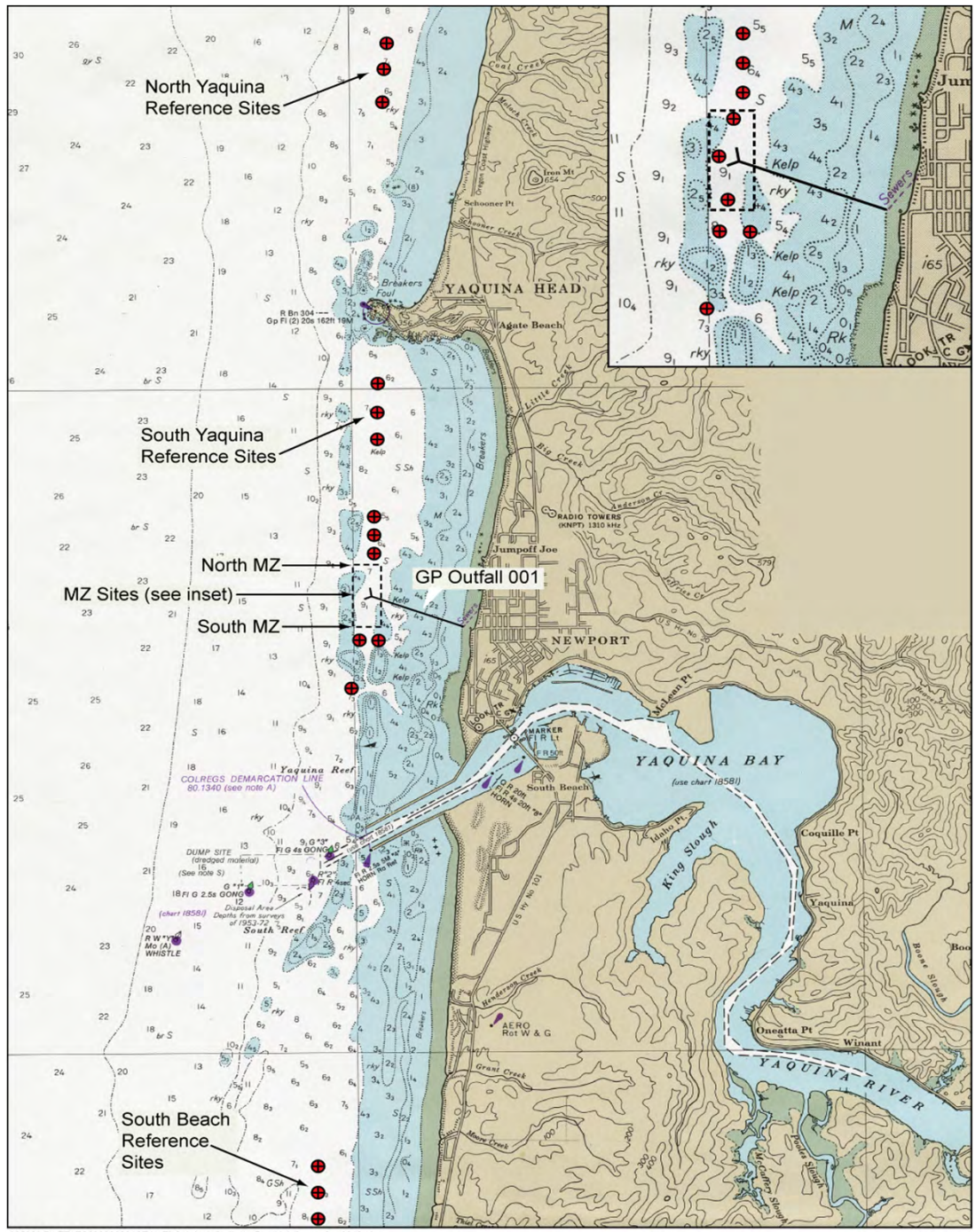
Aquatic Surveys – Marine Water Quality Survey

Marine Water Quality Survey - collection of seawater samples at multiple depths & continuous vertical profile measurements in water column to represent offshore waters in all study areas



SBE-19 Plus Water Quality Instrument



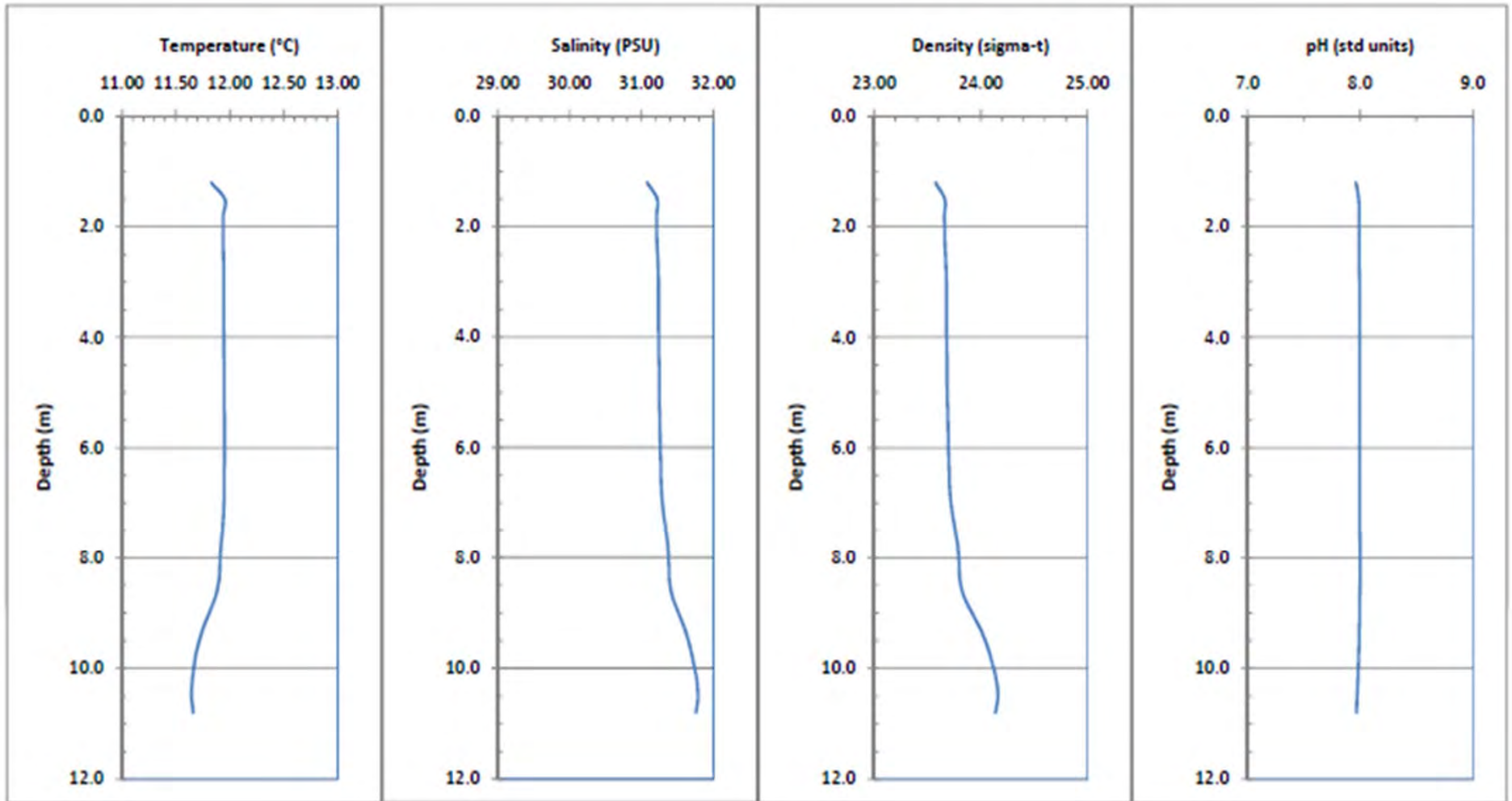


Water Quality Sampling Regions & Sites

Water Quality Sampling

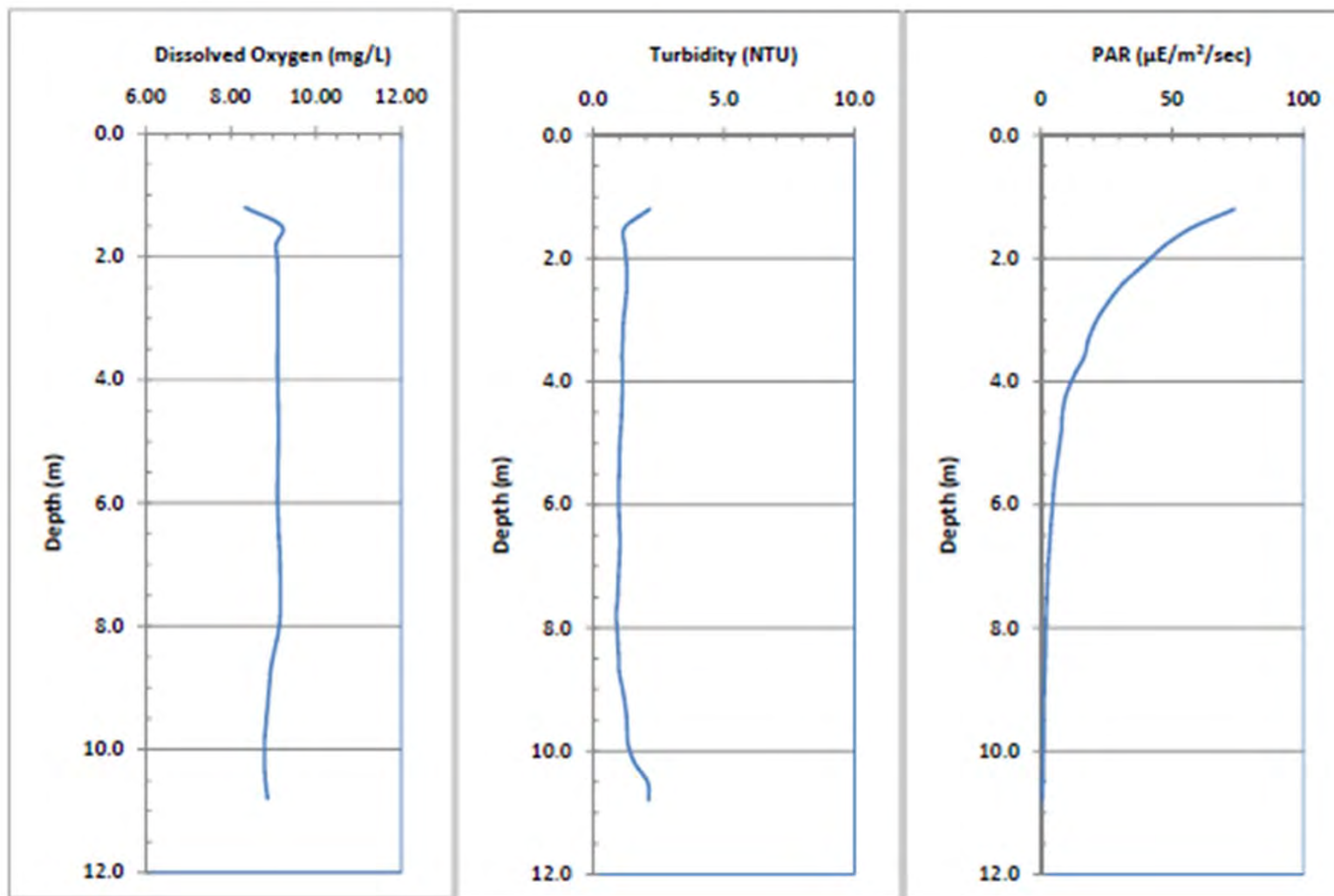
- 3 Sites within each Region
- Continuous water column profile at each site for pH, temperature, conductivity, dissolved oxygen, turbidity & photo-synthetically active radiation (PAR)
- Water samples collected at surface, mid-depth (below pycnocline) & near-bottom depths for chemistry

Marine Water Quality Survey - Profile



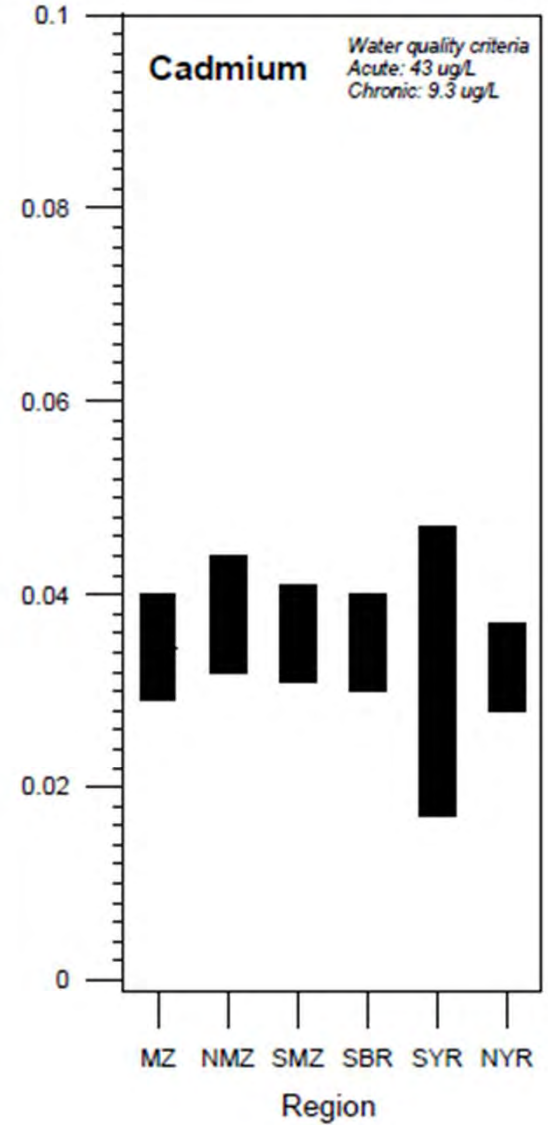
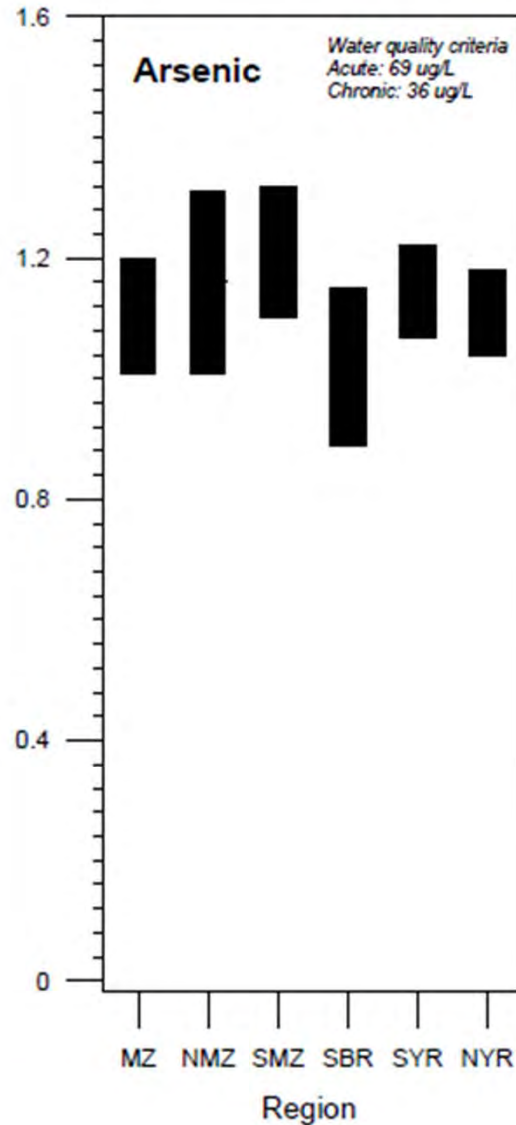
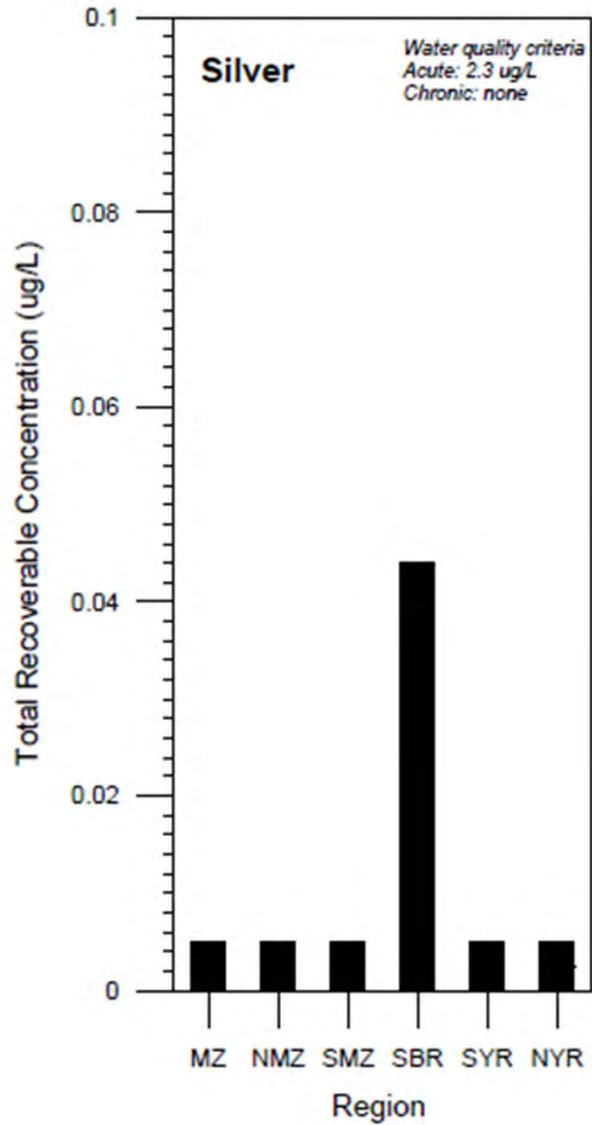
Hydrographic Profile at Sampling Site MZ-3 on May 24, 2010 at 0803 PDT during Flood Tide

Marine Water Quality Survey - Profile

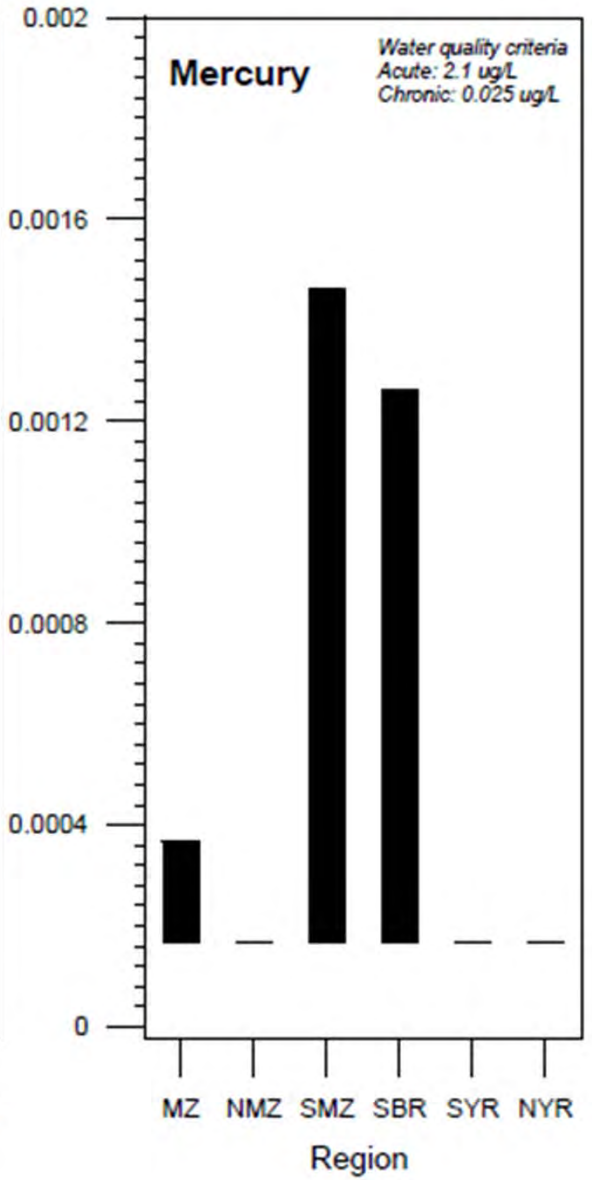
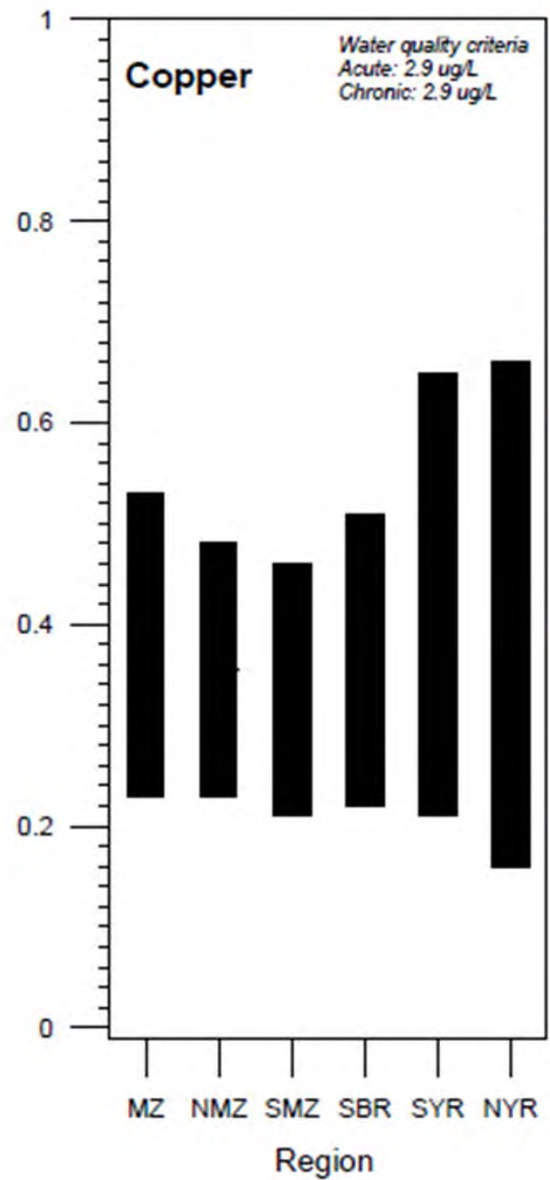
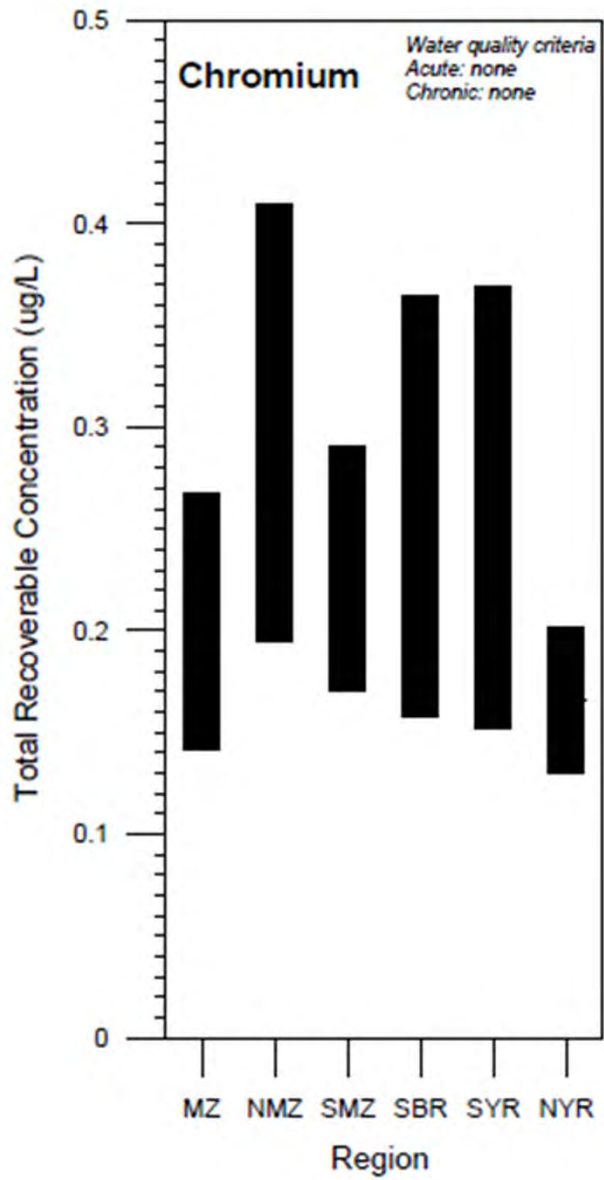


Hydrographic Profile at Sampling Site MZ-3 on May 24, 2010 at 0803 PDT during Flood Tide

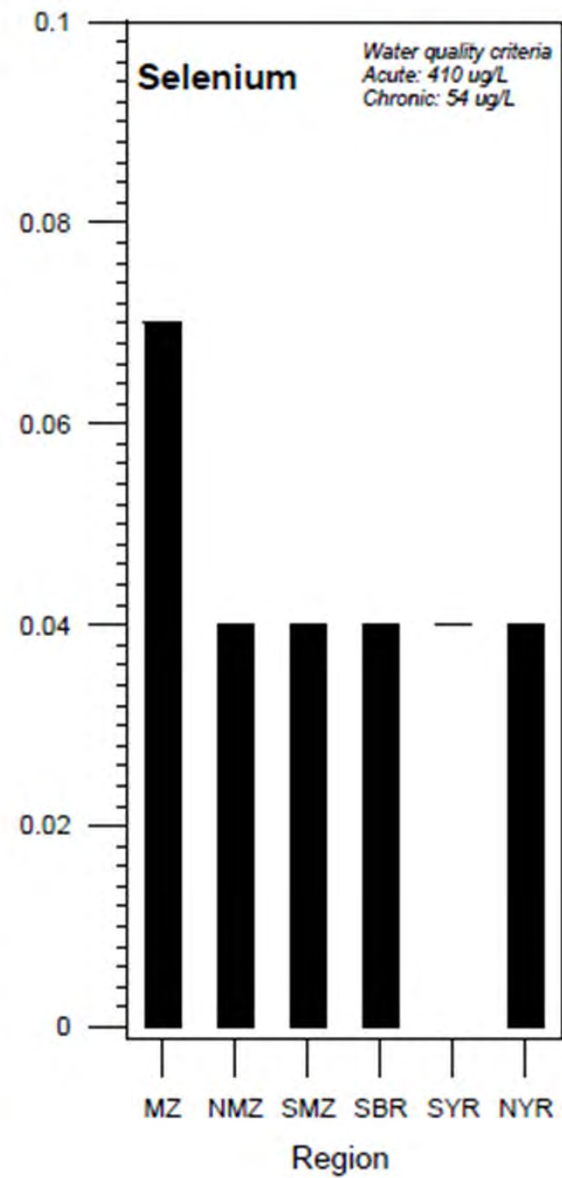
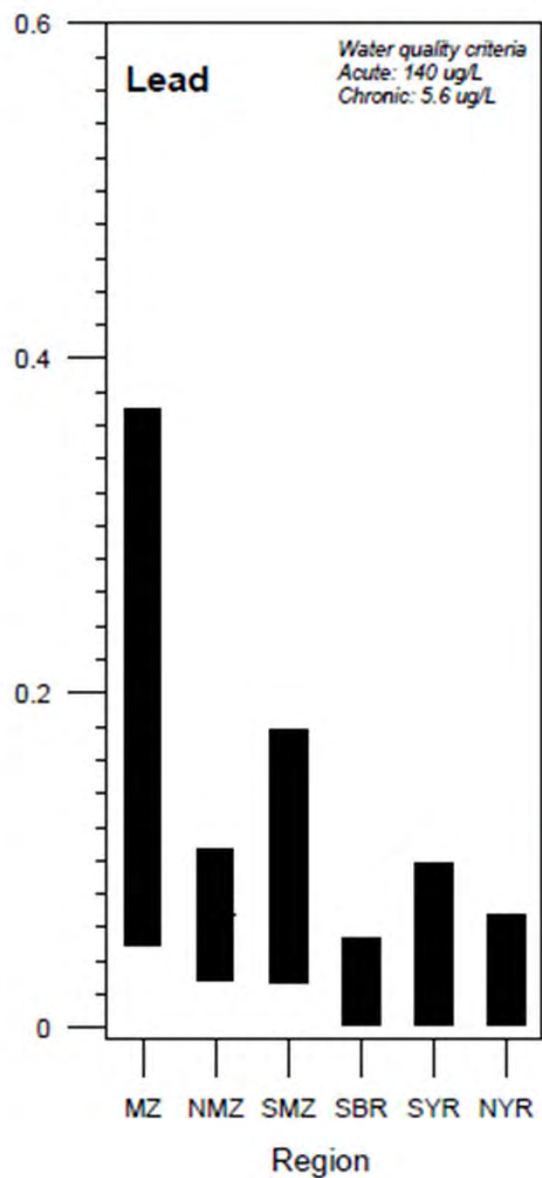
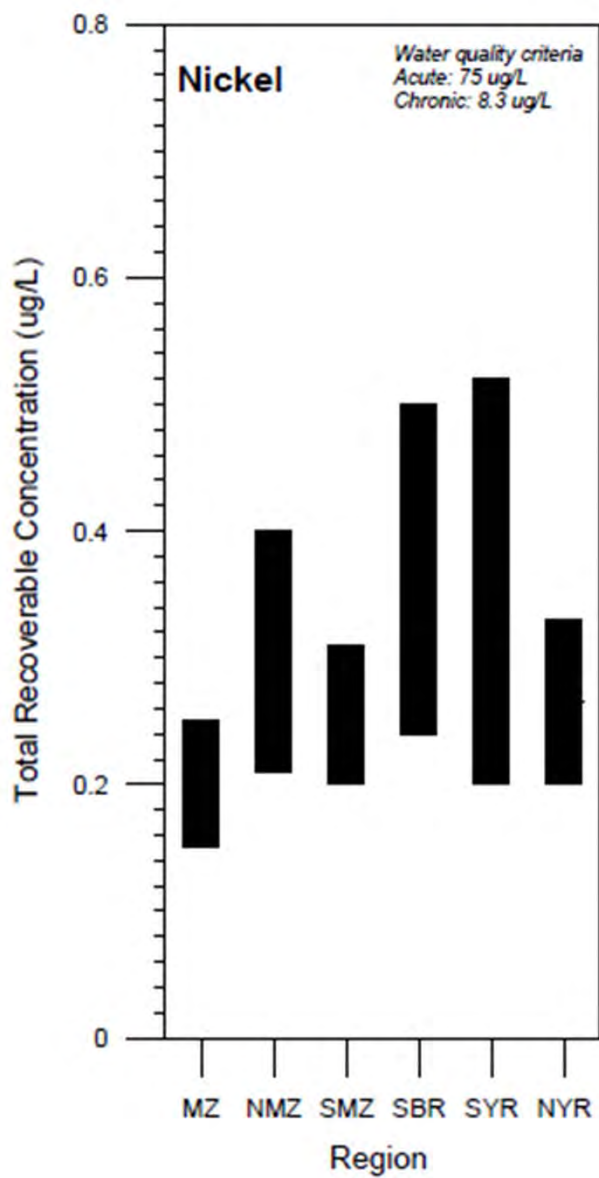
Marine Water Quality Survey



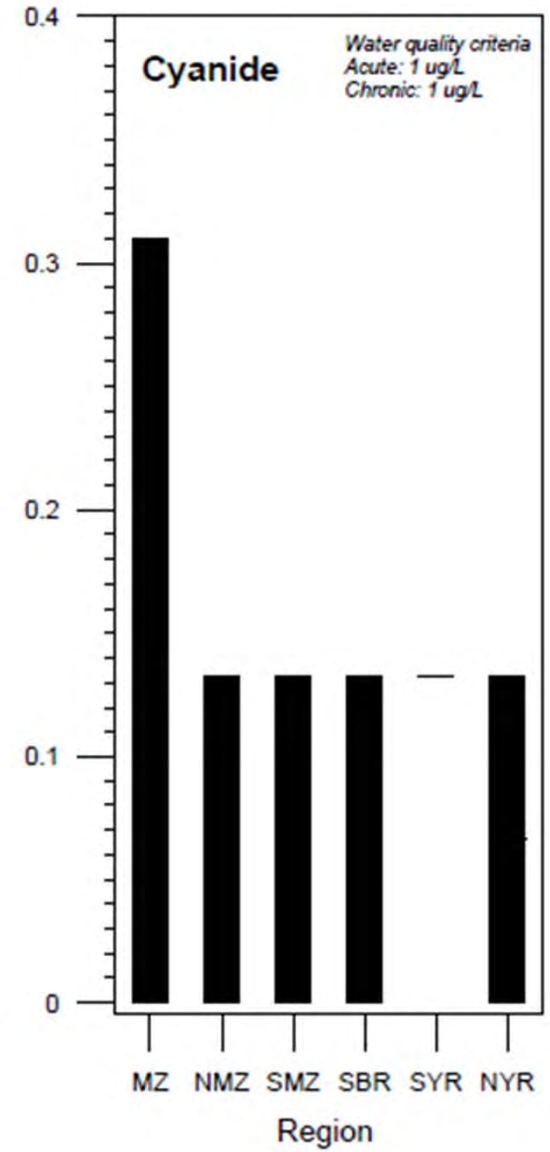
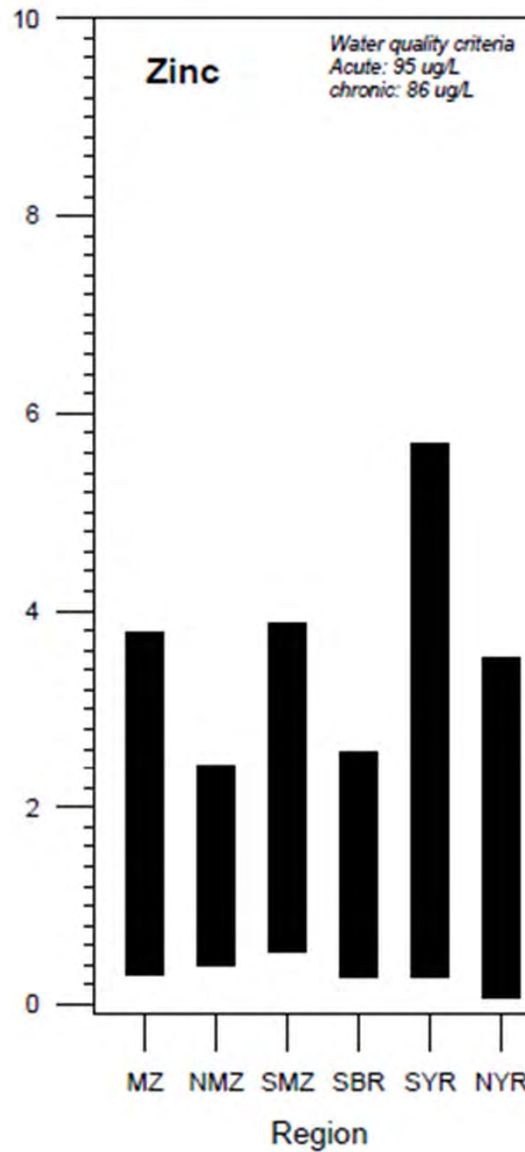
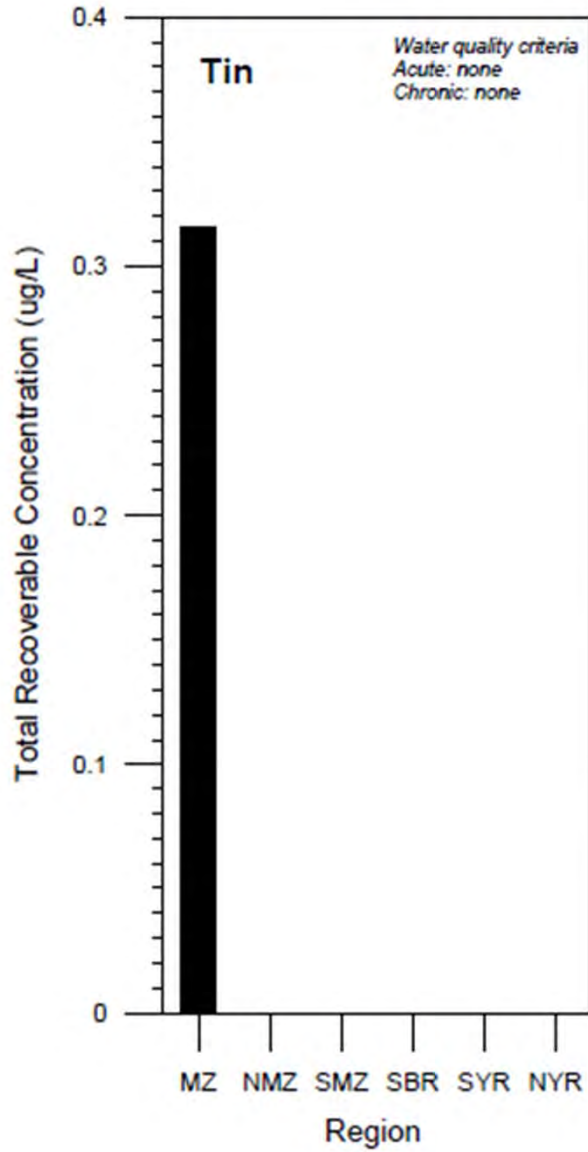
Marine Water Quality Survey



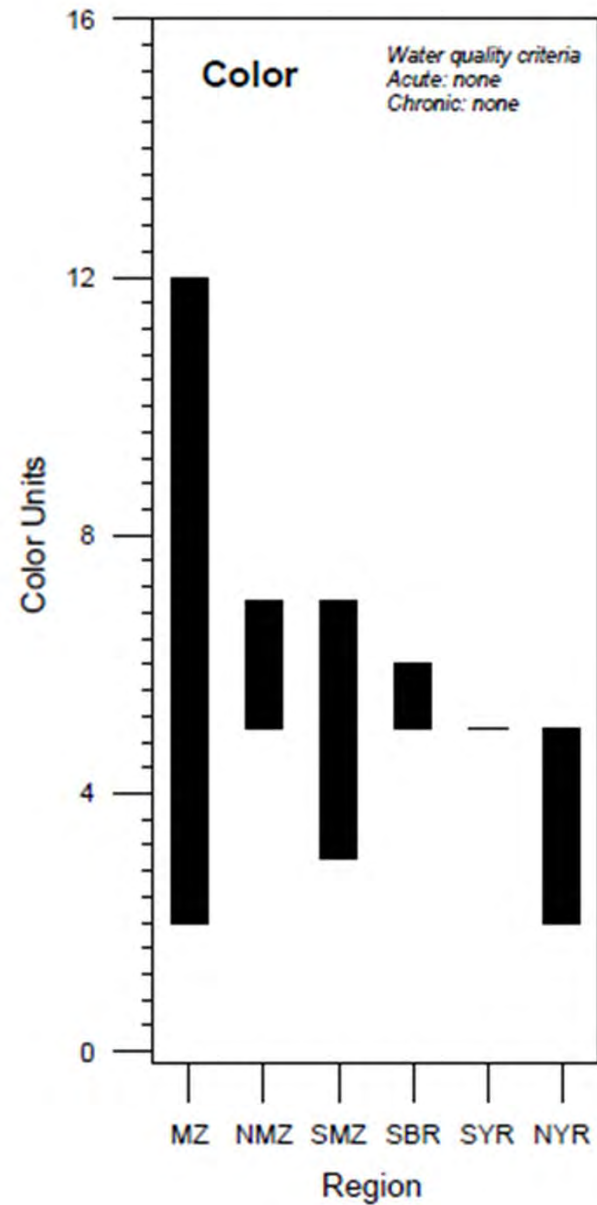
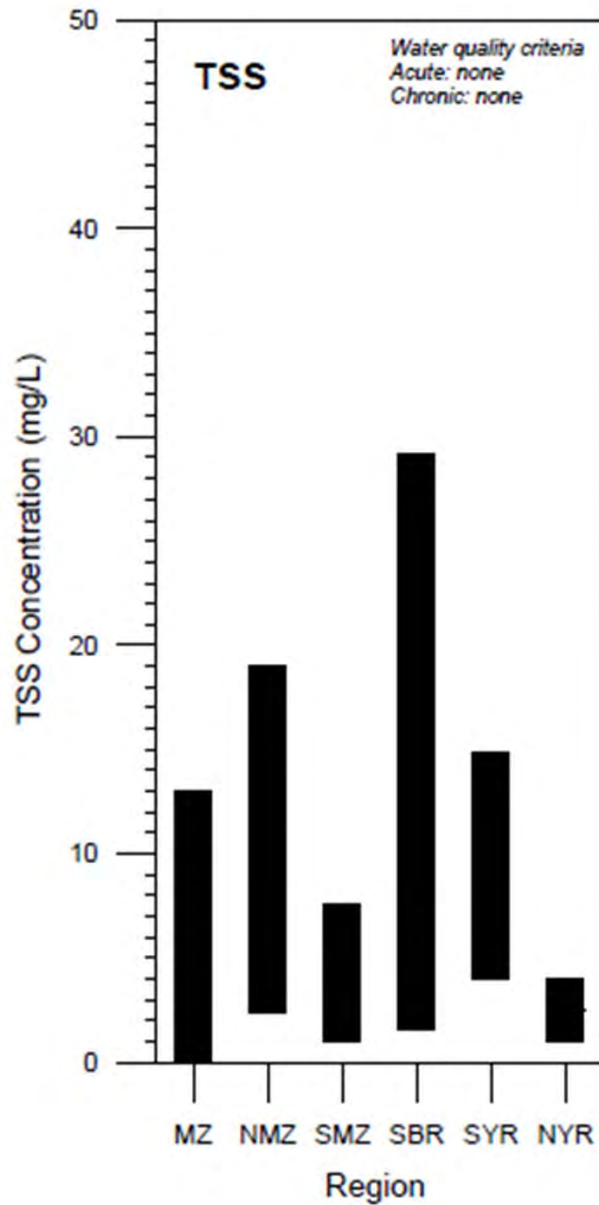
Marine Water Quality Survey



Marine Water Quality Survey



Marine Water Quality Survey



Questions ?

