

# Discussion Items for Group Leaders

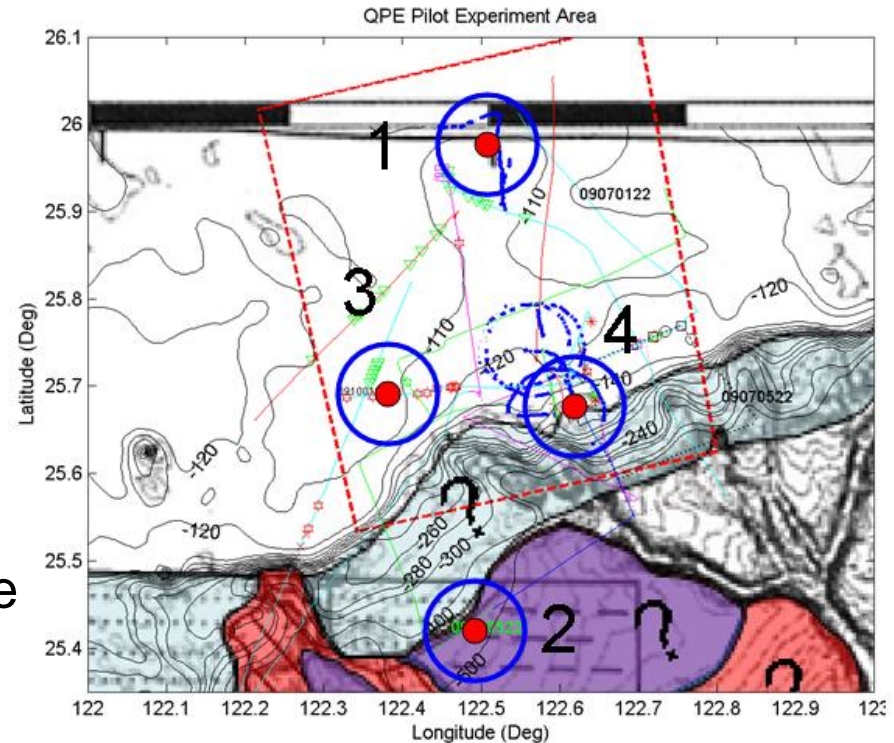
- Site selection for intensive observations
- List of Available resources
- Development of Operational Plan
- Develop timetable for tasks this spring
- Regular communications schedule

# Site selection for intensive observations

- Focus on Sites 1 and 4
- 4-5 days at each site, then 2-3 day revisit for a few additional runs to assess predictive capabilities

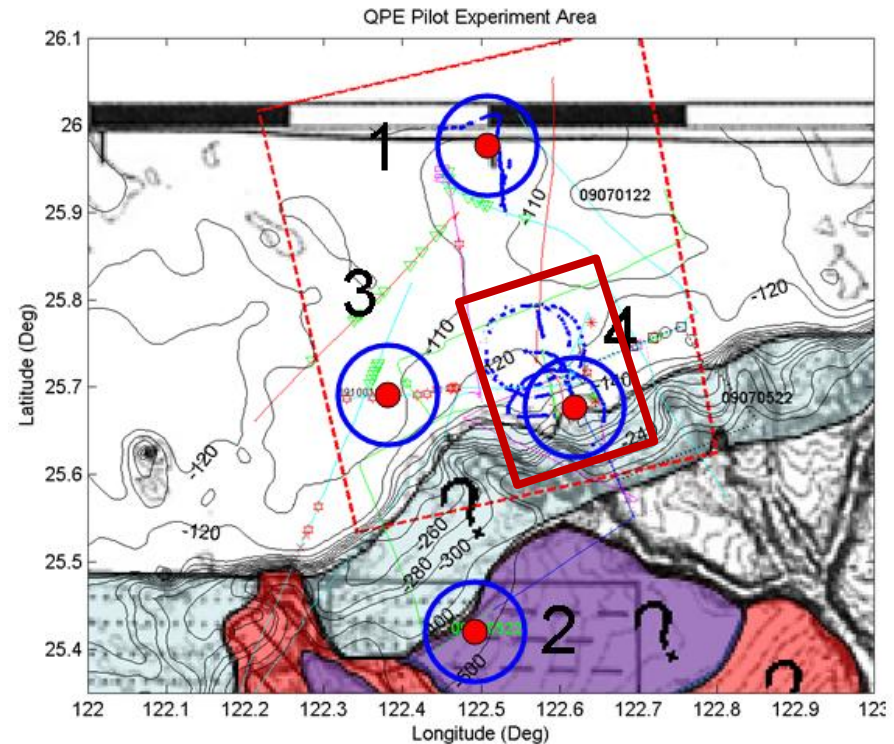
# Suggested Acoustic Measurement Locations, Site 1

- Site Objectives: Investigate effects
  - Sand Ripples
  - Internal Waves
- Run OMAS parallel and perpendicular to sand ripple fields to measure azimuthal dependency
- Use EK500 and multibeam surveys to map sand ripple orientation
- Select second site out of sand ripple field and deploy second SHRU, additional OMAS
- Needed from Brian Calder: location of ripple field, location of benign area, ripple orientation
- Examine Internal Wave effects/ other oceanography



# Suggested Acoustic Measurement Locations, Site 4

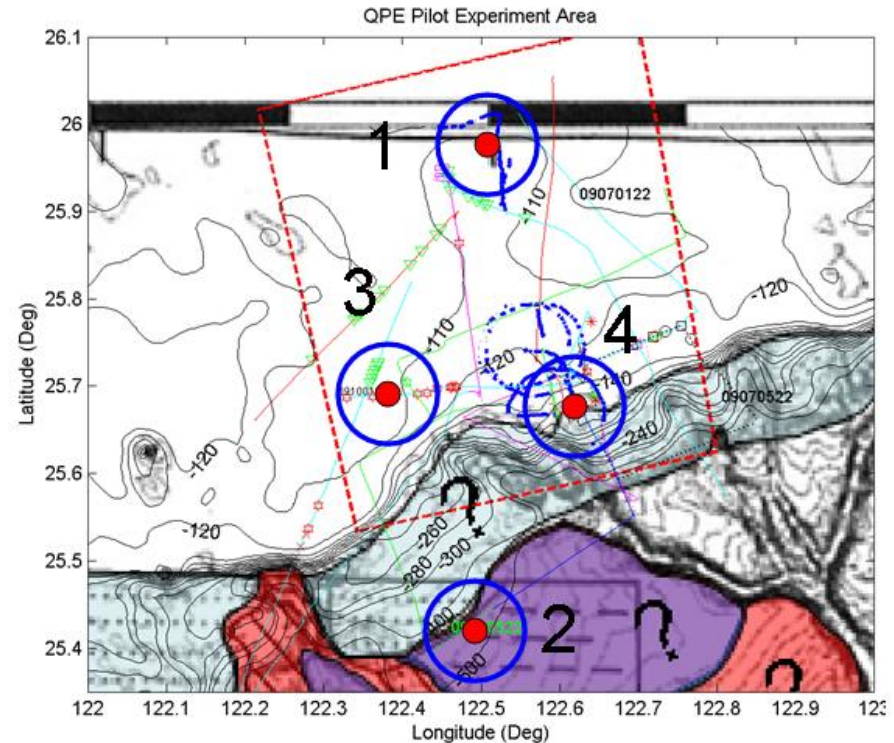
- Site Objectives:
  - Contrast environmental variability with Site 1
- Questions as to exact site location
- Need deeper receiver (SHRU and sonobuoy) as sound doesn't propagate upslope well
- Run OMAS deeper
- Explore effects of different source/receiver depths
- 3-D canyon effects are possible
- Concerned with high fishing activity in this area



- Need bathymetry in ~50m (or best) resolution in area of solid red box

# Additional Bonus Acoustic Measurement Location, Site 2

- Greater Depth/Stronger currents increase operational complexity
- No moored instruments (SHRUs) would be available without significant modifications. High currents a big problem
- The only instrument that can cover this area would be glider



# List of Available resources

- OMAS/Sonobuoys (OASIS)
- SHRUs (WHOI) 5 available, 2 out per site
  - 1 for geoacoustics cruise in May
- HLA (WHOI) (1)
- VLA (NTU) ?
- Oceanographic Moorings (WHOI) (5-6 available, deploy 2-3 per site)
- Ship-Deployed Source (NTU)
- Scripps PO moorings
  - OK to deploy and leave out?

# Development of Operational Plan

- Site 1: 5 days
- Site 4: 5 days
- Return to Port 2-3 days
  - Data Dump, Science meeting
- Site 1: 3 days
- Site 4: 3 days
- Remaining time: weather days, Site 2
- Would like OR1 and OR2 working in tandem operations

# Timetable for tasks this spring

- Marine Mammal Info Due before Feb 14 for May Cruise
  - By May 1 for August Cruise
- Finalize Ship Time / berthing
- Shipping logistics / warehouse, staging location
  - Offices, lab benches, secure enclosed space with lights and power required
- Assemble document on Pilot acoustics results
- After May cruise (June), produce modeling predictions, refine track planning, etc.



# Regular communications schedule

- Use website to distribute information
  - Needs active maintenance
  - Who will perform?
- Regular email (every two weeks) communications between project leaders and project participants stating new information on website

# Science Issues and Planned Measurements

- Can we predict TL and the noise field?
  - What is the uncertainty?
- Need to measure both the environment and the acoustics that verify it
- The bottom:
  - Bathymetry (already pretty good - if we can use it)
  - Seabed surface backscattering
  - ~10m roughness scales
  - Distribution of sediment types
  - Bottom composition / geoacoustic model down to 10m below seabed surface.
  - 3 geoacoustic measurements (at each site) separated by 5km each
- The water column:
  - Surface waves. need wave rider
  - Surface mixed layer depth / strength / gradient. SIO moorings, CTDs, SeaSoar, Ocean numerical models?
  - Internal wave/tide field – amplitude and frequency directional spectrum. SIO moorings, CTDs, SeaSoar, WHOI moorings, SAR imagery.
  - Intermediate water mass. Cold dome, Kuroshio intrusions, eddies and filaments (spectral description)
  - Bottom layer? (not seen in Pilot Cruise)
  - Barotropic Tides: (Spring, Neap) velocity, directions, sea surface height

# Science Issues and Planned Measurements, cont

- Experimental Considerations

- Ranges - OMAS: 10 km, Shipboard Transmissions: 20km
- Frequencies – OMAS: 600, 900Hz sweeps, 800,900, 1kHz tones.  
J15: 50-600Hz (Rent?)
- Geometries – Along/across shelf, azimuthal dependence, below/above layer, in/out/across cold dome, in/across front. High/low source/receiver
- Historical hotspots (oceanographic variability and shipping traffic)
- AIS (need to get our own)
- Radar

- Site revisit plans

- SNR optimization (exploitation)
- TL prediction verification
- Ship Noise prediction verification
- Reduction of uncertainty

# Geoacoustics

- Scheduled for May?
- Ship time: 5 days of OR2
- Noise level of OR2 is suitable for seismic survey
- Need SHRUs (4-channels from WHOI, 1-channel from NSYSU?)
- Pingable acoustic releases
- Support for SHRU deployment (not trivial). Send someone to WHOI for training.
- Possible use of sonobuoy as backup receiver?
- Temperature profile and surface waves a concern
- Prefer to complete before August
- 3 Measurements at Sites 1 and 4

# Plans for Main Cruise

- At a given site:
  - Range Dependence
  - Isotropy (One Circle)
  - Horizontal Invariance (Multiple Circles) Along Isobaths
  - Coherence Length Scales
  - Ambient Noise (WHOI BMA)
  - Adaptive Sampling / Exploitation
- Daily Approach (at a given site)
  - Day 1: Shakedown - Radial Tracks
  - Day 2: Circle/Isotropy Track  $R \approx 5\text{km}$
  - Day 3: Two Simultaneous Circles. Separated by 10km
  - Day 4: Coherence (Many Pings) on Circle Tracks
  - Day 5: Adaptive Sampling / Exploitation
  - 5-6 Days/Site (6-7 OMAS)
  - 1 day OR2 tows/stations at LF

