

**V(A). Planned Program (Summary)**

**Program # 7**

**1. Name of the Planned Program**

Sea Grant and Water Resources

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	10%			
131	Alternative Uses of Land	20%			
133	Pollution Prevention and Mitigation	30%			
135	Aquatic and Terrestrial Wildlife	25%			
307	Animal Management Systems	5%			
903	Communication, Education, and Information Delivery	10%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	0.0	0.0	0.0
Actual Paid Professional	5.5	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
116463	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
116463	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1044248	0	0	0

## **V(D). Planned Program (Activity)**

### **1. Brief description of the Activity**

#### **COMMERCIAL FISHERIES**

- Hold educational workshops on the following topics:
  - Focusing efforts on reducing by-catch and increasing selectivity of fishing gear;
  - Focusing efforts on reducing sea-bed impacts by mobile fishing gear;
  - Facilitating cooperative research partnerships between fishermen and scientists;
  - Safety drill conductor training.
  - Welding safe practices and techniques.
  - Weather interpretation and forecasting.
  - Marine engine repair.
- Publish information sheets, technical reviews, and web pages which detail innovative fishing gears and technologies that reduce by-catch, minimize benthic impacts and enhance gear selectivity.

#### **LAND AND WATER CONSERVATION**

- Provide focused training and long-term assistance to communities on natural resource planning and land conservation.
  - Provide direct assistance to towns and conservation groups upon request
  - Conduct land conservation and natural resources workshops and other educational activities as suggested by program staff and as requested by communities and conservation groups
  - Conduct the Natural Resources Outreach Coalition program for communities selected annually.
  - Develop, enhance and deliver presentations (including GIS-based) about land use/water quality to local decision makers
  - Facilitate community meetings to develop action plans for implementing water and natural resource based planning

### **COASTAL ECOSYSTEM HEALTH AND COMMUNITIES**

- Broadcast educational messages over low power radio (Great Bay Area Radio) to motorists about the estuary, research, educational opportunities and Sea Grant.
- Conduct at least 5 activity-based Great Bay Discovery Cruises.
- Provide information to communities and development professionals to encourage the use of more innovative stormwater management.
- Produce printed, presentation, web and other educational materials

### **MARINE SCIENCE EDUCATION**

- Review and revise existing programs and curriculum materials to support teaching core science standards through a marine context
- Develop new marine education K-12 Sea Trek programs that reflect emerging national scientific issues and address prioritized education standards
- Expand our programs and materials that target adult audiences and recruit and train a cadre of Docents specifically for that role
- Develop programs focused on high school level teachers and students that provide exposure to marine research and encourage students to pursue marine fields in college and beyond

### **WATER QUALITY**

- Hold water quality monitoring training sessions for new and existing volunteers - conduct field visits for in-depth monitoring and quality assurance
- Provide analytical services, data base management and data analysis for Great Bay Coastal Watch and NH Lakes Lay Monitoring Program collected samples
- Produce annual lake reports and coastal reports on water quality assessments from volunteer monitoring efforts

- Hold regular meetings of the monitors to provide program updates, advanced monitoring technique trainings and data interpretation/presentation skill building. Also conduct needs assessment and evaluation
- Provide data and data interpretation as requested by decision-makers, cooperators and watershed stakeholder groups

**2. Brief description of the target audience**

Commercial fishermen and related industries; land owners and recreational users of New Hampshire's lakes, estuaries, rivers, and ocean beaches; Formal and non-formal educators and K-12 students; policy and decision makers

**3. How was eXtension used?**

eXtension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	1514	0	300	0

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2011

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2011	Extension	Research	Total
<b>Actual</b>	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of activity-based Great Bay Discovery Cruises provided to citizens with the opportunity to learn about the estuary aboard the University's research vessel  
Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Number of water quality monitoring training sessions held for new and existing volunteers

<b>Year</b>	<b>Actual</b>
2011	3

**Output #3**

**Output Measure**

- Number of annual lake reports and coastal reports published on water quality assessments from volunteer monitoring efforts

<b>Year</b>	<b>Actual</b>
2011	29

**Output #4**

**Output Measure**

- Number of new volunteers trained in proper water quality sampling methods and who participate in seasonal sampling as part of the Great Bay Coastal Watch or Lakes Lay Monitoring Program

<b>Year</b>	<b>Actual</b>
2011	23

**Output #5**

**Output Measure**

- Number of hours NH Lakes Lay Monitoring Program volunteers contribute toward conducting water quality monitoring and analysis activities in their local watersheds

<b>Year</b>	<b>Actual</b>
2011	5317

**Output #6**

**Output Measure**

- Number of towns and conservation groups provided with direct assistance regarding land and water conservation

<b>Year</b>	<b>Actual</b>
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2011

20

**Output #7**

**Output Measure**

- Number of convenient and effective teacher training programs held in conjunction with all boat-based and field programs utilizing both face-to-face and remote methods  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of NROC communities provided with water resource/water quality related technical assistance

**Year**  
2011

**Actual**  
19

**Output #9**

**Output Measure**

- Number of educational workshops for commercial fishermen on the following topics: \* Focusing efforts on reducing by-catch and increasing selectivity of fishing gear; \* Focusing efforts on reducing sea-bed impacts by mobile fishing gear; \* Facilitating cooperative research partnerships between fishermen and scientists.

**Year**  
2011

**Actual**  
27

**Output #10**

**Output Measure**

- Number of published information sheets, technical reviews, and web pages which detail innovative fishing gears and technologies that reduce by-catch, minimize benthic impacts and enhance gear selectivity.

**Year**  
2011

**Actual**  
5

**Output #11**

**Output Measure**

- Number of Safety-at-Sea programs held.  
Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Number of homeowners provided with information about home and yard care practices that prevent or minimize contamination of water resources via runoff.

<b>Year</b>	<b>Actual</b>
2011	120

**Output #13**

**Output Measure**

- Number of communities and development professionals provided information to encourage the use of more innovative stormwater management.  
Not reporting on this Output for this Annual Report

**Output #14**

**Output Measure**

- Number of fishermen trained in safe welding practices  
Not reporting on this Output for this Annual Report

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of adults and children with a measurable increase in their marine science literacy through specialist and volunteer delivered outcome-based, formal and informal education programs
2	Number of fishermen who choose non-mandatory conservation-minded gear over traditional equipment
3	Number of cooperative research proposals submitted involving scientists and fishermen that focus on reducing benthic impacts of mobile fishing gear are submitted to appropriate programs/agencies
4	Number of fishermen who successfully complete cooperative research projects
5	Number of communities to develop action plans that include a variety of approaches for making progress in community-based natural resource protection projects.
6	Percent of new or existing volunteer monitoring programs that request assistance and then initiate enhanced or expanded program efforts due to assistance provided by the project
7	Number of fishermen who gain knowledge increase knowledge of new conservation fishing gear that reduces benthic habitat impact.
8	Number of fishermen who become certified as safety drill conductors.
9	Number of communities to implement or start to implement a natural resource protection project.
10	Number of community decision makers, conservation groups or development professionals who report gaining knowledge about preventing degradation from storm water runoff.
11	Number of community decision-makers and Coverts Cooperators who identify actions they will take to conserve the state's biodiversity.



## **Outcome #1**

### **1. Outcome Measures**

Number of adults and children with a measurable increase in their marine science literacy through specialist and volunteer delivered outcome-based, formal and informal education programs

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	7000

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

The UNH Marine Docent Program is the primary vehicle for delivering marine science education programs to the formal pre-K - 12 school audience, and adults in New Hampshire and New England.

The program addresses the needs and intended outcomes of the strategic plan for marine science education of the UNH Cooperative Extension Program and New Hampshire Sea Grant Program, as well as the ocean literacy goals of NOAA.

#### **What has been done**

The Docent programs that address the situation fall into the following categories:

- SeaTrek programs, the marine science education programs Docents bring to classrooms or adult gatherings addressing such topics as the rocky shore, sandy beach or global climate change.
- Boat-based programs offered on the R/V Gulf Challenger or party fishing boats involving hands-on activities on the water.
- Training opportunities that address Docent competency that includes intensive training for new Docents, the on-going WADE training for veteran Docents, and monthly meetings.

#### **Results**

Twenty-one new Marine Docents were trained in basic marine science, and formal and informal education practices. These new Docents joined existing program teams to provide educational programming to schools or volunteer at other informal marine education venues including the Seacoast Science Center, Sandy Point Discovery Center, the Great Bay Coast Watch, and the Gundalow Program.

Over 4,000 students learned more about marine education during 112 visits to 100 schools. Two hundred seventy-five students from four schools learned more about boat-based marine science activities through the Docent-led Floating Lab program. During this half-day program students learn about the Gulf of Maine marine environment by participating in hands-on activities in water quality measurement, plankton collection and observation, current measurement, benthic sampling, and navigation.

Approximately 100 adults and 50 children learned more about the Gulf of Maine, the Isles of Shoals, and the Shoals Marine Laboratory through five one-day Shoals Discovery Cruises to Appledore Island. Five "Day of the Coast" programs provided over 200 SeaTrek programs to more than 1,000 students and teachers.

New Hampshire citizens discovered more about marine science awareness at exhibits at "Discover Wild New Hampshire Day," the Tall Ships weekend in Portsmouth, the Rochester Fair, River Days in Portsmouth and Durham, and UNH "University Day", while over 5,000 New Hampshire citizens discovered more about the industry at the inaugural Fish and Lobster Festival in Portsmouth.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

#### Outcome #2

##### 1. Outcome Measures

Number of fishermen who choose non-mandatory conservation-minded gear over traditional equipment

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2011	17

##### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
135	Aquatic and Terrestrial Wildlife

**Outcome #3**

**1. Outcome Measures**

Number of cooperative research proposals submitted involving scientists and fishermen that focus on reducing benthic impacts of mobile fishing gear are submitted to appropriate programs/agencies

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
135	Aquatic and Terrestrial Wildlife

**Outcome #4**

**1. Outcome Measures**

Number of fishermen who successfully complete cooperative research projects

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	27

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems
903	Communication, Education, and Information Delivery

**Outcome #5**

**1. Outcome Measures**

Number of communities to develop action plans that include a variety of approaches for making progress in community-based natural resource protection projects.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	19

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

New Hampshire is filled with verdant forests and sparkling waters. Forests and farmland are a part of the landscape of New Hampshire, making it a destination for tourists from all over the world. The open space that surrounds us defines the Granite State.

New Hampshire, however, is the fastest growing state in the Northeast. Development and a growing population are taking up open space and community character

**What has been done**

UNH Cooperative Extension's Land and Water Conservation Program helps New Hampshire communities and conservation groups with land and water conservation planning projects, including natural resources inventories, conservation planning, land protection, public outreach, and building public support.

In the last year, assistance was provided to 19 towns and one land trust, and Extension staff participated in 13 statewide events. Over 1,100 residents received direct assistance to communities, workshops and courses. Publication of the Taking Action for Wildlife e-newsletter three times a year reached more than 1,600 people with each issue.

Community decision makers and others increased their knowledge of land and water conservation issues, learned how to conduct conservation projects, and build their capacity to take action to protect natural resources.

**Results**

These actions help provide local data and information on which rational conservation decisions can be based.

Nineteen communities (Barrington, Northwood, Derry, Newmarket, Kingston, Dover, Grantham, Lancaster, Alexandria, Bristol, Hebron, Orange, Sharon, Fitzwilliam, Fremont, Bath, Carroll, Easton and Kensington), one conservation group (Monadnock Conservancy) and participants at 13 statewide events improved their background knowledge for future decision making about natural resources protection.

Two hundred sixty participants at the 10th Annual Saving Special Places Conference increased their knowledge of a variety of land conservation and stewardship issues. This annual event is co-sponsored and organized by UNH Extension, the Society for the Protection of NH Forests, and the Natural Resources Conservation Service.

Other impacts include:

- 51 participants at seven Taking Action for Wildlife workshops learned information about wildlife habitat conservation to incorporate into their conservation planning.
- Through the Natural Resources Outreach Coalition (NROC) community assistance, 128 participants learned adaptation strategies to prepare for a changing climate.
- Development of the NH Wetlands Mapper for use with the Method for Evaluation Freshwater Wetlands in New Hampshire.
- Ongoing development of the Taking Action for Wildlife web pages, a joint effort between UNH Extension and NH Fish & Game.

Through the Taking Action for Wildlife program, nine communities (Bath, Carroll, Easton, Sharon, Fitzwilliam, Alexandria, Hebron, Orange, Bristol) used information from NH's Wildlife Action Plan in their natural resources inventories and conservation plans.

Specific involvement of New Hampshire towns included the following:

- Fremont planned and conducted a "Bio-Blitz" on a town-owned property to raise public awareness of wildlife habitats.
- Easton contacted 50 landowners with information about conserving wildlife.
- Bath conducted a public information event about wildlife and their natural resources inventory and started work on their town forest management plan.
- Hebron is using its newly-completed Natural Resource Inventory to implement conservation planning.
- Carroll has written the wildlife section of its Natural Resources Inventory.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation

#### **Outcome #6**

##### **1. Outcome Measures**

Percent of new or existing volunteer monitoring programs that request assistance and then initiate enhanced or expanded program efforts due to assistance provided by the project

##### **2. Associated Institution Types**

- 1862 Extension

##### **3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	7

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
903	Communication, Education, and Information Delivery

**Outcome #7**

**1. Outcome Measures**

Number of fishermen who gain knowledge increase knowledge of new conservation fishing gear that reduces benthic habitat impact.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	195

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
135	Aquatic and Terrestrial Wildlife

**Outcome #8**

**1. Outcome Measures**

Number of fishermen who become certified as safety drill conductors.

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Number of communities to implement or start to implement a natural resource protection project.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	19

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management
131	Alternative Uses of Land



**Outcome #10**

**1. Outcome Measures**

Number of community decision makers, conservation groups or development professionals who report gaining knowledge about preventing degradation from storm water runoff.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	260

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management

**Outcome #11**

**1. Outcome Measures**

Number of community decision-makers and Coverts Cooperators who identify actions they will take to conserve the state's biodiversity.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2011	13

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Populations changes (immigration, new cultural groupings, etc.)

**Brief Explanation**

{No Data Entered}

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}