



March 9, 2010

Mr. J. Michael Saul
Deputy Director
The Rhode Island Economic Development Corporation
315 Iron Horse Way
Providence, RI 02908

Dear Director Saul:

On behalf of the Rhode Island Coastal Resources Management Council's Ocean SAMP subcommittee, I respectfully submit the sixth period narrative and financial Ocean SAMP progress report which was approved by the subcommittee on February 4th, 2010.

The Ocean SAMP continues to make progress in the areas of research and public engagement. We continue to work effectively and efficiently with the assigned budget, and we have built a strong team to carry out SAMP activities.

Thank you for reviewing the attached progress report. My contact information is listed on the cover page of the document.

Sincerely,

Grover Fugate
Executive Director, Rhode Island Coastal Resources Management Council
On behalf of the CRMC Ocean SAMP Subcommittee

**RHODE ISLAND RENEWABLE ENERGY DEVELOPMENT FUND SPECIAL AREA
MANAGEMENT PLAN**

Sixth Period Narrative and Financial Report (October 1, 2009 to December 31, 2009)

Submitted to:

The Rhode Island Economic Development Corporation (RIEDC), 315 Iron Horse Way, Suite 01,
Providence, RI 02908, Attn: J. Michael Saul

Narrative and Financial Report:

Sixth period October 1, 2009 to December 31, 2009. Narrative and Financial Report for the
Rhode Island Renewable Energy Development Fund/Ocean Special Area Management Plan

Submitted by:

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Ocean SAMP Sixth Period Narrative & Financial Report (Oct. 1 to Dec. 31, 2009)

The Rhode Island Coastal Resources Management Council's Ocean Special Area Management Plan (Ocean SAMP) continued to make significant progress during this time period. The following is a summary of progress during this time period, based on the Goals specified in the work plan:

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.

Recreation and Tourism Draft Chapter: This draft chapter was the first of the SAMP chapters to begin the CRMC public review rulemaking process. As of December 31, 2009, the 30-day public comment period had ended and in January 2010 the chapter will move to Step 7. Major actions to reach Step 7 included the following: 1) Chapter Technical Advisory Committee provided comments to chapter (Step 2); 2) Chapter presented at December 2009 stakeholder meeting and public comments gathered and incorporated into chapters (Step 3); 3) Subcommittee approved draft chapter to advance to full council (Step 4); and 4) Full council voted to commence rulemaking on draft chapters (Step 5). The Recreation and Tourism draft chapter is located on the Ocean SAMP web site at

http://seagrant.gso.uri.edu/oceansamp/pdf/samp/samp_600_recreation_11.23.09.pdf. Public comments and methodology for this chapter can also be found at the Ocean SAMP web site: <http://seagrant.gso.uri.edu/oceansamp/documents.html>.

Marine Transportation, Navigation and Infrastructure Draft Chapter: This chapter has also begun the rulemaking process. By the end of this period, the chapter had reached Step 3. During this time period, the Chapter Technical Advisory Committee reviewed the draft, the draft was publicly presented at the stakeholders meeting, and the public review process ensued. It is expected that this chapter will be discussed by the Subcommittee on January 14, 2010 to begin Step 4. The Technical Advisory Committee for this chapter is made up of: Chris Myers, Interstate Navigation; Chris Tompsett, Naval Undersea Warfare Center; Matt Wingate, NOAA; Paul Costabile, Northeast Marine Pilots Association; Howard McVay, Northeast Marine Pilots Association; Evan Matthews, Quonset Development Corporation; Steve Curtis, ProvPort; Michael Scanlon, RI Dept. of Environmental Management; Ed O'Donnell, U.S. Army Corps of Engineers; Ed LeBlanc, U.S. Coast Guard; (Retired) Admiral Dick West; Anemone Mars, Narragansett Indian Tribe; Doug Harris, Narragansett Indian Tribe; Michael Sullivan, RI Dept. of Environmental Management; Fred Hashaway, Rhode Island Economic Development; Jared Rhodes, Rhode Island Statewide Planning Program; Rick Greenwood, Rhode Island Historic Preservation and Heritage Commission; Ted Sanderson, Rhode Island Historic Preservation and Heritage Commission; Bob DeSista, U.S. Army Corps of Engineers; Michael Elliott, U.S. Army Corps of Engineers; Ed LeBlanc, U.S. Coast Guard; Mel Cote, U.S. Environmental Protection Agency; Tom Chapman, U.S. Fish and Wildlife Service; Erin Trager, U.S. Minerals Management Service; Chris Tompsett; U.S. Navy; Sue Tuxbury National Marine Fisheries Services/NOAA; David Kaiser, Ocean and Coastal Resource Management/NOAA; and Allison Castellan, Ocean and Coastal Resource Management/NOAA and Kim Gaffett, Town of New Shoreham. The draft

chapter can be found on the Ocean SAMP web site at

http://seagrant.gso.uri.edu/oceansamp/pdf/samp/samp_700_marinetrans.pdf

The Ocean SAMP team continues to work diligently on the other SAMP chapters. Meetings with researchers, stakeholders, government agencies and review of existing documents are taking place so that these chapters are ready to begin the public process at the date listed in the timeline (Visit the link at

http://seagrant.gso.uri.edu/oceansamp/pdf/samp/samp_develop_timeline_3.1.10.pdf).

Research update: During this time period, the Ocean SAMP research team carried out the following approved activities. For more in-depth detail on each research activity, please see the attached document.

Spatial Distribution, Abundance & Movement Ecology of Birds: Using a series of systematic land-based, boat-based, and aerial surveys, in combination with a radar unit on Block Island that tracks movement ecology of birds, the research team worked during the reporting period to start assessing seasonal variation in waterbird use of the Ocean SAMP area. The team continues to gather information on temporal and spatial variation in the density of various species using the area. In addition, the team is quantifying seasonal and temporal variation in movement ecology (flight elevation, flight direction, diurnal variation). This will provide valuable information in how waterbirds use the Ocean SAMP area. This includes birds that primarily spend the winter (Nov-March) within the SAMP area (birds that breed during June-July in the northern hemisphere), other birds that spend the summer (May-August) within the SAMP area (birds that breed during Dec-Feb in the southern hemisphere), and other bird species that are breed locally during summer. Thus, the avian studies will show how the SAMP area provides crucial habitat for a variety of birds in quite different ways. An overview of this research was presented during the October 6, 2009 Ocean SAMP stakeholder meeting.

Physical Oceanography Component: The research team worked during the reporting period to gather and analyze data from deployed instrumentation with the goal of establishing a baseline understanding of the characteristics of water circulation pathways and the distribution of water properties throughout the OSAMP region. The team started to develop its first of two reports on the information for the Ocean SAMP – the first report will be available by the next reporting period. The second report will be issued in Summer 2010 once data collection is complete. The data in the two reports will help inform use zoning and policy development in terms of how water circulation in the Ocean SAMP region may shape ecosystem function in the area. An overview of this research will be presented during the January 5, 2010 Ocean SAMP stakeholder meeting.

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.

Assessing the effects of offshore wind farms on fish, fisheries and marine life: During the reporting period, we worked with Dr. Andrew Gill, a United Kingdom fisheries ecologies researcher with experience in monitoring and analyzing the impacts of European wind farms on marine fish and animals, to develop and tailor a scope of work for the Ocean SAMP project. The scope of work establishes that Gill will provide the project with: 1) Guidance on the parameters of the literature review and assessment (completed December 2009); 2) Written comments on the draft review and assessment; 3) Written comments on the final review, the assessment and SAMP chapter excerpts; 4) Participation in SAMP workshops and engagement in the working group; and 5) A written summary of recommended best practices, mitigation strategies and monitoring protocols. As part of this work, Gill presented his work and participated in dialogue at the 8th Annual Ronald C. Baird Sea Grant Science Symposium, “The Ecology of Marine Wind Farms: Perspectives on Impact Mitigation, Siting, and Future Uses,” from November 2 to 4, 2009. He specifically met with fishermen to discuss effective means of monitoring and assessing wind farm impacts on fish and their habitats.

Gaining global lessons learned to inform the Ocean SAMP: We led a Rhode Island Sea Grant College Program effort to convene a global gathering of technical experts from around the world, the region, and Rhode Island to gain lessons learned from the development and implementation of offshore renewable energy resources projects, including wind farms. The 8th Annual Ronald C. Baird Sea Grant Science Symposium, “The Ecology of Marine Wind Farms: Perspectives on Impact Mitigation, Siting, and Future Uses,” took place November 2 to 4, 2009 and was very successful in providing opportunities and documenting progress toward a new vision of designed, permitted, offshore ecosystems that have windpower energy systems as their focus to provide mutual benefits for multiple uses of ocean space. The symposium brought together international experts in wind energy, biotechnologies, seafoods, fisheries, aquaculture, and leading legal and policy experts to discuss innovative methods for the integration of these future uses into windfarm marine areas.

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.

Outreach update: During this time period, the Ocean SAMP research team carried out the following approved activities:

Engaging stakeholders in the chapter development and review processes: During the reporting period, we met with numerous stakeholders and interest groups to identify and groundtruth the purposes and goals of the SAMP chapters, and to then collect stakeholders’ experiential and technical information for several draft chapters (Introduction/Recreation and Tourism/Navigation, Transportation and Infrastructure/Renewable Energy). We also conducted three formal monthly stakeholder meetings during the reporting period. These meetings and presentations were as follows: October 6/Overview of Avian Research (Peter Paton); November 4/Review of Draft Introduction Chapter (Grover Fugate, Jennifer McCann) and Review of Draft

Recreation and Tourism Chapter (Tiffany Smythe, Michelle Armsby); and December 1/Review of Draft Marine Transportation, Navigation, and Infrastructure Chapter (Tiffany Smythe, Michelle Armsby). We ensured that for each stakeholder meeting, stakeholders and the public had access to the draft chapters and were provided opportunities for submitting written comments about the draft material.

Providing public learning opportunities about the Ocean SAMP: We worked with local libraries during the reporting period to develop a schedule for implementing a new traveling Ocean SAMP exhibit at local public libraries in Winter and Spring 2010. The purpose of the providing the display and complementary materials at the libraries is to ensure that local coastal communities have access to current project information and can learn about how to engage with the Ocean SAMP.

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.

Building communication with State, Federal and Tribal Ocean SAMP partners: We continued during the reporting period to work closely with state and federal agencies, through periodic meetings with the Ocean SAMP State Advisory Task Force and the Ocean SAMP Federal Advisory Task Force, to ensure SAMP development answers the needs of both state and federal governments. We also continued to work towards developing a working relationship with the Narragansett Indian Tribe (NIT) and engaged the NIT in identifying appropriate NIT representatives to attend SAMP meetings participate in the development and review of the Cultural, Archeological and Visual Resources Chapter. As part of these discussions, we gained approval from the NIT that it will contribute to the cultural chapter by providing a written perspective of the NIT history and cultural resources within the SAMP area.

Developing a process for creating the Ocean SAMP document: The project team worked during the reporting period to develop a formal timeline outlining in detail the timetable for the production and review of Ocean SAMP chapters. The timeline was then provided to the public and reviewed with stakeholders at Ocean SAMP stakeholder meetings. The document is located on the Ocean SAMP web site at http://seagrant.gso.uri.edu/oceansamp/pdf/samp/samp_chapter_timeline.pdf.

OCEAN SAMP PROJECT TIMELINE-RHODE ISLAND ECONOMIC DEVELOPMENT CORPORATION

[illegible]

FUNDING SOURCE/AMOUNTS:	
Year I-Ocean SAMP Funding	\$ 1,599,999
Year II- Ocean SAMP Funding	\$ 1,600,001
2.8M-Additional Studies Funding	\$ 2,828,942
DOE - Reed Appropriation for SAMP	\$ 607,438
	\$ 6,636,380

		EDC			
<i>Previously Billed</i>		Current Dec 09		<i>Encumbrances Total to Date</i>	
\$	2,839,868	\$	329,840	\$ 830,854	\$ 3,169,708
				\$ -	\$ -
\$	2,839,868	\$	329,840	\$ 830,854	\$ 3,169,708

	**DOE	
Previously Exp.	Current Dec 09	Total to Date
\$ 80,094.95	\$ 10,210.82	\$ 201,503.49 90,305.7
\$ 2,919,963	\$ 340,050	\$ 1,032,358 3,260,014

\$	4,292,372	Total encumbrances and invoices
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*DOE-APPROPRIATION FUNDING:
DOE Award notification is in the final stages and invoicing will occur when award is official and grant is taken off Dean's Pledge. DOE Accts: 14-S083-86
Outstanding ENCUMBRANCES:
Are identified project expenses with specific purposes (i.e. Subcontracts) & have not been invoiced for payment by vendor and therefore amounts are not reflected in account expenditures.

Research Activity Report

Milestone 2

Note: Additional resources have been received to expand the scope of some research efforts. Status of Individual Research Efforts is based on revised estimates for completion:

1: Engineering Studies in support of the Ocean SAMP

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

Revised Overall completion estimate: 60%

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

1. Wind Analysis - Analysis performed of Cape Wind data (wind rose, power distribution, vertical structure, Weibull parameters, etc.). Request to Cape Wind to allow public presentation of results denied. Access to DeepWater Wind meteorological data on Block Island finally achieved and initial review completed. Analysis of SAMP buoy meteorological data performed. Manuscript in preparation based on Weibull analysis of wind data at all stations in SAMP study area. Evaluations performed of WinSim model to assess its ability to understand impact of wind turbine wake effects for the Block Island SE site. Model license obtained. Development initiated on wind energy analysis system to facilitate continuing analysis of wind resources in study area. Presentation to DeepWater Wind on analysis to date of impact of Block Island on wind resources in the vicinity of the island (particularly SE site).
2. Wave and Surge Analysis - Draft final report completed and submitted for internal review, review still in progress
3. Sight Analysis - TDI and PCCA manuscript still in review by Marine Technology Society. TDI analysis extended to nearby CT and MA (Nantucket Sound and adjacent coastal area) waters to study regional context of siting for both wind and instream tidal currents. Results incorporated in SAMP report chapter on renewable energy. Additional work halted pending analysis of recently acquired geological survey data sets (federal site) and analysis of conditions on the eastern side of the SAMP study area and nearby Nantucket Sound.

B. Buoy Measurement Program

1. Buoys sensors continue in operation with data being served to SAMP investigators via Univ Maine and NERACOOS web sites. Block Island buoy served twice due to abnormal power drawn, suspected cause power requirements from bat sensor. Preliminary analysis of meteorological data performed. Oceanographic data provided to Physical Oceanography team.

C. High Resolution Screening for Block Island Waters

1. Additional work on this task halted until data sets become available on benthic habitat, stratigraphy, and marine mammal and bird distributions

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: 95%

1. Completed analysis of lattice (jacket) structures
2. Completed analysis on parameters: water depth, depth to bedrock
3. Completed technology type factor based on weight of structure
4. Final report will be completed in January, 2010

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: 40%

1. Data analysis of acoustic data continues. Air acoustic data collection begun and analysis started
2. Preliminary design of noise prediction model in progress
3. EM data collection plan begun and sensors being tested.
4. EM effects on fish and other animals researched
5. Passive Acoustic Listener (PAL) data analysis continuing
6. EM Sensors acquired and being tested. In air data collected at Jamestown cables.

5: Added Engineering Studies in support of the Ocean SAMP

Principal Investigator: Stephan Grilli, URI Graduate School of Oceanography, Ocean Engineering

Overall completion estimate: 30%

A. Wind modeling and mapping S-SW and SE of Block Island

1. To date, 2D wind simulations have been mostly completed, in a number of vertical sections over BI using WRF, in order to understand the BL structure and flow separation induced by topographic relief effects over BI. Work has concentrated on assessing leeway effects in the SAMP SE site for winds blowing from W and NW directions. Effects of atmospheric stability on generated leeway turbulence has been investigated to estimate wind shear profiles and gustiness on windmill blades. A limited number of 3D simulations have been performed.

B. Regional wave and current modeling and mapping

1. The ROMS/SWAN model suite has been implemented, benchmarked for standard test cases, and preliminary set-up for the SAMP regional area. Current boundary conditions are required and the potential to obtain these from mesoscale regional models has been investigated.

C. Map bathymetry and surficial sediments

1. Bathymetric base maps were obtained and used for preliminary setting-up two hydrodynamic models (ROMS and SWAN) in the SAMP area.

D. Apply WRF, ROMS and SWAN models

1. The WRF model has been set-up and run by ASA for numerous 2D and some 3D cases around BI. WRF is being run URI's PE 72-node cluster Spock. The initial simulations led to further discussions between URI and ASA, and modification of various boundary conditions used in wind modeling. The ROMS/SWAN model suite was further tested for additional benchmark problems on risamp computer, in the required MPI parallel FORTRAN format. Some initial cases in the SAMP areas have been run.

E. Investigate vertical 2D structure of wind over BI

1. WRF was used to simulate wind in numerous 2D vertical sections across BI, in the 8 main directions of the wind rose. Various ocean/atmosphere temperature conditions are selected (neutral, stable, unstable) in order to simulate typical seasonal conditions. Some more simulations of this kind are being performed and results will be further analyzed and synthesized.

6: New Effort: Ecological Service Value Index ESVI for RI Ocean SAMP

Principal Investigator: Annette Grilli, URI Graduate School of Oceanography, Ocean Engineering

Overall completion estimate: 15%

A. Develop comprehensive maps of seasonal relative density, or use, for each ecological service.

1. Preliminary mapping of human use.

B. Model relative ecological service values (ESV) for individual natural resource uses

1. Initial data collection and discussion of the methodology applied. Review of other ecological weighting methods.

C. Combine individual indices for each ecological service using relative weighing schemes, to develop an overall index (the ESVI)

D. Habitat mapping

1. Benthic habitat preliminary investigation using data collected by J. King (URI)

E. Apply wildlife movement (migration and behavior) model, WildMap

1. Bibliographical review of available data and initial data collection of (1) mammals, turtles and birds Kenny et al. (URI) (2) Birds Paton (URI) (3) bats; Review of life history and phenology of mammals, turtles, birds and bats
2. Development of preliminary WildMap scenarios : organization of input data

F. Develop human use maps of relative value

1. Approach of a fisheries index based on standard indexing method or cluster analysis ; organization of input data and data acquisition.

7: Characterizing Physical Oceanography of the Rhode Island Coastal Ocean

Principal Investigator:Dan Codiga, URI Graduate School of Oceanography

Revised Overall completion estimate: 65%

1. Initial purchase/assembly of sensors and first deployment, two of the most time-consuming tasks, are now complete.
2. The equipment setup and two of the four surveys are now successfully completed, and preliminary data analysis is complete.
3. Calculations with CODAR / model output are 100% / 80% complete
4. Draft outline of report, nearly all figures, and 25% of text is complete.
5. First Mooring deployment complete; recovery attempted Dec 15 but weathered off; rescheduled for Jan 14.
6. Second Mooring Deployment scheduled for March 2010, recovery for June 2010.
7. Equipment preparation and two CTD surveys (of four) complete.

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

Principal Investigator:Christopher Damon, URI Natural Resource Science

Overall completion estimate: 70%

Assist in the development and implementation of a Phase 2 site screening process for RI coastal waters

1. Criteria for a Phase 2/Environmental Valuation Index study are still being established, along with protocols for habitat weighting. ASA is handling all of the modeling components, while the EDC is acting in a support role to provide required data.

Develop a common graphic template for mapping products emerging from the site screening process and assist in the production of cartographic products to support project analysis and communication requirements

1. Basic templates complete for both 8.5 X 11 and 11x17 maps. May be revised as project proceeds. Templates are redesigned as needed, such as with the Regional TDI evaluation that extended much further to the east of the current SAMP boundary.

Work with scientists developing screening criteria

1. This work is ongoing as project proceeds. The Ecological Service Value Index proposal is under review, with habitat valuations beginning upon acceptance. ASA is handling all of the modeling components, while the EDC is acting in a support role to provide required data. The EDC has worked closely with PIs to generate useful interpretations of fisheries VTR and observer data.

Prepare cartographic products in hard-copy and digital form to support the screening process, outreach activities, development of educational materials, and project reporting

1. Documents are provided as requested to satisfy PI needs. Products have been developed for the regional TDI assessment, stakeholder presentations, and SAMP recreation and marine transportation chapters. In addition ad hoc maps have been supplied to the Governor and fishermen in support of the MMS lease block RFI.

A web site within WWW.NARRBAY.ORG that will serve as a repository for geospatial data, metadata, analytical and cartographic products resulting from the study.

 Framework exists with sections for paper maps, interactive maps, and geospatial data (http://www.narrbay.org/d_projects/oceansamp/). Pending approval by the management committee, data and maps are added for download. A new programming framework is under development for an interactive map that will let users create custom maps via the web using SAMP data.

9: Marine Mammals and Sea Turtles Analysis

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

Overall completion estimate: 100%

Study Tasks:

1. The Final technical report has been reviewed and released.

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

Principal Investigator: John Merrill, Graduate School of Oceanography

Overall completion estimate: 80%

1. Gathered data and performed preliminary analysis.

2. Taking account of suggestions from DEM in regard to air emission impacts of construction project.

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

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

Note: Effort extended into mapping of areas in Federal Waters.

REVISED Overall completion estimate: 65%

Objectives:

Objective 1. Conduct coarse resolution, geophysical, geological, biological surveys and groundtruthing studies of sites. 85%

- Mapped 57.5 sq. mi. Block Island. Mapped 8.1 sq. mi. "the Dagger". Mapped 69.1 sq. mi. Rhode Island Sound. Groundtruth Block Island complete, RIS half done.

Objective 2. Develop a GIS data layer of regional subsurface geology, including depth to bedrock and type of subsurface materials. 85%

- Block Island area nearing completion. RIS area 65% done.

Objective 3. Develop a GIS data layer of geological habitat. 80%

- Block Island area nearing completion. RIS area 50% done.

Objective 4. Develop a GIS layer of biological habitat using NOAA CMECS classification system. 70%

- Literature review completed, samples collected, BI samples analyzed, data analysis underway BI. Sampling underway other areas.

Objectives 5-7: Assess the potential for submerged historic and archaeological sites within SAMP areas with first existing data and then newly acquired geophysical survey data 70%

- Literature review completed. New data analysis underway for BI.

Objective 8: Complete final reports and deliver to CRC. 55%

- Data layers under construction. Report writing initiated.

Tasks:

Objective 1. (Tasks 1-3)

Attachment

1. Collect existing data from literature. 100%
 - Literature collected and largely analyzed.
2. Conduct low resolution, subbottom, sidescan, and interferometric sonar surveys of study sites. 100%
 - Mapped Block Island, Dagger, and Block Island Sound.
3. Conduct groundtruthing surveys, including SPI, underwater video, grab samples. 65%
 - Complete near Block Island; underway for other areas.

Objective 2. (Tasks 4-5)

4. Analyze and interpret subbottom sonar data. 70%
 - Data analysis complete for Block Island and lines collected in RIS; need to collect more lines in RIS.
5. Construct a GIS data layer of subbottom geology, including depth to bedrock and type of subsurface materials. 55%
 - Task nearing completion for Block Island; well underway for other areas.

Objective 3. (Tasks 6-8)

6. Analyze and interpret sidescan and bathymetry data; pick areas for groundtruth studies. 75%
 - Data analyzed, sites picked, grab samples obtained, video studies complete for BI; underway for other areas.
7. Obtain groundtruth data (SPI, video, grab samples). 65%
 - Fieldwork complete for BI; underway for other areas.
8. Construct a GIS data layer of geologic habitat needed for floating zone tool. 60%
 - Work underway.

Objective 4. (Tasks 9-11)

9. Collect existing data from literature. 95%
 - Work nearing completion.
10. Analyze benthic grab samples. 65%
 - Samples collected, samples counted, and data analysis completed for BI; just underway other areas.

11. Prepare a biological habitat GIS data layer needed for floating zone tool. 50%
 - Work underway.

Objectives 5-7. (Tasks 12-14)

12. Collect and assess existing data, and conduct ground truthing studies. 90%
 - Work nearing completion - virtually all diving operations complete.
13. Assess newly acquired geophysical data. 60%
 - Data being analyzed. Analysis of survey data from Block Island well underway.
14. Construct a GIS layer of archaeological sites needed for floating zone tool. 50%
 - Work in progress.

Objective 8. (Task 15)

15. Final report completion and submission to CRC. 40%
 - Work underway.

12: 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: 75%

1. During this quarter, collected data from 1 Oct to 15 Dec from N end of Block Island, 24 hrs per day, 7 days per week, planning on collecting data from 15 Feb to 15 March 2010 and then done with data collection
2. Have three full-time biologists on staff to conduct surveys, acquired optical equipment, Initiated land-based survey points at 11 points along 4 survey routes, each point will be surveyed 6 times monthly (3 morning and 3 afternoons), collected data from 1 Oct to 30 Dec
3. Conducted offshore transect surveys on 8 4X5 nm grids offshore using Francis Fleet boats - tried to conduct approx. 1 survey (2 grids) per week for this quarter. Aerial surveys were initiated in Oct 2009 that survey entire SAMP area. Conducted approx. weekly through late December - 1 survey per week during this period. Will continue boat surveys to June 2010 and aerial surveys through April 2010
4. Completed protocols for when and where radar data will be collected. Coordinated with Deepwater Wind, who also has an avian radar unit on Block Island, although that radar is focused on an area E of Block Island.
5. Collected radar data from 1 Oct through 15 Dec 2009 at N end of island. Data were 24 hrs per day/ 7 days per week. Minimal problems with sea clutter at N end. Data collected

during this time period primarily focused on quantifying movement ecology of passerines during nocturnal migration, although waterbirds were surveyed as well.

6. Conducted preliminary analyses to assess altitudinal distributions of nocturnal and diurnal migrants based on radar data. From March through May, approx. 12% of nocturnal migrants were flying below 100 m, while 26% were below 200 m.
7. Sent draft reports to Ocean SAMP committee on Timelines of spatial distribution and abundances of individual avian species and groups of species (e.g., waterfowl, shorebirds) in SAMP area and Estimates of diurnal flight behavior of birds in nearshore waters at Pt. Judith
8. Developed protocols for land-based and offshore surveys. Also, developed protocols for Roseate Tern surveys to be initiated in May 2009 - sent this protocol out for peer-review.

13: Ecology

Principal Investigator:Dr. Scott Nixon, URI Department of Oceanography

Overall completion estimate: 75%

1. Completed 76 boat surveys of Rhode Island and Block Island Sounds; 34 cruises by R. Sykes, 20 by M. Marchetti, 8 SAMP bird survey trips (P. Paton), and 12 additional cruises including 5 with Dave Ullman and 2 Endeavor cruises. This task is 85% complete.
2. Processed 1,584 water samples from 528 stations (3 replicates per each station) to develop a data base of water quality, extracted chlorophyll and nutrient concentrations describing seasonal/annual variations observed in the SAMP area. This task is 80% complete.
3. 77 measures of water clarity (extinction coefficient values) were taken at various locations in the sounds. These measures are used along with the abundance of plankton (measured by extracting plant pigments) to model plankton production. 40 Secchi disk measurements from R. Sykes, 15 Secchi disk measurements from M. Marchetti, 8 Secchi disk were taken during cruises on RV Hudner, 5 vertical light profiles using submarine photometer, approx. 16 CTD and 8 CTD casts during Endeavor cruise. This task is 80% complete
4. Completed intercalibration of light measurements on Block Island with monitoring stations at Kingston, RI and Falmouth, MA. We used a 78 day record of incident light, from a monitoring station we established at the Block Island Airport, to determine how incident light varies through the SAMP region. Sunshine data will be used along with water clarity to drive plankton production models. This task is 80% complete.
5. Completed the first collection of intact benthic cores from three stations (2 in Rhode Island Sound and 1 in Block Island Sound). Sediment oxygen demand and nutrient remineralization rates were determined by incubation. This task is 60% complete.

OCEAN OFFSHORE RENEWABLE ENERGY SPECIAL AREA MANAGEMENT PLAN (SAMP)

QUARTERLY NARRATIVE PROGRESS REPORT

Instructions: Complete progress and financial reports on a quarterly basis as per report due date schedule. Attach

Study Information	Due to URI:	See schedule
Title: Wind Source, Wave and storm	PI: Malcolm Spaulding	
Project # S000062	Quarter # <u> 6 </u>	Period Covered: 10/1/09-12/31/09

#	Objectives (please estimate percentage complete and describe progress):	% Complete	Description of Progress
1	Wind Analysis	75%	Analysis performed of Cape Wind data (wind rose, power distribution, vertical structure, Weibull parameters, etc.). Request to Cape Wind to allow public presentation of results denied. Access to DeepWater Wind meteorological data on Block Island finally achieved and initial review completed. Analysis of SAMP buoy meteorological data performed. Manuscript in preparation based on Weibull analysis of wind data at all stations in SAMP study area. Evaluations performed of WinSim model to assess its ability to understand impact of wind turbine wake effects for the Block Island SE site. Model license obtained. Development initiated on wind energy analysis system to facilitate continuing analysis of wind resources in study area. Presentation to DeepWater Wind on analysis to date of impact of Block Island on wind resources in the vicinity of the island (particularly SE site).
2	Wave and Surge Analysis	95%	Draft final report completed and submitted for internal review, review still in progress
3	Sight Analysis	70%	TDI and PCCA manuscript still in review by Marine Technology Society. TDI analysis extended to nearby CT and MA (Nantucket Sound and adjacent coastal area) waters to study regional context of siting for both wind and instream tidal currents. Results incorporated in SAMP report chapter on renewable energy. Additional work halted pending analysis of recently acquired geological survey data sets (federal site) and analysis of conditions on the eastern side of the SAMP study area and nearby Nantucket Sound.

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	Tasks (please estimate percentage complete and describe progress):	% Complete	Description of Progress:
6	Buoy Measurement	25%	Buoys sensors continue in operation with data being served to SAMP
7	High Resolution Screening for Block Island Waters	30%	Additional work on this task halted until data sets become available on benthic habitat, stratigraphy, and marine mammal and bird distributions.
8			
9			