

**RHODE ISLAND RENEWABLE ENERGY DEVELOPMENT
FUND SPECIAL AREA MANAGEMENT PLAN**
Second Quarter Narrative and Financial Report
(October 1 – December 31, 2008)

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**RHODE ISLAND RENEWABLE ENERGY DEVELOPMENT FUND SPECIAL AREA
MANAGEMENT PLAN
Second Quarter Narrative and Financial Report (October 1 – December 31, 2008)**

Submitted to:

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Narrative and Financial Report:

Second Quarter (October 1 – December 31, 2008) Narrative and Financial Report for the Rhode Island Renewable Energy Development Fund/Ocean Special Area Management Plan

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SECOND QUARTER OCEAN SAMP EXECUTIVE SUMMARY

During the second quarter, the Ocean SAMP process has made significant accomplishments in data gathering, harnessing technical guidance, engaging stakeholders, and establishing project oversight.

The Coastal Resources Management Council (CRMC) has organized a CRMC Ocean SAMP Subcommittee to oversee all aspects of the Ocean SAMP program. Quarterly meetings that coincide with progress reports are planned to review SAMP financial, administrative, research, outreach, and policy components. The oversight subcommittee was developed by CRMC Chairman Michael Tikoian, with Chairman Tikoian and CRMC board members David Abedon, Paul Lemont, and Don Gomez serving as members.

To assist the CRMC SAMP subcommittee and ensure coordinated oversight of the SAMP project, the management team met biweekly during the reporting period to review progress on approved research and outreach activities and tailor or guide aspects as needed. The management team meetings consisted of Project Manager Grover Fugate, Principal Investigators Jennifer McCann (Outreach/Policy) and Samuel DeBow (Research), and Senior Advisors Dr. Kate Moran (URI GSO) and Dr. Malcolm Spaulding (URI Ocean Engineering).

In October, URI scientists, researchers and students were aboard the R/V *Endeavor* gathering data for the Ocean SAMP. For 10 days, the research team mapped the seafloor and underlying sediments, conducted bird observations and marine mammal surveys, and deployed acoustic moorings within the SAMP area. Attached please find the R/V Endeavor cruise report for your review.

A Legal Advisory Task Force made up of local and regional legal experts and a Science Task Force made up of local and regional scientists with expertise in SAMP issues were created to provide credible and current technical guidance to the SAMP project management team. Both groups will commence meeting quarterly or as needed in January 2009.

The Ocean SAMP Stakeholder Group met for the first time in October and represented a wide spectrum of constituencies engaged in the Ocean SAMP process. The meetings, chaired by URI's Dr. Ken Payne, are held approximately every six weeks, with meetings on October 29 and December 2 taking place within the reporting period. Each meeting contained a SAMP update and an educational presentation on a SAMP topic, with time for questions and answers afterward. All stakeholder meetings are open to the public, with each meeting to date drawing about 40 official stakeholders and 40 members of the public.

Workplan (August 2008-July 2010): Summary Goals and Objectives

Goal 1: Assemble background information on the project boundary's natural features, human activities, and policy and procedures to assist in the understanding of this Ocean SAMP region.

Objective 1: Engage state, federal and regional agencies to ensure project is collecting appropriate and necessary information to meet state/federal requirements and to create a forum for information exchange, coordinated coastal and ocean management, and learning.

Objective 2: In coordination and with support from Ocean SAMP researchers, develop background information on existing conditions for major human activities.

Objective 3: Create consistent background papers on existing conditions for major natural features based on technical information created by Ocean SAMP researchers.

Objective 4: Research and provide information on existing policies, procedures and governance frameworks for natural features and human activities within the Ocean SAMP

Goal 2. Identify best practices and strategies for overcoming obstacles in planning, policy, and implementation of marine renewable energy that can be transferred to the Ocean SAMP initiative based on a comparative assessment of lessons learned from other initiatives in the United States and worldwide. Evaluate what works and what does not work in the Ocean SAMP initiative so that this model effort can be used as a case study for future efforts.

Goal 3. Engage a well informed and well represented constituency that understands the Ocean SAMP issues and is involved in the creation of the Ocean SAMP.

Objective 1: Develop a formal process to ensure that all stakeholders and citizens have an opportunity to engage in the process.

Objective 2: Organize and/or support existing events that offer project team and stakeholders an opportunity to better understand issues including ocean zoning, impacts of renewable energy activities on existing human activities and natural features and other related topics.

Objective 3: Develop communication tools that will provide up-to date information for all interested citizens and interest groups.

Goal 4: Develop a SAMP for Rhode Island's Coastal waters that serves as a tool to encourage regulatory and management coordination and consistency among Rhode Island state agencies (CRMC, OER, DEM), federal agencies (U.S. Department of Energy, ACOE, MMS, and the U.S. Federal Energy Regulatory Commission), neighboring states (MA, CT, NY) and other public entities, developers, and environmentalists within this project area.

Objective 1: Develop siting criteria that will serve as a mechanism to promote the identification of appropriate sites for the installation of permanent structures.

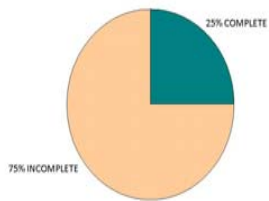
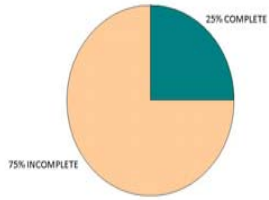
Objective 2: Develop new policies and procedures for renewable energy activities

Objective 3: Develop the SAMP document as described in the Ocean SAMP.

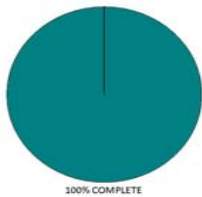
Workplan Status: Progress Quarter Two (August 2008-July 2010)

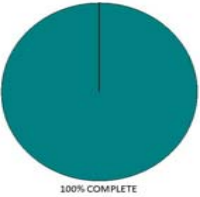
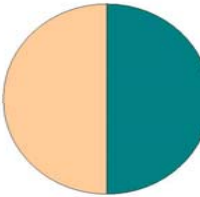
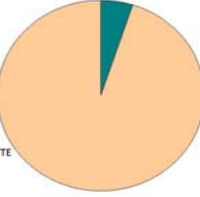
Goal 1: Assemble background information on the project boundary's natural features, human activities, and policy and procedures to assist in the understanding of this Ocean SAMP region.

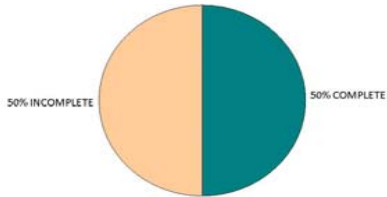
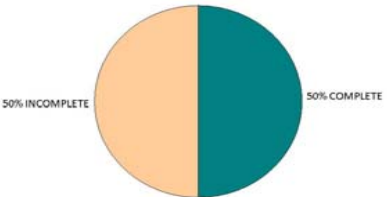
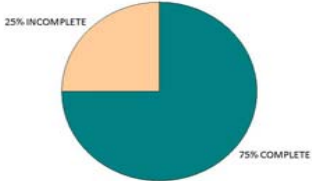
Objective 1: Engage state, federal and regional agencies to ensure project is collecting appropriate and necessary information to meet state/federal requirements and to create a forum for information exchange, coordinated coastal and ocean management, and learning.

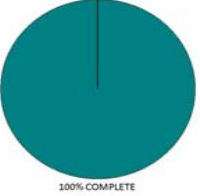
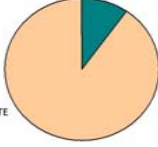
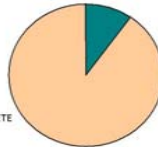
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|--|---|---|----------|---|--|
| G1.01 | Engage appropriate Rhode Island state agencies and neighboring state agencies. | Organize periodic meetings with RI state agencies engaged in coastal/ocean management related issues to ensure there is a formal mechanism to engage these entities into the effort. Engage CT, MA, and NY state agencies on an ad hoc basis to ensure their involvement. | State agencies are engaging in the process to ensure that state policies are coordinated. | Ongoing | <ul style="list-style-type: none"> Meetings with DEM (Nov 25, Dec 17th). Meetings with neighboring states took place (Dec 18th). |  |
| G1.01 | Engage Federal agencies. | Organize periodic meetings with federal agencies, including MMS, ACE, NMFS, EPA, etc. to ensure that there is a formal mechanism to engage these entities into the effort. | Federal agencies are engaging in the process to ensure that state policies are coordinated. | Ongoing | <ul style="list-style-type: none"> Meetings with MMS, US. Coast Guard, Army Corps of Engineers, and NOAA representatives (Dec 22). |  |

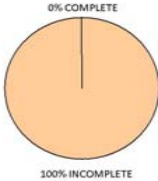
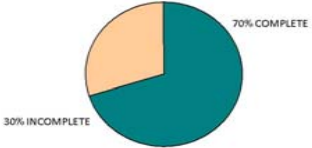
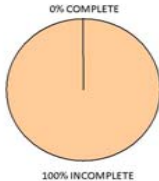
Objective 2: In coordination and with support from Ocean SAMP researchers, develop background information on existing conditions for major human activities.


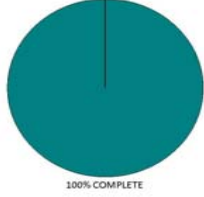
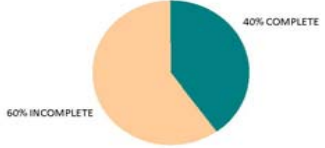
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|-------|---|---|-------------------------------------|--------|--|---|
| G1.02 | Develop a table of contents for the presentation of each topic. | This table of contents will ensure that all researchers are presenting their data in a consistent format. This will assist project team in the synthesis of this information. | Consistently presented information. | Sep-08 | <ul style="list-style-type: none"> Completed Sept 08, but being revised appropriately |  |
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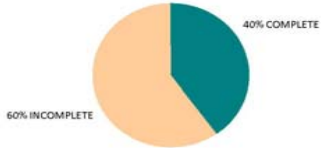
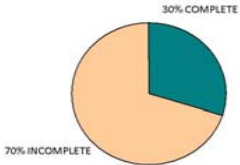
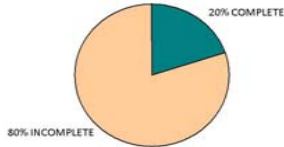
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
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| G1.02 | Develop SAMP questions | These questions will be presented to all researchers to encourage them to think about the SAMP as an ecosystem and how it relates to their topic. | Topic information is integrated into discussions about the ecosystem. | Oct-08 | <ul style="list-style-type: none"> Completed Oct. 08 |  <p>100% COMPLETE</p> |
| G1.02 | Commercial and Recreational Fisheries | Meet with key fisheries organizations and review appropriate plans to identify: 1) existing and potential future recreational activities; 2) issues of concern with existing activities; and 3) potential conflicts/ enhancements concerning renewable energy activity. | Background document with maps and text. Updated commercial and recreational usage maps. Fisheries sector engaged in process. | Mar-09 | <ul style="list-style-type: none"> Scope of work, timeline and meeting list developed and being implemented in coordination with fishing community and resource managers |  <p>50% INCOMPLETE 50% COMPLETE</p> |
| G1.02 | Recreational Activities | Meet with key recreational organizations (public/private) and review appropriate state/federal recreation plans to identify: 1) existing and potential future recreational activities; 2) issues of concern with existing activities; and 3) potential conflicts/ enhancements concerning renewable energy activity. | Background document with maps and text. Recreational sector formally engaged in process | Mar-09 | <ul style="list-style-type: none"> Initial meetings being organized and some issues identified |  <p>5% COMPLETE 95% INCOMPLETE</p> |


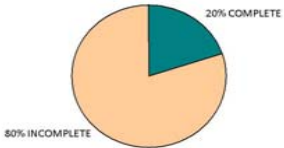
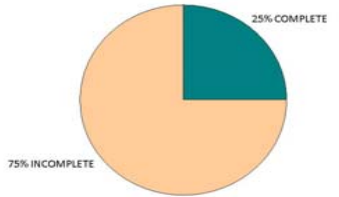
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
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| G1.02 | Marine Transportation | Work with Spaulding et. al. to summarize this issue. If necessary, meet with key organizations (public/private) and review appropriate state/federal marine transportation plans to identify: 1) existing and potential future activities; 2) issues of concern with existing activities; and 3) potential conflicts/ enhancements concerning renewable energy activity. | Background document with maps and text. Marine transportation sector formally engaged in process. | Mar-09 | <ul style="list-style-type: none"> Existing marine transportation activities identified and mapped. Finals completed in January 2009 |  <p>50% INCOMPLETE 50% COMPLETE</p> |
| G1.02 | Military uses | Meet with federal agencies to identify: 1) existing and potential future activities; 2) issues of concern with existing/future activities; and 3) potential conflicts/ enhancements concerning renewable energy activity. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Existing military uses identified on public charts are mapped |  <p>50% INCOMPLETE 50% COMPLETE</p> |
| G1.02 | Installed infrastructure (cables) | Meet with federal/state agencies to identify: 1) existing and potential future infrastructure and activities; 2) issues of concern with existing/future activities; and 3) potential conflicts/ enhancements concerning renewable energy activity. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Majority of infrastructure identified and mapped |  <p>25% INCOMPLETE 75% COMPLETE</p> |


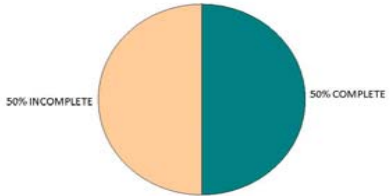
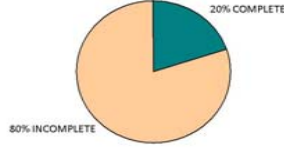
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
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| G1.02 | Dredged material disposal sites | Meet with federal/state agencies to identify: 1) existing and potential future infrastructure and activities; 2) issues of concern with existing/future activities; and 3) potential conflicts/enhancements concerning renewable energy activity. | Background document with maps and text. | Jul-09 | • Dredged materials sites identified and mapped |  <p>100% COMPLETE</p> |
| G1.02 | Aesthetic values | Meet with interested organizations (public/private) and review appropriate plans to identify: 1) issues of concern with existing activities; and 3) potential conflicts/enhancements concerning renewable energy activity. | Background document with maps and text. | Jul-09 | • Meetings with aesthetics experts underway to better understand the issues and concerns |  <p>10% COMPLETE 90% INCOMPLETE</p> |
| G1.02 | Acoustic Noise and Electromagnetic Effects | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | • Performed a detailed analysis of the atmospheric noise conditions and underwater noise conditions presently existing in study area |  <p>10% COMPLETE 90% INCOMPLETE</p> |


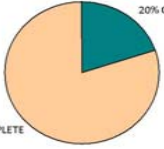
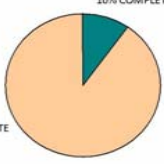
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
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| G1.02 | Cultural resources | Meet with federal/state agencies and others to identify: 1) cultural resources; 2) issues of concern with existing/future activities; and 3) potential conflicts/ enhancements concerning renewable energy activity. | Background document with maps and text. | Jul-09 | |  |
| G1.02 | Marine Archeology | Work with Mather to summarize this issue. If necessary, meet with key organizations (public/private) and review appropriate state/federal marine transportation plans to identify: 1) existing and potential future activities; 2) issues of concern with existing activities; and 3) potential conflicts/ enhancements concerning renewable energy activity. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Archeology studies of data collection on survey are underway and will be completed by March |  |
| G1.02 | Other possible uses | If necessary present information on other potential future activities, including: 1) issues of concern with existing activities; and 2) potential conflicts/ enhancements concerning renewable energy. | Background document with maps and text. | Jul-09 | |  |

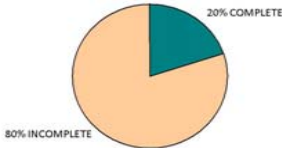
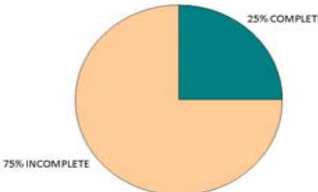

| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|---|--|---|---|----------|--|---|
| G1.02 | Interdisciplinary solutions | Review the possibilities of interdisciplinary solutions to address SAMP issues to: 1) Realize economic value-add; and 2) Emphasize the connections among and interrelatedness of SAMP issues. | Background document with maps and text. | Jul-09 | |  |
| Objective 3: Create consistent background papers on existing conditions for major natural features based on technical information created by Ocean SAMP researchers. | | | | | | |
| G1.03 | Develop a table of contents for the presentation of each topic | This table of contents will ensure that all researchers are presenting their data in a consistent format. This will assist project team in the synthesis of this information. | Consistently presented information | Sep-08 | <ul style="list-style-type: none"> Completed |  |
| G1.03 | Marine Mammals | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Data in hand and ready for analysis and mapping. |  |

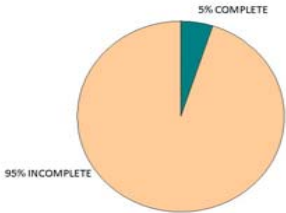
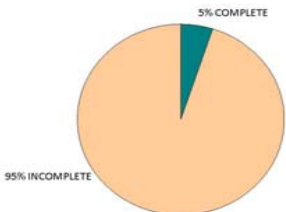
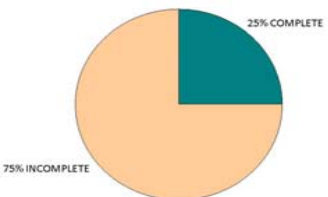
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|-------------------|--|---|----------|--|---|
| G1.03 | Sea Turtles | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Data in hand and ready for analysis and mapping |  <p>A pie chart with a teal slice representing 40% complete and an orange slice representing 60% incomplete.</p> |
| G1.03 | Avian Species | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Compiled relevant historical-recent avian data sets. Conducted systematic avian surveys. Geared up for the initiation of land-sea-based surveys of the distribution and abundance of avian species in the SAMP area. |  <p>A pie chart with a teal slice representing 30% complete and an orange slice representing 70% incomplete.</p> |
| G1.03 | Fishery resources | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | Use maps being created for January 2009 |  <p>A pie chart with a teal slice representing 20% complete and an orange slice representing 80% incomplete.</p> |

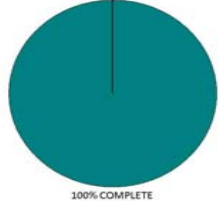
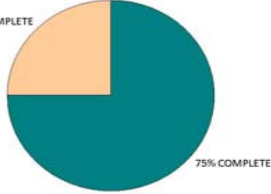
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|------------------------------|--|---|----------|---|--|
| G1.03 | Bottom Characteristics | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | Mapped 45 sq. miles within SAMP study area. Completed processing of bathymetry and side scan data acquired on cruise. Completed grab sampling |  <p>20% COMPLETE 80% INCOMPLETE</p> |
| G1.03 | Physical Oceanography | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Literature search almost completed. Model outputs tasks underway |  <p>20% COMPLETE 80% INCOMPLETE</p> |
| G1.03 | Water Productivity / Ecology | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | <ul style="list-style-type: none"> Collecting water samples. Working with SEAWIFFS for comparison |  <p>25% COMPLETE 75% INCOMPLETE</p> |

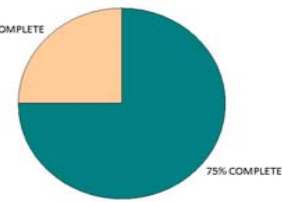
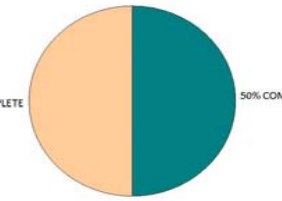
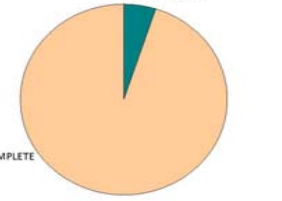
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|---|-----------------------------|---|--|----------|--|---|
| G1.03 | Winds, Waves and currents | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | • Completed comparative analysis |  |
| G1.03 | Air Quality and meteorology | Work with researchers to format and synthesize information for appropriate incorporation into the SAMP document. | Background document with maps and text. | Jul-09 | • Nearly completed the collection of archived meteorological data, and well along on writing up the report section |  |
| Objective 4: Research and provide information on existing policies, procedures and governance frameworks for natural features and human activities within the Ocean SAMP | | | | | | |
| G1.04 | State Policy Assessment | Review State Guide Plan elements & other relevant local plans; Prepare detailed summary of policy-related issues. | Document that presents this research and analysis. | Mar-09 | • Reviewing existing policy and regulatory documents |  |

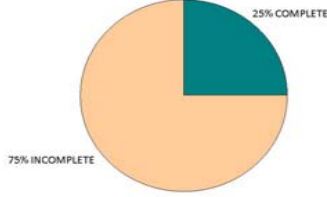
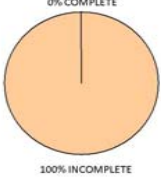
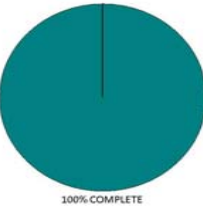
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|--|-------------------------------|--|--|----------|---|--|
| G1.04 | Legal - permitting processes | Analyze the state and federal permitting process and other state and federal agency policies and procedures for marine renewable energy projects. Highlight legal and policy challenges and solutions for implementing renewable energy in Rhode Island. | Document that describes this information and provides recommendations. | Feb-09 | |  <p>0% COMPLETE 100% INCOMPLETE</p> |
| G1.04 | Legal - relevant issues. | Provide legal research and analysis of ocean zoning and other relevant issues including commercial and recreational fisheries to support the development of policies and regulations for the SAMP. | | Feb-09 | <ul style="list-style-type: none"> Students initiating research CRMC counsel Brian Goldmen leads legal task force and oversees legal work |  <p>20% COMPLETE 80% INCOMPLETE</p> |
| Goal 2. Identify best practices and strategies for overcoming obstacles in planning, policy, and implementation of marine renewable energy that can be transferred to the Ocean SAMP initiative based on a comparative assessment of lessons learned from other initiatives in the United States and worldwide. Evaluate what works and what does not work in the Ocean SAMP initiative so that this model effort can be used as a case study for future efforts. | | | | | | |
| G2 | Comparative policy assessment | Compare and contrast experience and lessons learned from other initiatives in the United States and worldwide with the aim of capturing good practices transferable to Rhode Island. | Comparative assessment report . | May-09 | <ul style="list-style-type: none"> Framework established and information being collected |  <p>10% COMPLETE 90% INCOMPLETE</p> |

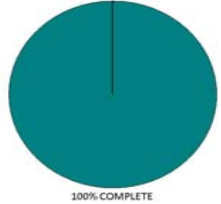
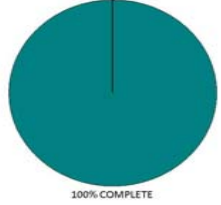
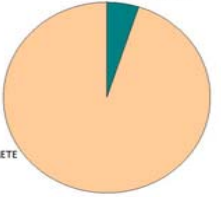
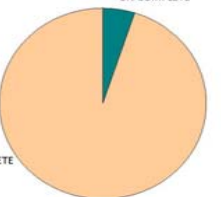
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|---|---|---|---|----------|---|---|
| G2 | Best practices assessment | Articulate the principles and strategies of the Ocean SAMP and summarize key outcomes so that the project leaves behind for others a case study to learn from. | Summative assessment report. | Apr-10 | <ul style="list-style-type: none"> Principles draft and being reviewed internally |  <p>20% COMPLETE 80% INCOMPLETE</p> |
| Goal 3. Engage a well informed and well represented constituency that understands the Ocean SAMP issues and is involved in the creation of the Ocean SAMP. | | | | | | |
| Objective 1: Develop a formal process to ensure that all stakeholders and citizens have an opportunity to engage in the process. | | | | | | |
| G3.01 | Establish and facilitate the Ocean SAMP stakeholder working group | Convene a committee that represents key community and civic organizations in the state to: 1) Ensure a wide range of stakeholders reflecting Rhode Island's diverse ethnic and economic backgrounds participate in SAMP dialogue. | Periodic meetings for present information and hear responses. | ongoing | <ul style="list-style-type: none"> Meetings held on Oct 29, Dec 2. Approx. 60 – 80 participants at each event. |  <p>25% COMPLETE 75% INCOMPLETE</p> |
| G3.01 | Engage CRMC into the process | Ensure that CRMC members are informed of progress and opportunities for input. | Meetings | Ongoing | <ul style="list-style-type: none"> Subcommittee established. First meeting to take place in January 2009 |  <p>100% COMPLETE</p> |

| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|---|--|----------|----------|--|---|
| G3.01 | Organize and facilitate a Science Task Force Advisory Committee | Provide expertise and input specific to the science and research-based aspects of the Ocean SAMP effort. | | Ongoing | <ul style="list-style-type: none"> • Dr. Scott Nixon and Dr. Carlton Hunt become chairs of the task force. • Committee organized |  <p>A pie chart with a small teal slice representing 5% complete and a large orange slice representing 95% incomplete.</p> |
| G3.01 | Organize and facilitate a Legal Task Force Advisory Committee | Provide SAMP team with legal advice on possible SAMP policies and regulations and an understanding of the existing federal, regional and state policies related to SAMP issues. Oversee all legal research for the SAMP. | | Ongoing | <ul style="list-style-type: none"> • Brian Goldman, Esq., is chair of the task force • Committee organized |  <p>A pie chart with a small teal slice representing 5% complete and a large orange slice representing 95% incomplete.</p> |
| G3.01 | Special meetings with key stakeholders | Meet with key RI leaders to explain the SAMP process and input | Meetings | Ongoing | <ul style="list-style-type: none"> • Meetings with municipalities and fishermen |  <p>A pie chart with a teal slice representing 25% complete and an orange slice representing 75% incomplete.</p> |

| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|--|-----------------|---|--------------|----------|---|---|
| G3.01 | MOU signing | State & Federal leaders to convene and formally kick off the SAMP effort. | Public Event | Sep-08 | <ul style="list-style-type: none"> Completed |  <p>100% COMPLETE</p> |
| Objective 2: Organize and/or support existing events that offer project team and stakeholders an opportunity to better understand issues including ocean zoning, impacts of renewable energy activities on existing human activities and natural features and other related topics. | | | | | | |
| G3.02 | Baird Symposium | “Sound Connections: The Science of Rhode Island and Block Island Sounds” The meeting will focus on Block Island Sound and Rhode Island Sound and their interfaces with waters to their north, south, east, and west. The symposium will explore the physical oceanography and living marine environments of the Sounds region, ecological trends, ocean-atmosphere interactions, and the geological landscape of the area. Both observational and model results will be included. | Proceedings | Oct-08 | <ul style="list-style-type: none"> Proceedings being developed |  <p>25% INCOMPLETE 75% COMPLETE</p> |

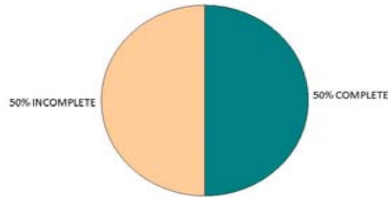
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|--|---|---------------------------------------|----------|--|---|
| G3.02 | Roger Williams University Marine Law Symposium | This two-day Symposium will explore means to achieve a viable marine renewable energy industry for the United States with a focus on offshore wind, hydrokinetics (wave, current and tidal), and ocean thermal energy conversion. Its panels will discuss a range of solutions for the nascent U.S. marine renewable energy sector's current legal, economic and policy challenges. | Roger Williams Law Review Publication | Oct-08 | <ul style="list-style-type: none"> • Proceedings being developed |  <p>25% INCOMPLETE 75% COMPLETE</p> |
| G3.02 | RINHS monthly events | | | Ongoing | <ul style="list-style-type: none"> • Two public informational events were held on October 2 and November 19 |  <p>50% INCOMPLETE 50% COMPLETE</p> |
| G3.02 | RINHS conference. | The Rhode Island Natural History Survey's conferences provide the state's environmental and life scientists with a forum to discuss key issues related to the state's biota and habitats. In addition to scientists, the conferences are attended by policy-makers, land managers, representatives from nonprofit organizations, amateur naturalists, educators, students, and interested citizens. | | Mar-09 | <ul style="list-style-type: none"> • Being planned for April 23rd |  <p>5% COMPLETE 95% INCOMPLETE</p> |

| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|---|---|---|---------|----------|--|---|
| G3.02 | Newspaper series | That introduces key SAMP issues and describes SAMP progress | | Ongoing | • Ocean SAMP articles |  <p>A pie chart with a teal slice representing 25% complete and an orange slice representing 75% incomplete.</p> |
| G3.02 | Develop articles on SAMP for 41 north | | | Apr-09 | |  <p>A pie chart that is entirely orange, representing 100% incomplete and 0% complete.</p> |
| Objective 3: Develop communication tools that will provide up-to date information for all interested citizens and interest groups. | | | | | | |
| G3.03 | Develop project web site, phone, e-mail | | | Jul-08 | • More than 775 hits to web site for this period |  <p>A pie chart that is entirely teal, representing 100% complete.</p> |

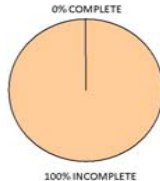
| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|--|----------|---------|----------|---|---|
| G3.03 | Develop project fact sheet | | | Aug-08 | <ul style="list-style-type: none"> Completed and being distributed |  <p>100% COMPLETE</p> |
| G3.03 | Establish external listserve/mailling list | | | Aug-08 | <ul style="list-style-type: none"> More than 310 members with 151 users requesting signup during this time period. |  <p>100% COMPLETE</p> |
| G3.03 | Ferry display | | | Apr-09 | <ul style="list-style-type: none"> Researching possibilities |  <p>5% COMPLETE 95% INCOMPLETE</p> |
| G3.03 | Create a ferry display | | | Apr-09 | <ul style="list-style-type: none"> Researching possibilities |  <p>5% COMPLETE 95% INCOMPLETE</p> |

Goal 4: Develop a SAMP for Rhode Island's Coastal waters that serves as a tool to encourage regulatory and management coordination and consistency among Rhode Island state agencies (CRMC, OER, DEM), federal agencies (U.S. Department of Energy, ACOE, MMS, and the U.S. Federal Energy Regulatory Commission), neighboring states (MA, CT) and other public entities, developers, and environmentalists within this project area.



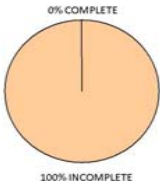
Objective 1: Develop siting criteria that will serve as a mechanism to promote the identification of appropriate sites for the installation of permanent structures.





| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|--|---|---------|----------|---|---|
| G4.01 | Develop characteristics or performance measures for the Ocean SAMP | Based on the revised wind farm site screening analysis (Spaulding) and the information collected and created by the Ocean SAMP effort, develop the criteria to guide CRMC and others to identify appropriate locations for siting wind farm activities. This will build on work developed for the ATM study. Physical and biological characteristics include those necessary for the installation of structures, including structures that support alternative energy activities. Characteristics would also include locations where these structures would not be appropriate (e.g. inside | | Jul-09 | <ul style="list-style-type: none"> In process based on information listed above. Draft will be available in February/March 2009 |  |

Objective 2: Develop new policies and procedures for renewable energy activities

| | | | | | | |
|-------|-------------------------------------|--|--|--------|--|---|
| G4.02 | Develop new policies and procedures | Based on the results and learning from all other aspects of this project, develop policies and procedures for the construction, operation and decommissioning of renewable infrastructure. | | Jul-10 | |  |
|-------|-------------------------------------|--|--|--------|--|---|

Objective 3: Develop the SAMP document as described in the Ocean SAMP outline

| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|---|--|-------------|------------------------|-----------------------|---|
| G4.03 | Develop the executive summary | Summarize the SAMP document | Section 100 | June 2010 June 2009 | |  |
| G4.03 | Develop the introduction | Describe the intent and purpose, project boundary, and how the SAMP will be used | Section 200 | | |  |
| G4.03 | Summarize the existing conditions section | Present this information, highlighting fisheries (likely its own chapter). This section will present an overview of the existing natural features and human activities. Aspects that make this a high energy system and its unique qualities will be highlighted | Section 300 | Nov-10 | |  |

| Goal Obj. | Task | Activity | Outcome | End Date | Progress this quarter | Percentage Complete |
|-----------|--|---|-------------|----------|-----------------------|--|
| G4.03 | Summarize existing policies | Discuss CRMC's policies/procedures, etc. | Section 400 | Nov-10 | |  <p>0% COMPLETE 100% INCOMPLETE</p> |
| G4.03 | Summarize renewable energy activities | Describe renewable energy activity, including the physical process constructing, operation, and decommissioning renewable energy infrastructure, existing/proposed technologies, siting requirements and potential impacts, as well as lessons learned elsewhere. | Section 500 | Nov-10 | |  <p>0% COMPLETE 100% INCOMPLETE</p> |
| G4.03 | Present sites and new policies | This includes state, federal, interstate policies and procedures for the construction, operation, and decommissioning of renewable infrastructure | Section 600 | Jun-10 | |  <p>0% COMPLETE 100% INCOMPLETE</p> |
| G4.03 | Submit draft SAMP to CRMC formal process | | Section 500 | Jul-10 | |  <p>0% COMPLETE 100% INCOMPLETE</p> |

Financial Activities

Overview

The total expenditures for quarter two are \$327,272. Expenditures by quarter are presented below in *Figure 1. Quarterly & Cumulative Total All Projects*. An illustrative overview of spending is provided in *Figure 2. Expenditure Overview by Category in Dollars and Figure 3. Expenditure Overview by Category in Percent*. Funding for the work performed by ENDEAVOR on the Ocean SAMP this fall came directly from the RI Endeavor Program (http://www.gso.uri.edu/riep/p_description.html). Nominally, it was approximately a \$200,000 in-kind contribution.

Subawards

Each Ocean SAMP sub-award has been assigned an individual University of Rhode Island account. A summary of expenditures by subward is provided in *Figure 4. Summary of Project Expenditures Year 1*. Illustrative charts of each subwards expenses by category are offered in *Figure 5. URI Subward Cumulative Expenditures by Category*.

Figure 1. Quarterly & Cumulative Total All Projects

| OCEAN SAMP-QUARTERLY EXPENDITURE REPORT | | | | | | | | | | 12/31/2008 | | | | | | | |
|---|--|----------------|-------------|---------------|-------------|------------|-----------|---------------------|-----------------|----------------|------------------------|--------------------|----------------|--|--|--|--|
| CUMULATIVE TOTALS-All Projects | | BUDGET | QUARTER I | QUARTER II | QUARTER III | QUARTER IV | QUARTER V | Total Expenditures: | Fund Balance: | Budget | (not reported to date) | Total Expenditures | Fund Balance | | | | |
| Personnel: Staff | | \$561,584.00 | \$18,891.90 | \$116,852.57 | \$0.00 | \$0.00 | \$0.00 | \$135,744.47 | \$425,839.53 | \$561,584.00 | \$0.00 | \$135,744.47 | \$425,839.53 | | | | |
| Personnel: Students | | \$86,963.00 | \$10,757.28 | \$10,150.34 | \$0.00 | \$0.00 | \$0.00 | \$20,907.62 | \$66,055.38 | \$86,963.00 | \$0.00 | \$20,907.62 | \$66,055.38 | | | | |
| Fringe Benefits: | | \$216,091.00 | \$1,811.58 | \$41,941.64 | \$0.00 | \$0.00 | \$0.00 | \$43,753.22 | \$172,337.78 | \$216,091.00 | \$0.00 | \$43,753.22 | \$172,337.78 | | | | |
| Operating Expenses: | | \$162,377.00 | \$6,602.34 | \$59,846.57 | \$0.00 | \$0.00 | \$0.00 | \$66,448.91 | \$95,928.09 | \$162,377.00 | \$0.00 | \$66,448.91 | \$95,928.09 | | | | |
| Publications: | | \$28,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | \$28,000.00 | \$0.00 | \$0.00 | \$28,000.00 | | | | |
| Subcontracts: | | \$219,527.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$219,527.00 | \$219,527.00 | \$0.00 | \$0.00 | \$219,527.00 | | | | |
| Travel-In State Mileage: | | \$4,715.00 | \$41.54 | \$406.94 | \$0.00 | \$0.00 | \$0.00 | \$448.48 | \$4,266.52 | \$4,715.00 | \$0.00 | \$448.48 | \$4,266.52 | | | | |
| Travel-Out of State: | | \$16,955.00 | \$588.30 | \$6,521.94 | \$0.00 | \$0.00 | \$0.00 | \$7,110.24 | \$9,844.76 | \$16,955.00 | \$0.00 | \$7,110.24 | \$9,844.76 | | | | |
| Equipment: | | \$16,000.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$0.00 | | | | |
| Encumbrances: | | \$0.00 | \$6,943.13 | \$26,303.82 | \$0.00 | \$0.00 | \$0.00 | \$33,246.95 | (\$33,246.95) | \$0.00 | \$0.00 | \$33,246.95 | (\$33,246.95) | | | | |
| Indirect Costs: 25% | | \$287,784.00 | \$2,556.25 | \$49,248.60 | \$0.00 | \$0.00 | \$0.00 | \$51,804.85 | \$235,979.15 | \$287,784.00 | \$0.00 | \$51,804.85 | \$235,979.15 | | | | |
| Total OCEAN SAMP Project Expenditures | | \$1,599,996.00 | \$48,192.32 | \$ 327,272.42 | \$0.00 | \$0.00 | \$0.00 | \$375,464.74 | \$ 1,224,531.26 | \$1,599,996.00 | \$0.00 | \$375,464.74 | \$1,224,531.26 | | | | |

Figure 2. Expenditure Overview by Category in Dollars

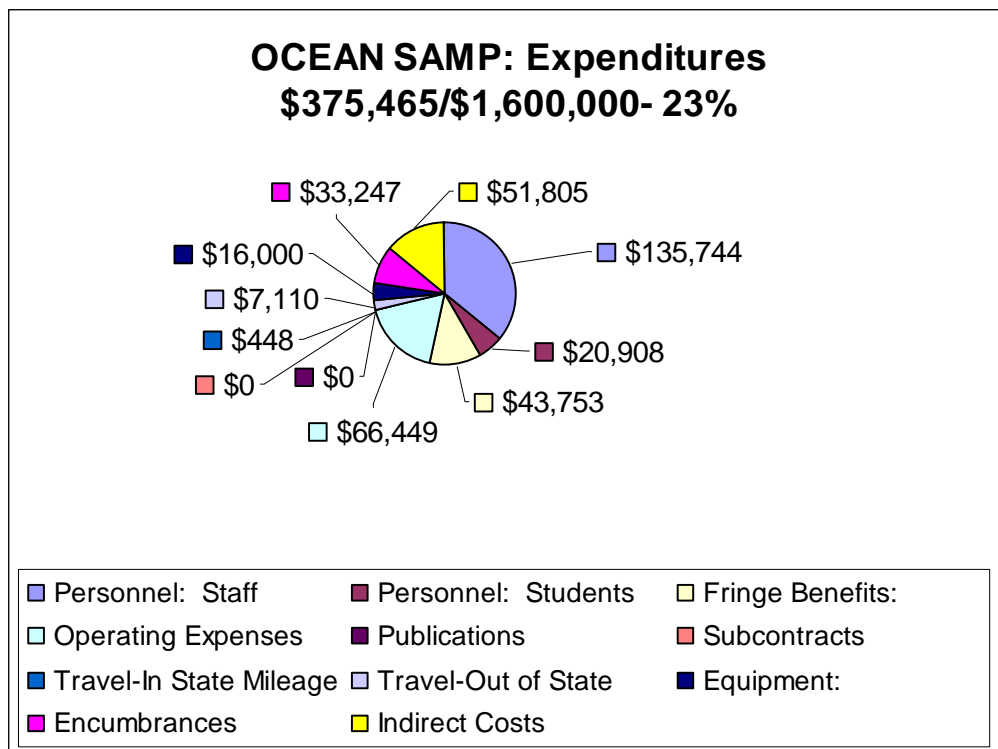


Figure 3. Expenditure Overview by Category in Percent

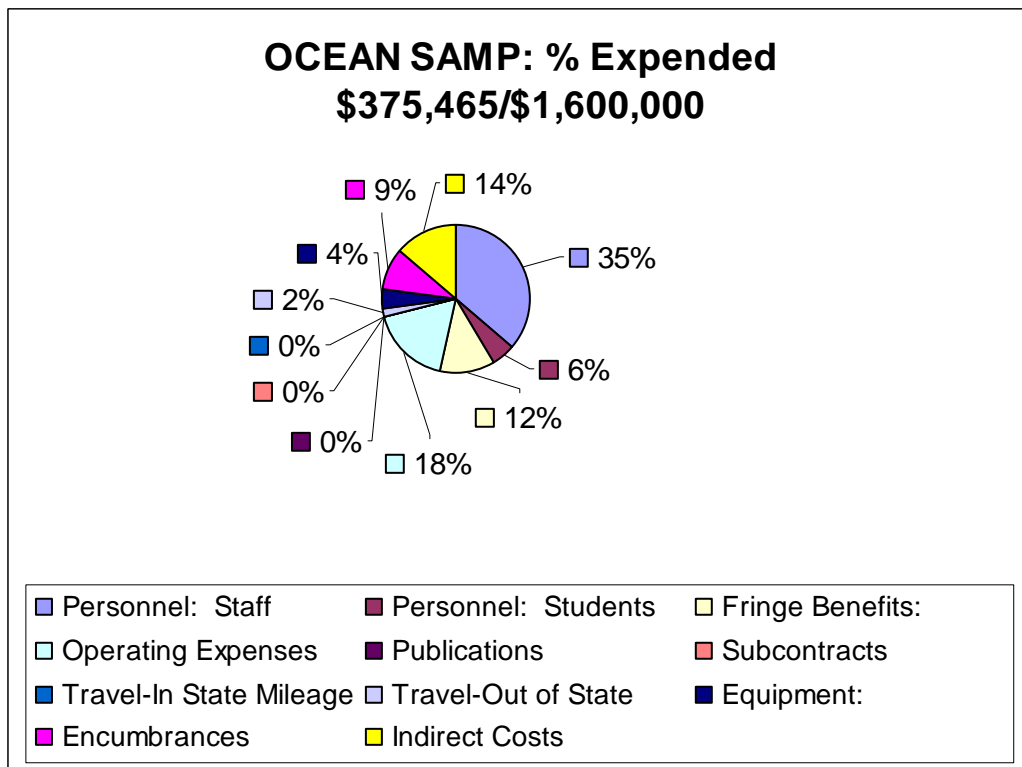
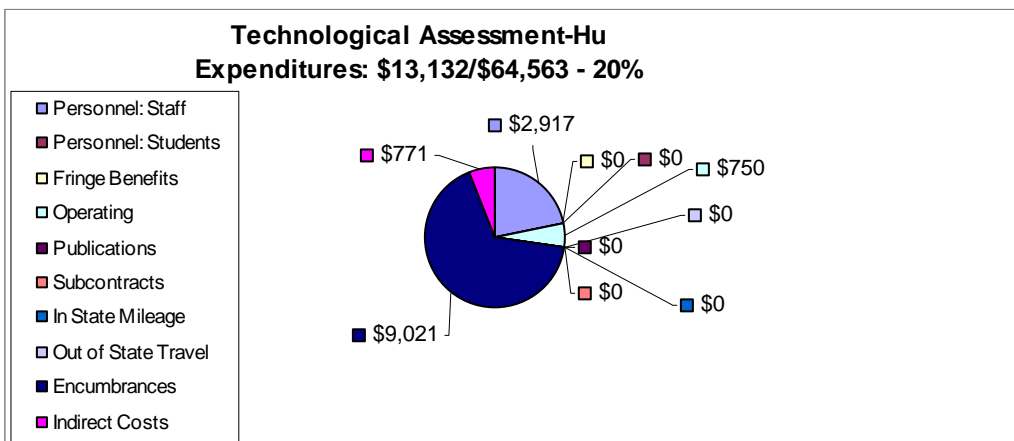
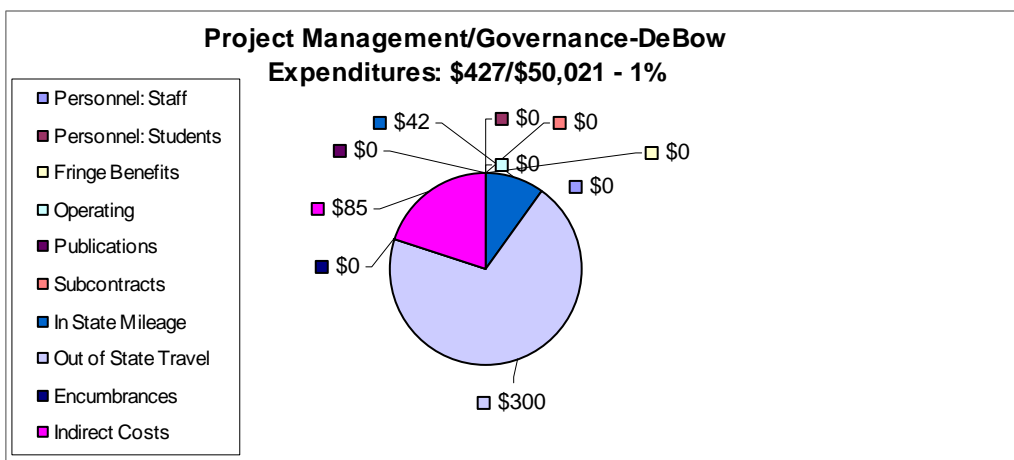
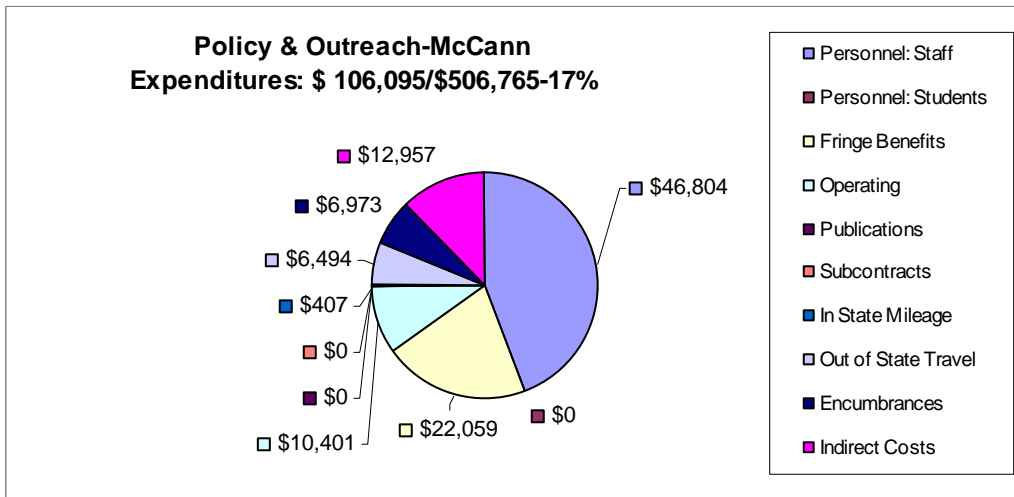


Figure 4. Summary of Project Expenditures Year 1

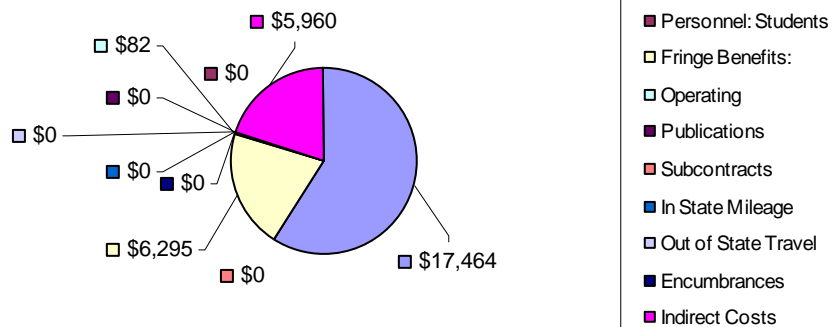
| QUARTERLY SUMMARY OF PROJECT EXPENDITURES December 31, 2008 University of Rhode Island OCEAN OFFSHORE SPECIAL AREA MANAGEMENT PLAN (SAMP) | | | | | | | | | | | | | |
|--|-----------------|------------------|-------------------|----------------|-----------------|----------------|---------------------|-----------------|-----------------|------------------------------------|--------------------|-----------------|--|
| Summary of Project Expenditures: YEAR I | Quarter | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | *Quarter 5 | | | CLOSE OUT | | | | |
| QUARTERLY SUMMARY | Period covered: | 8/01/08-09/30/08 | 10/01/08-12/31/09 | 1/1/09-3/31/09 | 4/01/09-6/30/09 | 7/1/09-7/31/09 | | | | | Project Period: | 8/01/08-7/31/09 | |
| Project PI's to CRC/GSO | Date Due: | Oct. 15th | Jan. 15th | Apr. 15th | July 15th | Aug 15th | | | PI's to CRC/GSO | | | 10/15/2009 | |
| CRC/GSO to CRMC | Date Due: | Nov 1st | Feb 1st | May 1st | Aug 1st | Sept 1st | | | CRC/GSO to CRMC | | | 11/1/2009 | |
| CRMC to RIEDC | Date Due: | Nov 15th | Feb 15th | May 15th | Aug 15th | Sept 15th | | | CRMC to RIEDC | | | 11/15/2009 | |
| Account Expenses | Budget | Expenses | Expenses | Expenses | Expenses | Expenses | Total Expenditures: | Fund Balance: | Budget | Current Activity (not reported to) | Total Expenditures | Fund Balance | |
| 1) Policy & Outreach Strategy-McCann | | | | | | | | | | | | | |
| Total Project Expenditures | \$ 612,859.50 | \$ 1,693.44 | \$ 104,401.63 | \$ 0.00 | \$ 0.00 | \$ 0.00 | \$106,095.07 | \$506,764.43 | \$612,859.50 | \$0.00 | \$106,095.07 | \$506,764.43 | |
| 2) Project Management/Governance-DeBow | | | | | | | | | | | | | |
| Total Project Expenditures | \$50,021.00 | \$51.93 | \$375.00 | \$0.00 | \$0.00 | \$0.00 | \$426.93 | \$49,594.07 | \$50,021.00 | \$0.00 | \$426.93 | \$49,594.07 | |
| 3) Tecnological Assessment- Hu | | | | | | | | | | | | | |
| Total Project Expenditures | \$64,563.00 | \$0.00 | \$13,458.16 | \$0.00 | \$0.00 | \$0.00 | \$13,458.16 | \$51,104.84 | \$64,563.00 | \$0.00 | \$13,458.16 | \$51,104.84 | |
| 4) Temperature & Salinity Review & Analysis-Codiga | | | | | | | | | | | | | |
| Total Project Expenditures | \$53,561.50 | \$0.00 | \$29,800.38 | \$0.00 | \$0.00 | \$0.00 | \$29,800.38 | \$23,761.12 | \$53,561.50 | \$0.00 | \$29,800.38 | \$23,761.12 | |
| 5) Sight Screening Mapping Study-Damon | | | | | | | | | | | | | |
| Total Project Expenditures | \$67,900.00 | \$2,364.09 | \$8,792.53 | \$0.00 | \$0.00 | \$0.00 | \$11,156.62 | \$56,743.38 | \$67,900.00 | \$0.00 | \$11,156.62 | \$56,743.38 | |
| 6) Marine Mammel Analysis-Kenney | | | | | | | | | | | | | |
| Total Project Expenditures | \$21,316.50 | \$2,104.19 | \$8,970.42 | \$0.00 | \$0.00 | \$0.00 | \$11,074.61 | \$10,241.89 | \$21,316.50 | \$0.00 | \$11,074.61 | \$10,241.89 | |
| 7) Geophysical, Geological, Biological & Transportation Analysis- King | | | | | | | | | | | | | |
| Total Project Expenditures | \$176,615.00 | \$7,550.25 | \$89,682.79 | \$0.00 | \$0.00 | \$0.00 | \$97,233.04 | \$79,381.96 | \$176,615.00 | \$0.00 | \$ 97,233.04 | \$79,381.96 | |
| 8) Wind, Storm Occurance & Precipitation Analysis-Merrill | | | | | | | | | | | | | |
| Total Project Expenditures | \$6,769.00 | \$3,119.21 | \$2,172.00 | \$0.00 | \$0.00 | \$0.00 | \$5,291.21 | \$1,477.79 | \$6,769.00 | \$0.00 | \$5,291.21 | \$1,477.79 | |
| 9) Accoustic Noise & Electromagnetic Effects Analysis-Miller | | | | | | | | | | | | | |
| Total Project Expenditures | \$73,473.00 | \$193.59 | \$21,783.76 | \$0.00 | \$0.00 | \$0.00 | \$21,977.35 | \$51,495.65 | \$73,473.00 | \$0.00 | \$21,977.35 | \$51,495.65 | |
| 10) Avian Study-Paton | | | | | | | | | | | | | |
| Total Project Expenditures | \$262,141.00 | \$0.00 | \$10,805.89 | \$0.00 | \$0.00 | \$0.00 | \$10,805.89 | \$251,335.11 | \$262,141.00 | \$0.00 | \$10,805.89 | \$251,335.11 | |
| 11) Wind Source, Wave and Storm Surge Characterization & Sight Analysis-Spaulding | | | | | | | | | | | | | |
| Total Project Expenditures | \$143,970.50 | \$31,099.46 | \$20,616.59 | \$0.00 | \$0.00 | \$0.00 | \$51,716.05 | \$92,254.45 | \$143,970.50 | \$0.00 | \$51,716.05 | \$92,254.45 | |
| 12) Ecosytems-Nixon | | | | | | | | | | | | | |
| Total Project Expenditures | \$ 66,806.00 | \$16.16 | \$16,413.27 | \$0.00 | \$0.00 | \$0.00 | \$16,429.43 | \$ 50,376.57 | \$ 66,806.00 | \$0.00 | \$16,429.43 | \$50,376.57 | |
| GRAND TOTAL-All Projects | \$ 1,599,996.00 | \$ 48,192.32 | \$ 327,272.42 | \$ - | \$ - | \$ - | \$ 375,464.74 | \$ 1,224,531.26 | \$ 1,599,996.00 | \$0.00 | \$ 375,464.74 | \$ 1,224,531.26 | |

Figure 5. URI Subward Cumulative Expenditures by Category.



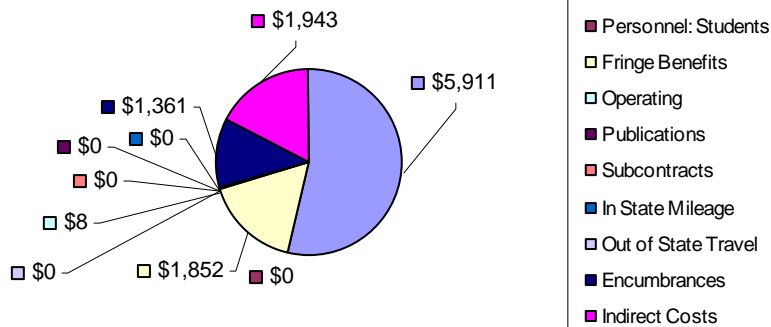
Temperature & Salinity Review & Analysis-Codiga

Expenditures: \$29,800/\$53,562 - 56%



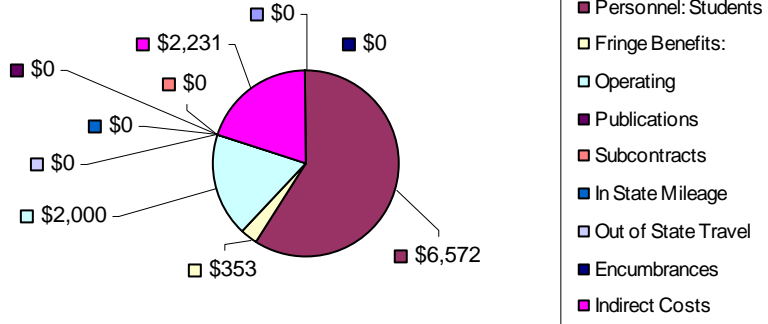
Marine Mammel Analysis-Kenney

Expenditures: \$11,075/\$21,317 - 52%

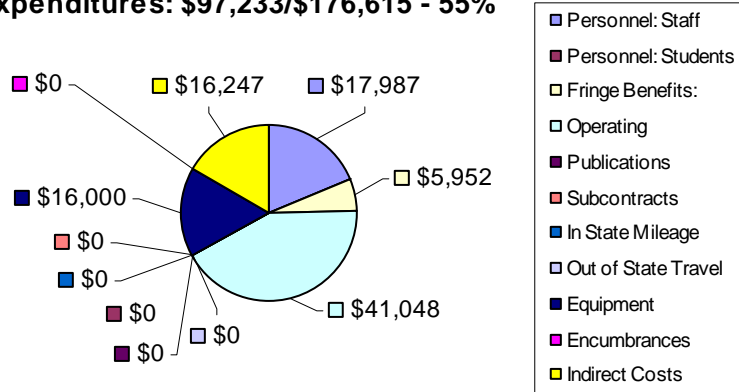


Sight Screening Mapping Study-Damon

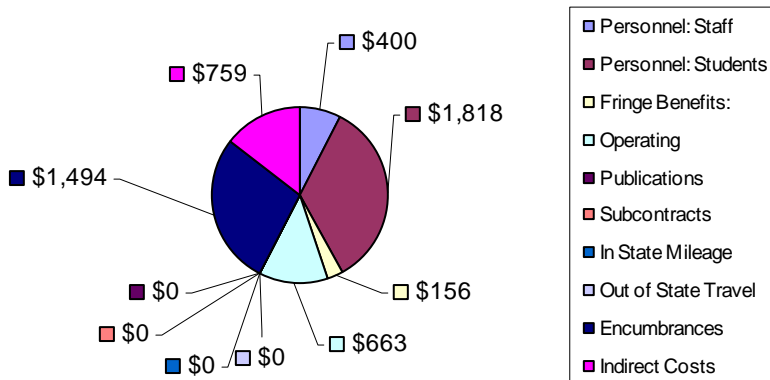
Expenditures: \$11,156/ \$67,900 - 16%



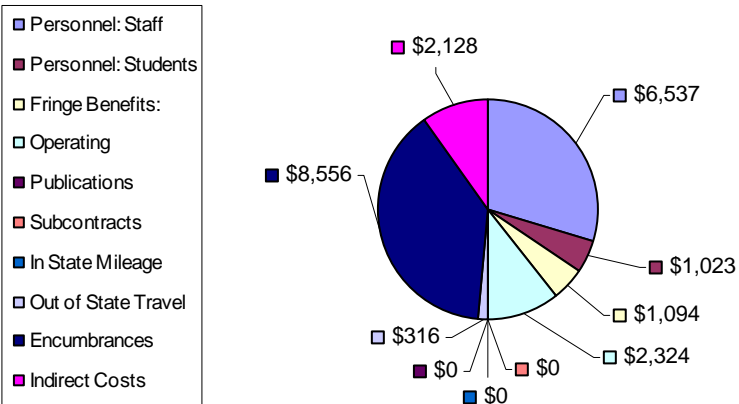
Geophysical, Geological, Biological & Transportation-King
Expenditures: \$97,233/\$176,615 - 55%

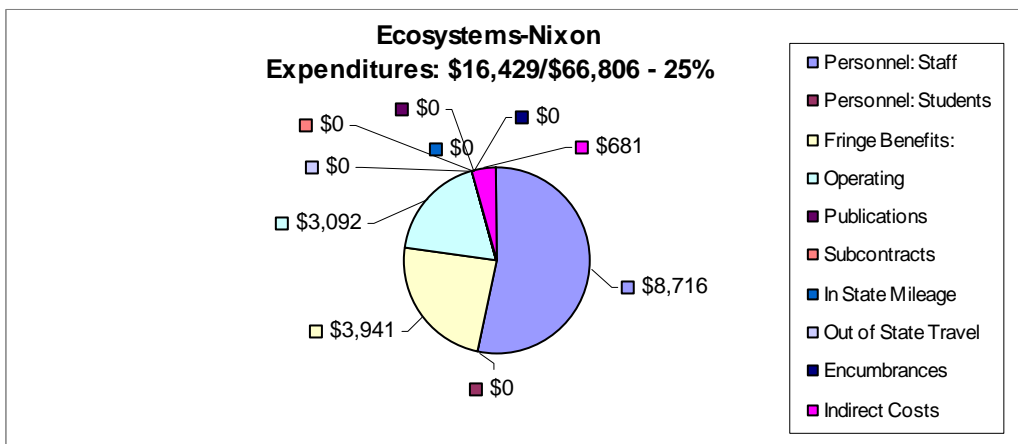
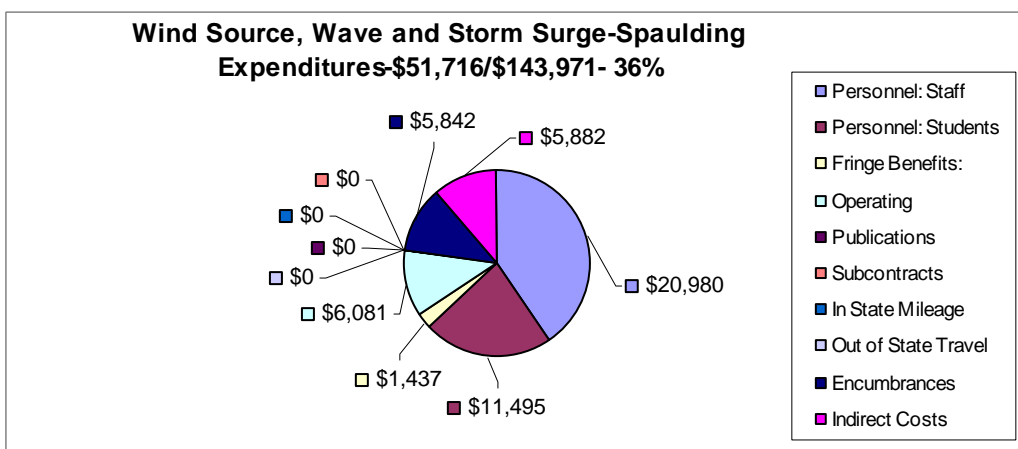
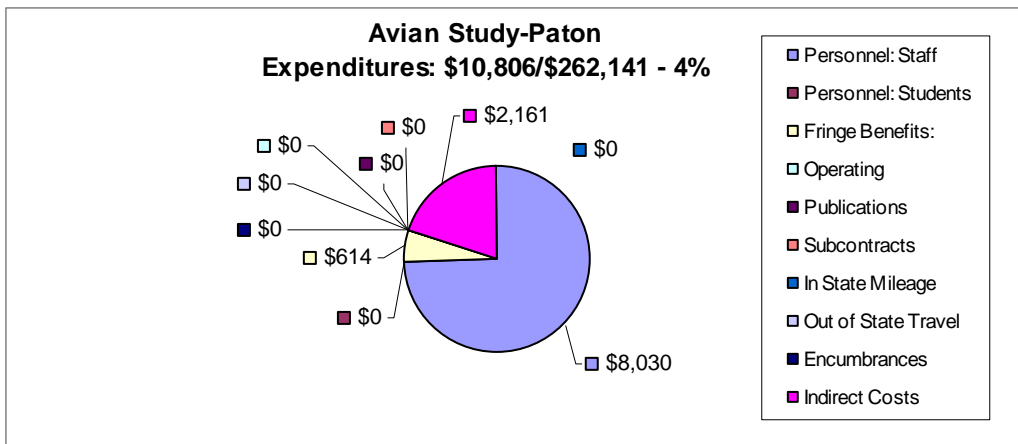


Wind, Storm Occurance & Precipitation Analysis-Merrill
Expenditures: \$5,291/\$6,769 - 78%



Accoustic Noise & Electromagnetic Effects Analysis-Miller
Expenditures: \$21,977/\$73,473 - 30%





Milestone 1

a: R/V Endeavor cruise report

RI Ocean SAMP Cruise Report

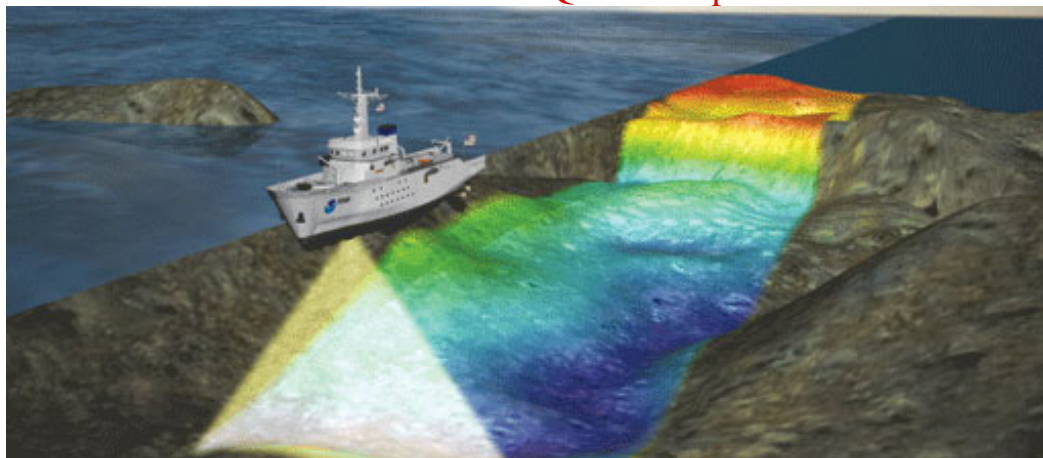
R/V Endeavor

Cruise EN 455



September 30 - October 10, 2008

*****Please refer to 1st Quarter Report for Cruise Plan*****



Introduction

In September and October of 2008, scientists from the University of Rhode Island conducted a 10 day geophysical survey in Block Island Sound in support of the development of the Rhode Island Coastal Resources Management Council's (CRMC) Ocean Special Area Management Plan (Ocean SAMP). The R/V Endeavor, owned by the National Science Foundation and operated by the University of Rhode Island, was funded by the RI Endeavor Program (RIEP) for this cruise. The purpose of RIEP is to provide Rhode Islanders with direct access to the scientific research and educational capabilities of an ocean-going research vessel.

In an effort to best utilize the limited research vessel time and equipment assets, an initial "first order," screening of sites that can not support additional uses such as transportation channels or known marine resources was conducted. The next part of the initial screen is determining which site that may have suitable characteristics for renewable energy technologies that are prevalent in other parts of the world. This initial screening activity revealed potential areas for renewable energy and required additional information in order to make science based management decisions. The additional information deemed necessary to determine the potential for wind power generation structures include high resolution bathymetry, side-scan sonar data and sub-bottom data.

Methods:

Sonar System Installation

The Teledyne Benthos C3D-LPM system acquired the high resolution imagery and wide swath bathymetric data discussed previously. The system is designed to mount to a standard 3-inch pipe flange, mounting bracket and comes equipped with a streamlined cover for the pole mount. The system was set to a 100m range setting which utilizes a dual channel (port and starboard) simultaneous ping rate of 7.5 Hz. At a survey speed of five knots, this provides an acoustic pulse output once for every 33 cm of forward vessel motion. Sounding solutions are calculated once for every five centimeters in slant range. Combined with the 7.5Hz ping rate and the forward vessel motion, the C3D can produce data with a sounding density that can exceed 50 points per square meter.

Motion Data

Motion data was collected using the TSS Dynamic Motion Sensor (DMS-05). The DMS-05 is a small, portable system for measuring the vertical displacement (heave) and attitude (roll/pitch) of a vessel or platform when no stationary reference is available. It contains three linear accelerometers and three vibrating structural gyroscopes, mounted in an orthogonal array. The DMS-05 was fix mounted to the deck of the ship in the data acquisition and processing lab, 2 centimeters port of the centerline of the ship. The accuracy is on the order of 0.1 degree and dynamic pitch and roll accuracies are on the order of 0.02 degree. The "offsets" from the positioning system to the various data acquisition sensors was measured and checked a number of times.

Sound Velocity

Sound Velocity measurements and casts were acquired with Sea-Bird 911 CTD with dual conductivity and temperature controls. The SBE 911 CTD produces profiles of ocean temperature, salinity, and density at the highest possible absolute accuracy. The unit on board consists of the 9 plus underwater CTD and 11 plus V2 Deck Unit. This unit is a premium real-time CTD accurate to the highest international standards. It features high resolution sampling (24 Hz), pump-controlled T-C ducted flow, up to 10500 meter (15,000 psia) depth capability, maximum auxiliary sensor flexibility, and modem channel for Water Sampler control. The 911 plus has eight 12-bit A/D channels, and supports redundant C&T sensors or custom auxiliary digital inputs.

Data Acquisition

Differential Global Positioning System (DGPS) positions were logged during the survey using data collected from a GPS with differential corrections received from a local Coast Guard radio beacon. The Tidal variations were logged at six minute intervals and downloaded from the primary NOAA tide gage at Montauk, NY (Station ID: 8510560) and accurate to 0.01m. All DGPS position data was acquired at a rate of 5Hz with positions recorded in the Triton Isis acquisition software with simultaneous DGPS position data logging in Hypack Hydrographic Survey Software. All survey lines were run between 4 and 6 knots.

Survey Operations

The survey operation was planned with an approximate minimum depth assumption of fifteen meters and anticipated swath coverage of 10x altitude. The charted survey area and lines were planned at 100 meter intervals using Hypack Survey Software. The weather conditions for the data acquisition ranged from seas of 1 foot or less and calm winds to seas of 5 – 6 feet and winds 15 – 20 knots with gusts up to 30 knots.

Data Processing

The raw side-scan data (and accompanying inferred bathymetry data) was recorded in XTF file format. The raw sub-bottom data is in SEG Y file format. For both side-scan and sub-bottom, all data were saved to the respective acquisition computer. A duplicate copy of each raw dataset was stored on an external portable hard drive (Lacie, 500 GB). All processed data was stored and backed up on individual external portable hard drives (Lacie, 500 GB).

All survey data were processed using CARIS HIPS & SIPS and Cleansweep software from Oceanic Imaging Consultants. This software was chosen for its ability to view all data parameters co-registered across the display. This allowed for easier interpretation of the data and the real-time effects due to environmental conditions during the survey. Cleansweep was also chosen for its ability to seamlessly switch between imagery and bathymetry in the same view. It also has a unique automated motion latency calculator, which compares the roll motion data to slopes computed from the acquired bathymetry and finds the best correlation between the two parameters for a latency value used to correct the bathymetry data for platform motion.

The raw bathymetry data was processed to IHO (International Hydrographic Organization) S-44 Special Order Standard. This order allows for error margins no greater than 0.2500m (a, the constant depth error) and 0.0075m (b, the factor of depth dependent error). The data displayed on the western most end of the survey area is slightly distorted due to sea-state. The final bathymetry map exhibits small gaps. The lack of data in these most of these areas is a result of

deviating from planned course to avoid vessel traffic. Gaps in the northeast corner of the western part of the survey area are due to processing data at 4.5 times the nadir depth, in order to preserve data quality.

Avian Observations

Avian and mammal observations were conducted throughout the cruise. There were no mammals observed during the cruise but avian observations were conducted on the same transects that were run for bottom mapping. The avian observations were ten minute surveys recorded every thirty minutes. Objectives of avian observations were to record avian abundance, density, flight elevations and flight paths. Common species seen during the cruise included herring gulls, greater black back gulls and northern gannets. There were a number of other species migrating through the study area, including passerine species, common loon, white wing scoter and peregrine falcons. The main reason for completing these types of observations is to gauge what type of impact the wind turbines will have on birds. Overall this cruise was successful for avian observations. Further studies will need to be conducted because one of the most important factors in avian migration and foraging is temperature. Studies will need to be carried out throughout different times of the year to get a better idea on how the turbines could affect birds. A more detailed summary is in Appendix A.

Acoustic Moorings

Acoustic buoys were deployed to measure the ambient underwater noise. These data are being acquired with Passive Aquatic Listeners (PALs) that were developed and acquired from Applied Physics Laboratory, University of Washington. This system was deployed and communications from the ship was verified to insure proper functioning of the Listeners. The buoys will remain anchored to the bottom for approximately a month and retrieved by another vessel. The PALs wake up every 3 minutes for 5 seconds to record the ambient noise spectra. In addition, unusual signals will be recorded in high fidelity for further investigation. The range of frequencies the PAL record are 200 Hz to 50000 Hz.



Figure 1 : Deploying acoustic mooring

Cruise Results:

Results Summary:

700 Miles of Survey Lines

45 Square Miles of Survey Area

140 Hours of Active Data Acquisition.

Data Totals:

Raw sub-bottom data = 45 GB

Raw C3D data = 217 GB

Processed sub-bottom data = 1 GB

Processed C3D data = 532 GB

All Cruise data, including associated files totals 807 GB

18 Conductivity -Temperature-Depth (CTD) casts

90 Water Quality Samples

2 Acoustic Buoys were deployed:

Mooring #1 41 07.911N 071 33.590 W

Mooring #2 41 06.730 N 071 39.488 W

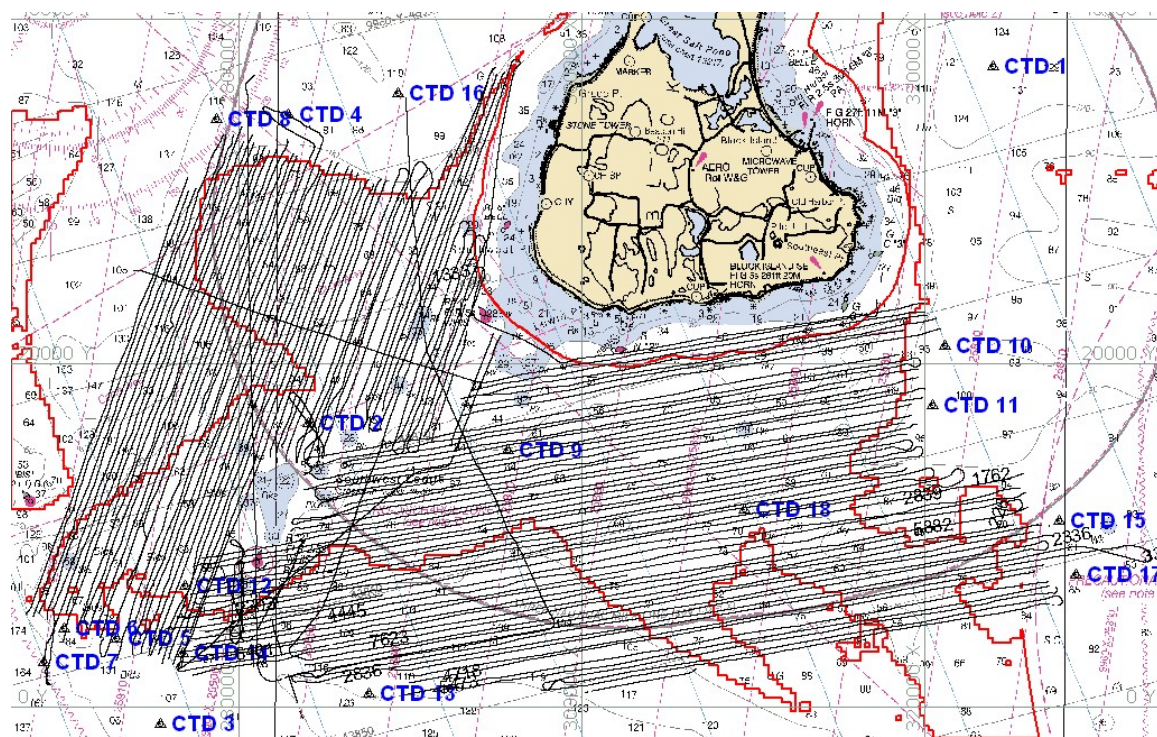


Figure 2: Chart of waters south of Block Island. Track lines were planned using Hypack paths to investigate the seafloor in a systematic fashion.

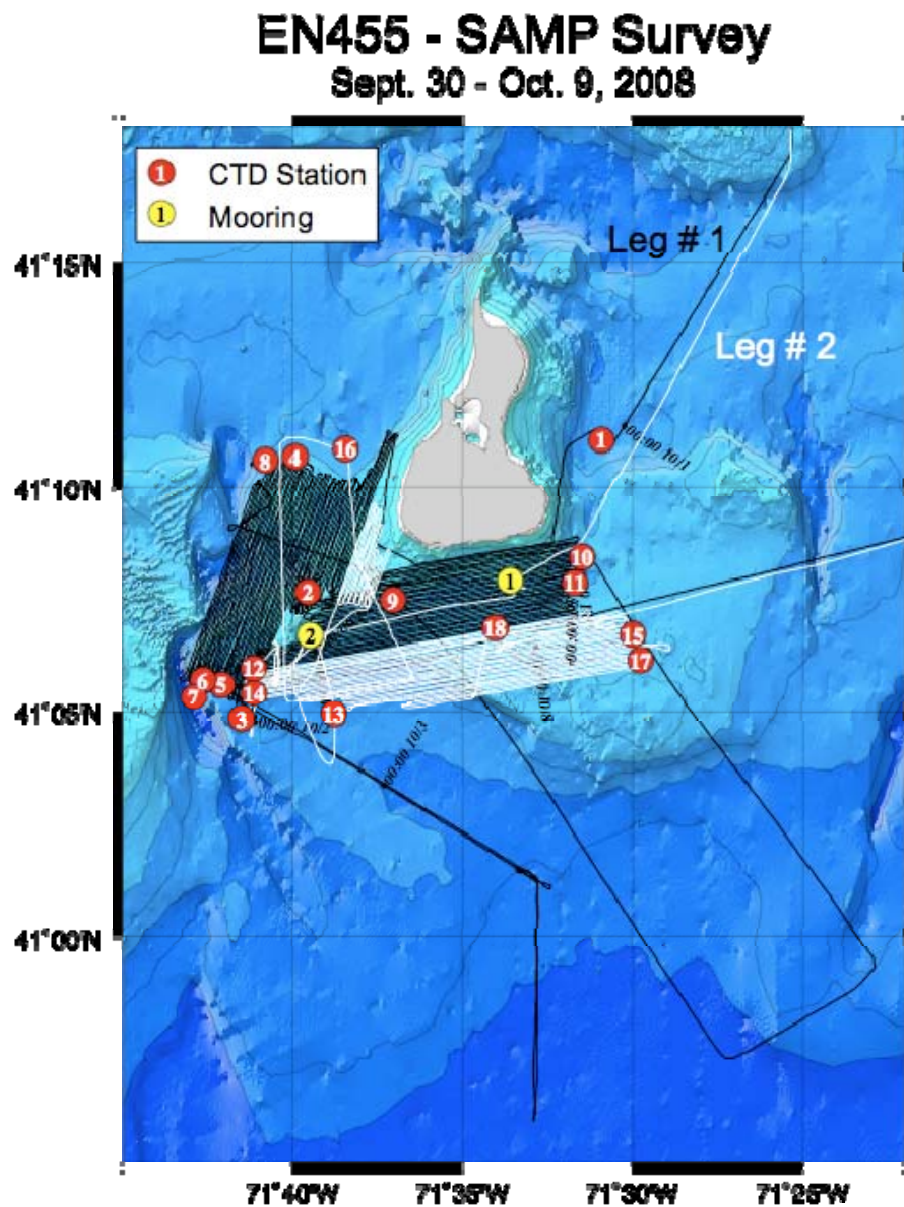


Figure 3: Red dots with numbers indicate CTD measurement locations. Black lines are the transects that were run for seafloor data collections.

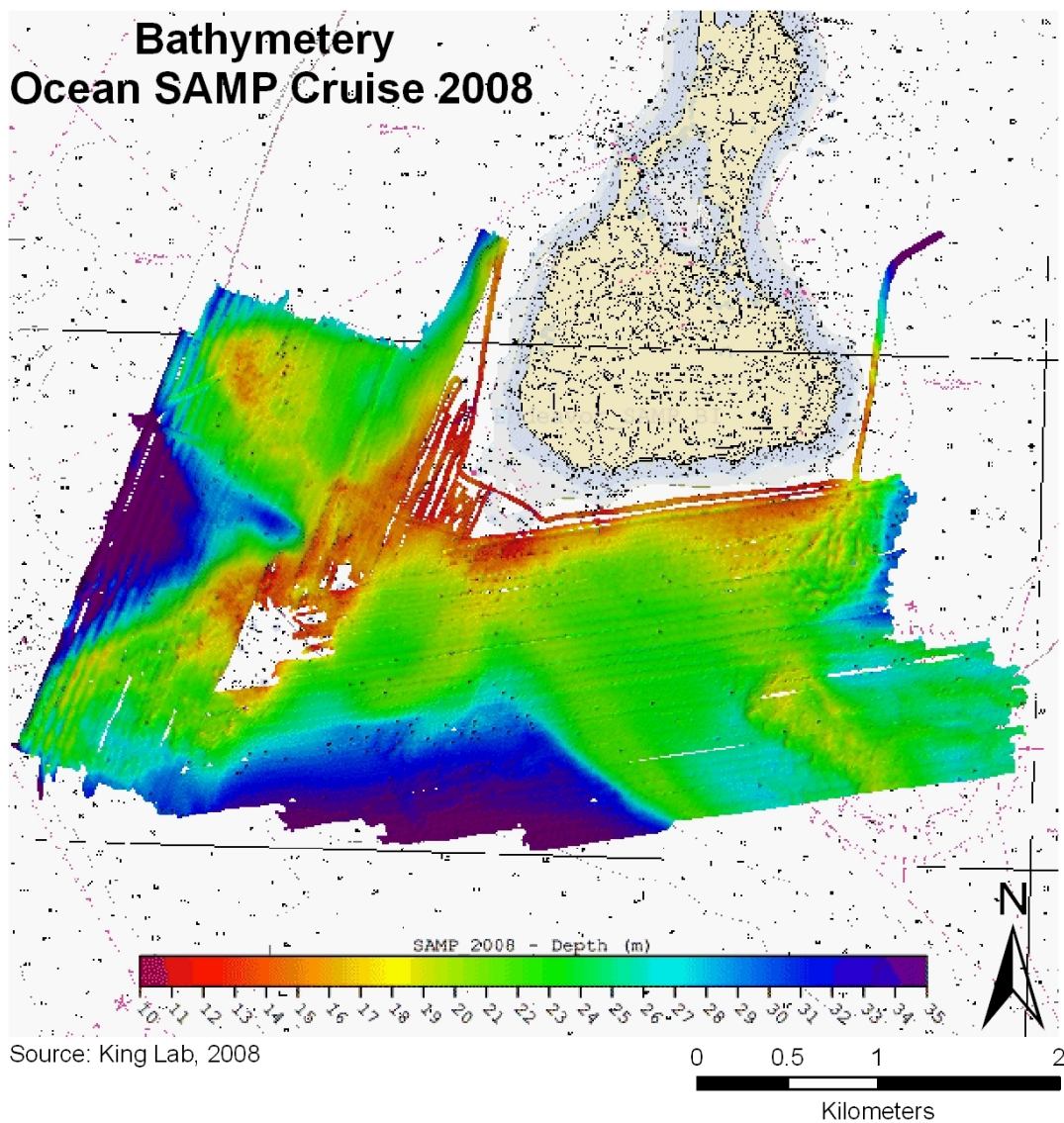


Figure 4: Shows mapped high resolution bathymetry for southwest ledge and southern waters of Block Island.

An interesting piece of data was collected while in route to a routine waste dumping outside of the 12 mile minimum range. A bathymetric mosaic of an sunken submarine was put together to in an effort to “test” the side scan sonar.

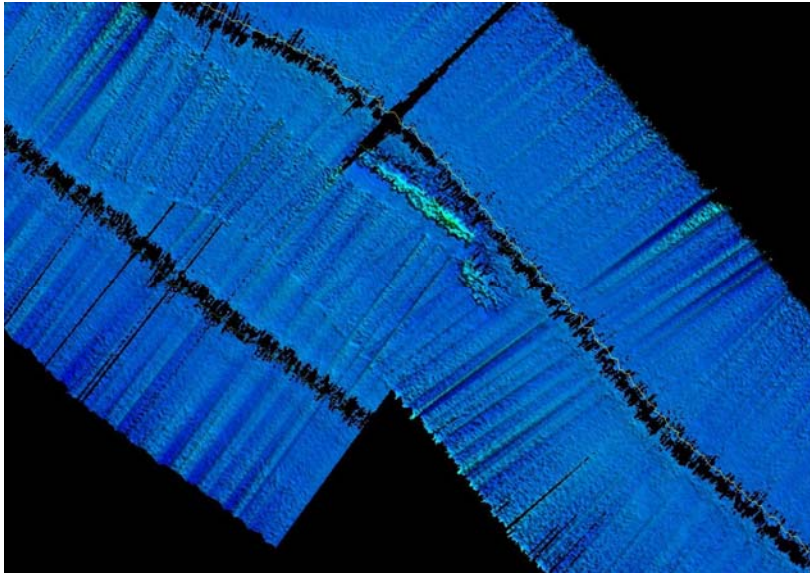


Figure 5: Detailed bathymetry of USS Bass while in transit for waste dump.

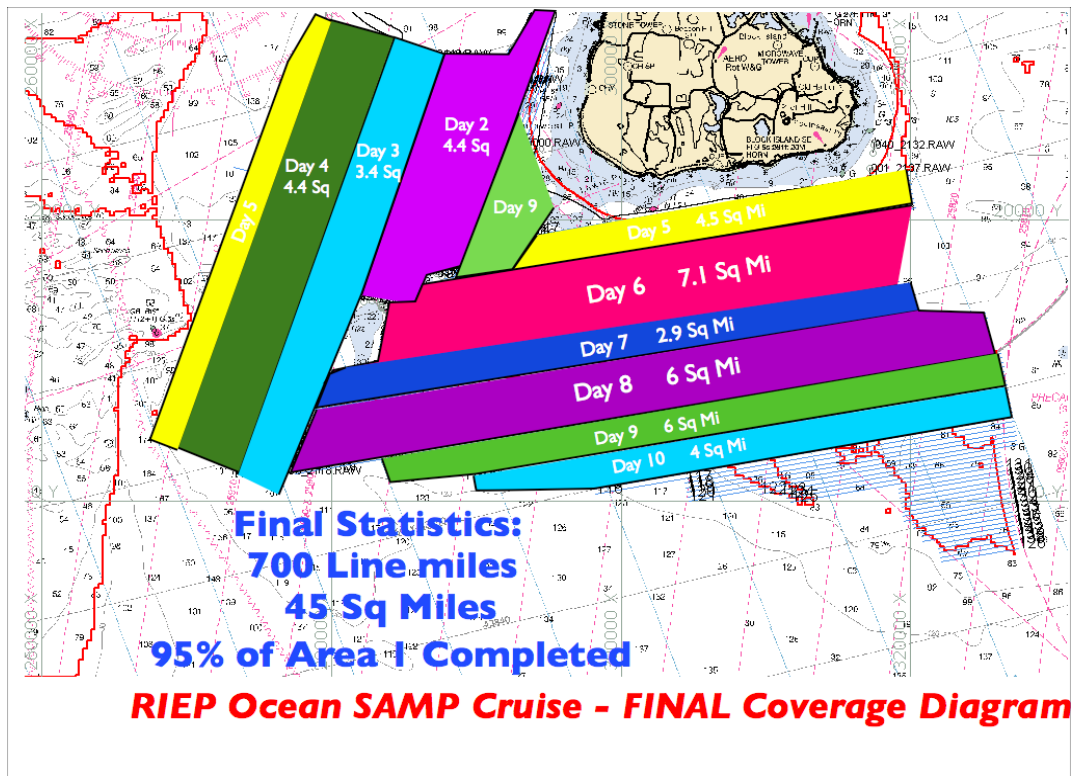


Figure 6: Daily coverage plot .

**RI Ocean SAMP Cruise Report
R/V Endeavor
Cruise EN 455**

Appendix A

October Endeavor Seabird Cruise
Kris Winiarski
URI College of Environmental and Life Sciences
October 1-5, 2008
URI Endeavor Seabird Survey

Protocol

- 1 . Surveys were conducted using the strip transect observation method (300m on one side of ship) with “snapshot” scans (300m on both sides ahead of ship). The strip transect survey technique allowed for estimations of bird density in the study area, while “snapshot” scans allowed for an opportunity to census birds outside of survey intervals.
- 2 . Strip transect surveys were performed in 10 minute intervals every 30 minutes. The 300m transect was broken up into 4 observation sections (<50m, 50-100m, 100-200m, 200-300m, >300m). Only distance from observer was recorded for individuals on the water. This approach allowed for an estimate of detection probability of different species from observer. Flight elevation was recorded for flying individuals within the 300m transect. Distance techniques cannot be used to calculate detection probabilities on birds in flight, so counts of flying individuals were only within the 300m transect and observation sections were ignored. Flight elevation were broken up into 4 elevation categories (<10m, 10-25m, 25-125m, >125m). Individuals hanging with the ship for more than two minutes were recorded to control for individuals attracted to the ship. Information such as fishing boats or floating debris, etc. attracting birds was also recorded.
- 3 . Surveys took place in 10 minute intervals, but time was recorded in 1-minute, 5 minute and 10 minute intervals to determine the best survey time intervals for future seabird surveys.
- 4 . “Snapshot” scans involved observations outside of survey intervals and included large flocks of birds or occurrences of rare species. For these surveys transect was recorded, along with time, species and number of individuals inside and outside the 300m transect. Snapshot scans were 360 degrees around the ship. Flight direction and elevation was also recorded for flying individuals.

Survey Rules and Details

- 1 . Surveys began when light levels allowed the observer to confidently see birds at 300m and ended at low light levels when birds could not be easily seen at 300m.
- 2 . Surveys were postponed if there was <200m visibility and if rough sea conditions prevented accurate observations (Not an issue on this trip).
- 3 . Observations were always completed with back to the sun for accurate species identification.
- 4 . Ship speed was ca. 4.7kts. Transects were ca. 4-5 kilometers long and ca. 100m apart.

Survey Summary

Species List

Common Loon

Northern Fulmar

Greater Shearwater

Double-crested Cormorant

Northern Gannet

Great Blue Heron

Atlantic Brant

Common Eider

White-winged Scoter

Black Scoter

Merlin

Peregrine Falcon

Red-necked Phalarope

Herring Gull

Greater Black-backed Gull

Ring-billed Gull

Laughing Gull

Mourning Dove

Belted Kingfisher

Northern Flicker

Golden-crowned kinglet

Yellow-rumped warbler

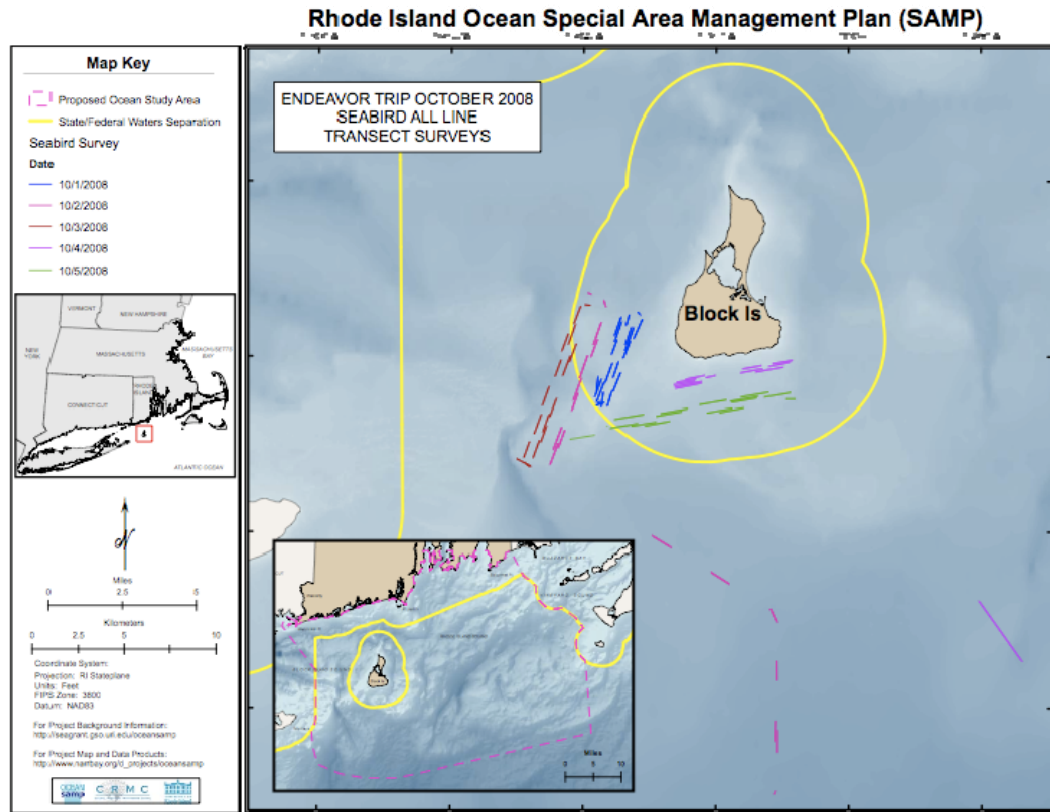
Nashville warbler

Eastern Meadowlark

Avian surveys were conducted on the south-west ledge of Block Island from 9/1/08-9/3/08 and then south of Block Island 9/4/08-9/5/08. A total of 24 species were observed in the study area. Common species found foraging included herring gulls, greater black-backed gulls, laughing gulls, ring-billed gulls and northern gannets. Many passerine species were also observed flying around the boat or landing on the boat. Dominate west winds during the survey apparently pushed these migrants offshore. Passerine individuals that landed on the boat

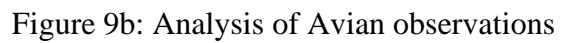
appeared exhausted. Peregrines were observed throughout the survey area and were seen feeding on small passerines they had caught over the ocean.

A number of larger migrants were also seen flying south through the survey area including; atlantic brant, white-winged scoter, double crested cormorant, common loon and great blue



heron.

Figure 9a: Analysis of Avian observations



Milestone 2

Status of Individual Research Efforts

1: Engineering Studies in support of the Ocean SAMP

Principal Investigator: Malcolm L. Spaulding, URI Graduate School of Oceanography, Ocean Engineering

Overall completion estimate: 55%

A. Wave, and storm surge characterization for RI coastal waters

1. Completed comparative analysis
2. Preparation of final report initiated

B. Marine transportation paths based on AIS data

1. Simulations of wave extreme wave environment off Block Island completed
2. Sensitivity study to grid size, storm surge and bathymetric data performed
3. Preparation of final report initiated

C. Revised wind farm site screening analysis (Phase II)

1. Extended Tier #1 screening analysis developed and implemented. Presentations to state and government officials and project participants.
2. Literature search to develop data base to support extended screening analysis

2: RI Wind Farm Structures/Foundations Study – Support Structures and Foundations for Offshore Wind Turbines

Principal Investigator(s) & Staff: Sau-Lon James Hu

Overall completion estimate: 30%

1. Performed a detailed literature review of monopile and jacket structures as they are used in offshore wind farms. Particular focus has been on selected case studies that are similar in terms of water depth and geology to the present study area.
2. Acquired the 3-D finite element package ANSYS, which is to be used for both static and dynamic analyses of the different structure/foundation systems. An ANSYS finite element model for a monopile support structure has been built, and an initial analysis of the monopile subjected to various wave conditions has been carried out.
3. Collected information on the effect of different systems (monopile, jacket) and environmental factors (water depth, depth to bedrock, sediment types) on relative costs.

3: RI Wind Farm Siting Study- Acoustic Noise and Electromagnetic Effects

Principal Investigator: James H. Miller, URI Graduate School of Oceanography, Ocean Engineering

Overall completion estimate: 10%

1. Perform a detailed analysis of the atmospheric noise conditions and underwater noise conditions presently existing in the candidate locations.

- Prepared moorings for Passive Acoustic Listener (PAL) deployments. Successfully deployed during R/V Endeavor cruise and later recovered PALs. Conducted initial data analysis

4: Characterizing Physical Oceanography of the Rhode Island Coastal Ocean

Principal Investigator:Dan Codiga, URI Graduate School of Oceanography

Overall completion estimate: 30%

1. Nearly fully completed the tasks related to literature search and the identification of previous observation/modeling studies.

2. Have tasks to acquire model outputs and this is presently underway. Have now completed the "seek out and obtain model outputs" component of the study.

5: Geospatial Data/Mapping Support for the RI Ocean SAMP

Principal Investigator:Christopher Damon, URI Natural Resource Science

Overall completion estimate: 20%

Consolidate geospatial data and metadata

- New data is added as it is received from the project PIs
- Any new data is checked to ensure that it has the required documentation
- Older data that was received without metadata has had the required documentation added

Work with scientists developing screening criteria

- Revised the Tier 1 analysis models to reflect potential changes wind turbine design
 - New depth ranges added for 5 – 50m and 5 – 60m
- Data created to assess potential visual impacts
 - Coastline buffers for 8, 10, 12, 15, and 20km
 - Re-ran the Tier 1 analysis using these coastline offsets
 - Mapped these results and saved as pdf documents
- Provide GIS data to PIs to assist with their work
 - Convert existing data to lat/long, convert to points, export as text files
 - Create glacial sediments layer through heads-up digitizing

Develop cartographic template

- Created map templates for use in ArcGIS 9.0—9.2 and a separate template for the newer ArcGIS 9.3 software

Prepare cartographic products in hardcopy/digital formats

- Map templates available via NARRBAY.org website
- Maps available via NARRBAY.org
 - General SAMP study area
 - Bathymetry

6: Marine Mammals and Sea Turtles Analysis

Principal Investigator: Robert D. Kenney, URI Graduate School of Oceanography

Overall completion estimate: 40%

Study Tasks:

1. The data are in hand, and most are ready for analysis and mapping.
2. An undergraduate work-study assistant was hired using Coastal Institute grant-in-aid funds to computerize five years of sighting data from the Frances Fleet whalewatching boats in Galilee—deciphering hand-written logs, entering the data into a spreadsheet, and converting all of the LORAN-C locations into latitude/longitude positions. That task is not quite complete; it is currently on hold during final exams but should be finished during the semester break.
3. Historical records from several sources (Smithsonian Institution, American Museum of Natural History, Harvard Museum of Comparative Zoology, older literature) were, as possible, geo-located using Google Earth to convert from descriptive locality information to latitude/longitude locations.
4. The dataset available in September was assembled and tabulated as a first cut at generating a species list and preliminary relative occurrence. A total of 40 marine mammal and sea turtle species has been recorded from the SAMP study area or nearby, including 30 cetaceans (10 common to abundant, 4 regular, and 16 rare or accidental), 5 seals (3 common, 1 regular, and 1 rare), 1 manatee (rare), and 4 turtles (1 common, 1 regular, and 2 rare).
5. Preliminary distribution maps of all species were prepared using the data in item (4); these were also presented at the Sea Grant Baird Symposium on Block Island and Rhode Island Sounds in October.
6. We are in the process of mapping all of the historical and stranding data to look for location errors so they can be corrected.
7. Preparation of the final sighting maps will not be done until the completion of items (2) and (6), so they can be as complete as possible. The underlying shoreline and bathymetry data for the mapping have been obtained.
8. We are testing the protocol for kriging the effort-corrected sighting frequencies into interpolated seasonal relative abundance map layers. Previous work has used circular search patterns for the interpolation, but we want to try elliptical to better incorporate bathymetric effects on species distributions.
9. Draft text of some sections (basic species background biology) is nearly completed for many species.

7: Air quality and meteorology studies in support of ocean SAMP

Principal Investigator: John Merrill, Graduate School of Oceanography

Overall completion estimate: 50%

1. Nearly completed the collection of archived meteorological data, and well along on writing up the report section based on these data. There is more writing to be done on the air quality material.

8: Wind Farm Siting Study -Regional Subsurface Geology, Surficial Sediment, Benthic Habitat Distribution, and Cultural Resources

Principal Investigator: John W. King, URI Department of Oceanography

Overall completion estimate: 20%

1. Mapped 45 sq.miles in highest priority area west and south of BI
2. Completed processing of bathymetry and sidescan data acquired on cruise and will finish subbottom by the end of December
3. Completed grab sampling for groundtruth and benthic biology studies
4. Benthic biology studies are underway and will be completed by end of Jan.
5. Underwater video studies are underway and will be completed by the end of December
6. Archeology studies of data collection on survey are underway and will be completed by March

9: Spatial distribution and abundance, and flight ecology of Marine and Coastal Birds off coastal Rhode Island

Principal Investigator: Dr. Peter Paton, URI Department of Natural Resources Science

Overall completion estimate: 30%

1. Initiated efforts to compile all historical-recent avian data sets relevant to the SAMP area. This includes data from US Fish and Wildlife Service, RI DEM Fish and Wildlife, and local ornithologists. Data includes information on the spatial distribution of birds, their abundance, migration phenology and migratory pathways in coastal and offshore waters of the SAMP.
2. Conducted a literature review of all avian species that inhabit the SAMP area. Reviewed preferred habitat, forage, behavior, migratory patterns and flight elevation of all avian groups that utilize SAMP area.
3. Initiated a literature review of avian/wind farm interactions in North America and Europe.
4. Conducted systematic avian surveys on the research vessel Endeavor. Surveys were completed by one observer (Kris Winiarski) on the south-west ledge of Block Island from 9/1/08-9/3/08 and then south of Block Island 9/4/08-9/5/08.

5. Geared up for the initiation of land- and sea-based surveys of the distribution and abundance of avian species in the SAMP area. This fieldwork will be conducted from January through December 2009. Radar studies of avian flight ecology will be conducted in the study area from March through December 2009.

Milestone 3

Milestone 4

Acronyms

| | |
|-------|---|
| CRC | Coastal Resources Center |
| CRMC | Coastal Resources Management Council |
| CZM | Coastal Zone Management |
| EPA | Environmental Protection Agency |
| GIS | Geographic Information Systems |
| GSO | Graduate School of Oceanography |
| NOAA | National Oceanographic and Atmospheric Administration |
| RIDEM | Rhode Island Department of Environmental Protection |
| RIEDC | Rhode Island Economic Development Corporation |
| RWU | Roger Williams University |
| SAMP | Special Area Management Plan |
| URI | University of Rhode Island |
| WHOI | Woods Hole Oceanographic Institution |