

Sea Grant and Water Resources

Sea Grant and Water Resources

V(A). Planned Program (Summary)

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%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	9.5	0.0	0.0	0.0
Actual	7.0	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
106996	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
106996	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1217934	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Sea Grant and Water Resources

Provide educational workshops on the following:

- Economic benefits of fish handling strategies aimed at enhancing product freshness and shelf-life
- Mobil fishing gear and methods to reduce sea-bed impact in the fishing industry

Assist fishermen with cooperative research projects as necessary -Act as a "match maker" to identify potential partners among commercial fishermen and researchers and assist fishermen in developing research ideas that can be incorporated into joint fishermen/scientist proposals

Conduct dockside or on-water demonstrations of innovative gear technologies and of low impact mobile fishing gear innovations

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

Plan and conduct the Saving Special Places Conference

Conduct the Natural Resources Outreach Coalition program for communities selected annually

Produce printed, presentation, web and other educational materials

Conduct workshops for garden clubs, community groups, watershed associations and others interested in sustainable landscaping practices and water resources protection - workshops will include a presentation and when possible, a practical assessment of the property where the workshop is held

Conduct activity-based Great Bay Discovery Cruisesto provide citizens with the opportunity to learn about the estuary aboard the University's research vessel

Continue to write scripts, record and monitor a low power radio station (Great Bay Area Radio) dedicated to informing the 60,000 motorists passing by the Estuary daily. Scripts focus on natural history, research, educational opportunities and Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET).Share CICEET derived research and resources relevant to coastal communities

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

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

Develop convenient and effective teacher training in conjunction with all boat-based and field programs utilizing both face-to-face and remote methods

In partnership with schools and UNH, develop new programs that engage in-service and pre-service teachers directly with researchers, faculty, and graduate students

In collaboration with the Leitzel Center, the Education Department, and Marine Program faculty, develop both credit and non-credit marine science programs for middle and high school teachers

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

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	2000	210000	0	0
2008	1974	60000	1000	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	0	
2008	7	0	0

V(F). State Defined Outputs

Output Target

Output #1**Output Measure**

- Number of fishermen attending workshops on the economic benefits of fish handling strategies aimed at enhancing product freshness and shelf-life

Not reporting on this Output in this Annual Report

Output #2**Output Measure**

- Number of fishermen attending workshops on focusing reducing sea-bed impacts by mobile fishing gear.

Year	Target	Actual
2008	30	153

Output #3**Output Measure**

- Number of fishermen who participate in cooperative research proposals submitted to appropriate programs or agencies

Year	Target	Actual
2008	40	20

Output #4**Output Measure**

- Number of individuals who attend training sessions designed to transfer blue mussel aquaculture technology from the research phase to commercial phase

Year	Target	Actual
2008	30	18

Output #5**Output Measure**

- Number of interested individuals and companies helped to obtain aquaculture permits in NH waters and federal waters

Year	Target	Actual
2008	5	3

Output #6**Output Measure**

- Number of individuals and companies helped to develop business plans for starting and expanding mussel farms

Year	Target	Actual
2008	5	1

Output #7**Output Measure**

- Number of mussel growers helped to create sustainable and profitable businesses.

Year	Target	Actual
2008	5	2

Output #8**Output Measure**

- Number of UNH Senior Project Teams provided with guidance in assisting communities with natural resource conservation projects

Not reporting on this Output in this Annual Report

Output #9**Output Measure**

- Number of people reached through the Dollars and Sense of Saving Special Places program

Year	Target	Actual
2008	50	50

Output #10**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

Year	Target	Actual
2008	8	1

Output #11

Output Measure

- Number of motorists passing by the Great Bay estuary exposed to a low power radio station (Great Bay Area Radio) dedicated to informing them with recorded messages on natural history, research, educational opportunities and Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET)

Year	Target	Actual
2008	30000	60000

Output #12**Output Measure**

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

Year	Target	Actual
2008	3	13

Output #13**Output Measure**

- Number of field visits made for in-depth monitoring and quality assurance

Year	Target	Actual
2008	20	42

Output #14**Output Measure**

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

Year	Target	Actual
2008	30	35

Output #15**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

Year	Target	Actual
2008	50	57

Output #16**Output Measure**

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

Year	Target	Actual
2008	500	460

Output #17**Output Measure**

- Number of informational workshops and/or presentations aimed at facilitating partnerships between fishermen and scientists

Not reporting on this Output in this Annual Report

Output #18**Output Measure**

- Number of articles published detailing the results of cooperative research and their benefit to the fishing industry

Year	Target	Actual
2008	4	3

Output #19**Output Measure**

- Number of dockside and/or at-sea vessel demonstrations of enhanced fish handling strategies

Not reporting on this Output in this Annual Report

Output #20**Output Measure**

- Number of information sheets, technical reviews, and web pages authored which detail fish handling strategies and enhance economic value and shelf-life

Year	Target	Actual
2008	2	4

Output #21

Output Measure

- Number of commercial fishermen, decision makers, media, potential investors, and interested parties reached through programs on Open Ocean Aquaculture

Not reporting on this Output in this Annual Report

Output #22**Output Measure**

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

Year	Target	Actual
2008	20	44

Output #23**Output Measure**

- Number of education programs provided to NH Realtors about natural resource contributions to property values

Not reporting on this Output in this Annual Report

Output #24**Output Measure**

- Number of meetings and other events where Wildlife Action Plan information is presented

Year	Target	Actual
2008	5	21

Output #25**Output Measure**

- Number of partners involved in determining actions to provide research-based information to help landowners and producers adopt sustainable practices

Year	Target	Actual
2008	5	7

Output #26**Output Measure**

- Number of workshops conducted for garden clubs, community groups, watershed associations and others interested in sustainable landscaping practices and water resources protection

Year	Target	Actual
2008	2	3

Output #27**Output Measure**

- Number of presentations (including GIS-based) developed, enhanced and delivered about land use/water quality to local decision makers

Year	Target	Actual
2008	15	15

Output #28**Output Measure**

- Number of community meetings facilitated to develop action plans for implementing water and natural resource based planning

Year	Target	Actual
2008	10	9

Output #29**Output Measure**

- Number of workshops delivered as educational follow-up related to community action plans

Year	Target	Actual
2008	10	22

Output #30**Output Measure**

- Number of new marine education K-12 Sea Trek programs that reflect emerging national scientific issues and address prioritized education standards

Year	Target	Actual
2008	3	2

Output #31**Output Measure**

- Number of marine science education 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

Year	Target	Actual
2008	12	8

Output #32**Output Measure**

- Number of home-school and other under-represented people reached through Marine Docent and the Great Bay Coast Watch programs.

Year	Target	Actual
2008	8	6

Output #33**Output Measure**

- Number of teachers assisted in measuring the improvement in student performance as a result of participation in programs

Year	Target	Actual
2008	5	25

Output #34**Output Measure**

- Number of guides developed to existing curricular and program materials that identify how the marine context can be used to address core content standards
Not reporting on this Output in this Annual Report

Output #35**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 in this Annual Report

Output #36**Output Measure**

- Number of new programs developed in partnership with schools and UNH, that engage in-service and pre-service teachers directly with researchers, faculty, and graduate students

Year	Target	Actual
2008	1	1

Output #37**Output Measure**

- Number of credit and non-credit marine science programs developed in collaboration with the UNH Leitzel Center, the Education Department, and Marine Program faculty for middle and high school teachers

Year	Target	Actual
2008	1	1

Output #38**Output Measure**

- Number of workshop trainings conducted at regional and national conferences

Year	Target	Actual
2008	3	4

Output #39**Output Measure**

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

Year	Target	Actual
2008	4	5

V(G). State Defined Outcomes

O No.	Outcome Name
1	Number of coastal watershed residents who report a greater willingness to participate in additional educational and/or stewardship events about the Great Bay Estuary
2	Number of coastal community members who report an increase in knowledge about growth and its effects on habitat, water quality, and water quantity
3	Number of community members, including divers, seafood handlers, and baitfish dealers who report an increase in knowledge and understanding of marine invasions and impacts on the ecosystem as well as an increase in knowledge of how they can minimize introductions from their activities
4	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
5	Number of teachers who learn to utilize marine science concepts and contexts to support teaching core science and other content standards in their classrooms
6	Number of marine docents, educators, students, and the general public who gain knowledge of a web-based site containing marine science educational activities, programs, images and research results
7	Number of new aquaculture businesses started growing blue mussels on long lines in the open ocean
8	Dollars generated the blue mussel aquaculture industry
9	Number of fishermen who choose non-mandatory conservation-minded gear over traditional equipment
10	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
11	Number of fishermen who choose soft-bottom fishing gear over traditional equipment
12	Amount (\$) fishermen will receive in competitive funding for cooperative research
13	Number of fishermen who successfully complete cooperative research projects
14	Number of bank loans made to individuals seeking to enter the aquaculture industry
15	Percent of clientele who report increased conservation activity as a result of UNHCE programming
16	Number of towns and conservation groups receiving direct assistance with and that conduct natural resource planning and conservation
17	Number of municipal officials and others from twenty communities who apply information presented at Dollars and Sense programs to local land use decision-making and public policy development
18	Number of municipalities that take action to raise funds for land/water conservation after participating in UNHCE programs
19	Number of community decision-makers and Coverts Cooperators who identify actions they will take to conserve the state's biodiversity
20	Number of communities that develop action plans that include a variety of approaches for making progress in community based natural resource protection projects
21	Number of communities seeking technical or financial assistance from program partners in order to implement natural resource protection projects. Assistance might include help with developing plans, conducting outreach or reviewing regulations
22	Number of divers, seafood handlers, and baitfish dealers who adopt practices that prevent accidental introduction of invasive species
23	Number of K-12 teachers who adopt marine science concepts and contexts learned through Sea Grant /UNHCE programs that support teaching of core sciences and other content standards
24	Number of K-12 students who improve performance in content areas as a result of teachers incorporating marine science into their lesson plans
25	Based on data generated by the Great Bay Coastal Watch and the Lakes Lay Monitoring Program, number of pollution problem areas that are addressed by lake associations or regulatory agencies
26	Percent of active NH Lakes Lay Monitoring Program monitors who report that program results were presented to their communities and/or associations through newsletter/newspaper articles, formal and informal presentations, data summaries and report distributions
27	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
28	Number of fishermen who gain knowledge about the economic benefits of fish handling strategies aimed at enhancing product freshness and shelf-life
29	Number of individuals who attend training sessions designed to transfer blue mussel aquaculture technology for the research phase and indicate an increased understanding of the concepts
30	Number of community leaders, volunteers and others who increase their knowledge about natural resources and land conservation topics by attending workshops
31	Number of municipal officials and others who increase their knowledge about the economics of open space, and the financial alternatives available to conserve open space by attending UNHCE Dollars and Sense workshops
32	Marine Science Education - crosscutting

33	Fishing Industry - crosscutting
34	Water Quality Monitoring on New Hampshire's Lakes - crosscutting

Outcome #1**1. Outcome Measures**

Number of coastal watershed residents who report a greater willingness to participate in additional educational and/or stewardship events about the Great Bay Estuary

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #2**1. Outcome Measures**

Number of coastal community members who report an increase in knowledge about growth and its effects on habitat, water quality, and water quantity

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	180

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
112	Watershed Protection and Management

Outcome #3**1. Outcome Measures**

Number of community members, including divers, seafood handlers, and baitfish dealers who report an increase in knowledge and understanding of marine invasions and impacts on the ecosystem as well as an increase in knowledge of how they can minimize introductions from their activities

Not reporting on this Outcome for this Annual Report

Outcome #4**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

Year	Quantitative Target	Actual
2008	0	4240

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #5**1. Outcome Measures**

Number of teachers who learn to utilize marine science concepts and contexts to support teaching core science and other content standards in their classrooms

Not reporting on this Outcome for this Annual Report

Outcome #6**1. Outcome Measures**

Number of marine docents, educators, students, and the general public who gain knowledge of a web-based site containing marine science educational activities, programs, images and research results

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5000	7000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

Outcome #7

1. Outcome Measures

Number of new aquaculture businesses started growing blue mussels on long lines in the open ocean
Not reporting on this Outcome for this Annual Report

Outcome #8

1. Outcome Measures

Dollars generated the blue mussel aquaculture industry

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	10000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #9**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	Quantitative Target	Actual
2008	10	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #10**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

Year	Quantitative Target	Actual
2008	5	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
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Outcome #11**1. Outcome Measures**

Number of fishermen who choose soft-bottom fishing gear over traditional equipment

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	10	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #12**1. Outcome Measures**

Amount (\$) fishermen will receive in competitive funding for cooperative research

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2000000	50000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
903	Communication, Education, and Information Delivery

Outcome #13**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

Year	Quantitative Target	Actual
2008	10	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery
307	Animal Management Systems

Outcome #14**1. Outcome Measures**

Number of bank loans made to individuals seeking to enter the aquaculture industry

Not reporting on this Outcome for this Annual Report

Outcome #15**1. Outcome Measures**

Percent of clientele who report increased conservation activity as a result of UNHCE programming

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	25	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
112	Watershed Protection and Management

Outcome #16

1. Outcome Measures

Number of towns and conservation groups receiving direct assistance with and that conduct natural resource planning and conservation

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	35	44

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Education and training provided by Land & Water Conservation programming has increased communities' abilities to be pro-active about land conservation. Conserved land has significant water quality benefits, helps maintain the state's biodiversity, and supports natural resource-based industries such as forestry and agriculture.

What has been done

Extension's Land & Water Conservation program assists New Hampshire communities and conservation groups with land and water conservation planning projects, such as natural resources inventories, conservation planning, land protection, public outreach, and building public support.

Results

Land & Water Conservation staff provided assistance to 37 towns and seven conservation groups with natural resources inventories, wetland evaluation, water resources protection, conservation planning and land protection, and participated in 22 regional meetings. Direct assistance to communities, workshops and courses involved total participation of 1,373 participants.

4. Associated Knowledge Areas

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

Outcome #17

1. Outcome Measures

Number of municipal officials and others from twenty communities who apply information presented at Dollars and Sense programs to local land use decision-making and public policy development

Outcome #18**1. Outcome Measures**

Number of municipalities that take action to raise funds for land/water conservation after participating in UNHCE programs

Not reporting on this Outcome for this Annual Report

Outcome #19**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

Year	Quantitative Target	Actual
2008	70	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #20**1. Outcome Measures**

Number of communities that 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

Year	Quantitative Target	Actual
2008	2	37

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
131	Alternative Uses of Land

Outcome #21

1. Outcome Measures

Number of communities seeking technical or financial assistance from program partners in order to implement natural resource protection projects. Assistance might include help with developing plans, conducting outreach or reviewing regulations

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #22

1. Outcome Measures

Number of divers, seafood handlers, and baitfish dealers who adopt practices that prevent accidental introduction of invasive species

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	15	65

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #23

1. Outcome Measures

Number of K-12 teachers who adopt marine science concepts and contexts learned through Sea Grant /UNHCE programs that support teaching of core sciences and other content standards

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

Outcome #24

1. Outcome Measures

Sea Grant and Water Resources

Number of K-12 students who improve performance in content areas as a result of teachers incorporating marine science into their lesson plans

Not reporting on this Outcome for this Annual Report

Outcome #25

1. Outcome Measures

Based on data generated by the Great Bay Coastal Watch and the Lakes Lay Monitoring Program, number of pollution problem areas that are addressed by lake associations or regulatory agencies

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

Outcome #26

1. Outcome Measures

Percent of active NH Lakes Lay Monitoring Program monitors who report that program results were presented to their communities and/or associations through newsletter/newspaper articles, formal and informal presentations, data summaries and report distributions

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	90	83

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results**4. Associated Knowledge Areas**

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery
133	Pollution Prevention and Mitigation
112	Watershed Protection and Management

Outcome #27**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

Year	Quantitative Target	Actual
2008	70	25

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)****What has been done**

More than 12 lake associations/communities requested or initiated additional/expanded monitor programs (this represents about 25%).

Results**4. Associated Knowledge Areas**

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

Outcome #28**1. Outcome Measures**

Number of fishermen who gain knowledge about the economic benefits of fish handling strategies aimed at enhancing product freshness and shelf-life

Not reporting on this Outcome for this Annual Report

Outcome #29**1. Outcome Measures**

Number of individuals who attend training sessions designed to transfer blue mussel aquaculture technology for the research phase and indicate an increased understanding of the concepts

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	18

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #30

1. Outcome Measures

Number of community leaders, volunteers and others who increase their knowledge about natural resources and land conservation topics by attending workshops

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	200	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #31**1. Outcome Measures**

Number of municipal officials and others who increase their knowledge about the economics of open space, and the financial alternatives available to conserve open space by attending UNHCE Dollars and Sense workshops
Not reporting on this Outcome for this Annual Report

Outcome #32**1. Outcome Measures**

Marine Science Education - crosscutting

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	{No Data Entered}	0

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 the New Hampshire Sea Grant program, as well as the ocean literacy goals of NOAA.

What has been done

- SeaTrek Programs are 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 are offered on the R/V Gulf Challenger or party fishing boats and involve hands-on activities on the water.
- Training opportunities for Docent volunteers include the intensive training for new Docents, on-going training for veteran Docents, and monthly meetings which always include an educational component.

Results

- Increased the knowledge and awareness of 150 adult and 50 children from the general public about the Gulf of Maine, the Isles of Shoals, and the Shoals Marine Laboratory through seven on-day Shoals Discovery Cruises to Appledore Island.
- Strong collaborative ties continue with three of the four Seacoast based marine science education programs - the Seacoast Science Center, the Great Bay Discovery Center, and the Gundalow Company. Collaborative programs and grant applications have been developed and constructive discussions about future programming continue to take place.

4. Associated Knowledge Areas

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

Outcome #33**1. Outcome Measures**

Fishing Industry - crosscutting

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Innovative collaborations between the fishing industry and research communities have continued since 1999. The two cooperative research funding organizations the Northeast Consortium (NEC) and the Cooperative Research Partnership Program (CRPP) have supported these collaborations. 2007 Congressional cease funding initiative of all 'ear-marked' programs continued through FY2009. As a result, the Northeast Consortium remained zero funded through 2009. The Northeast Consortium did receive competitive funds from NOAA/NMFS and was able to offer a small 2007 RFP (\$1.3 Million).

The NOAA S-K grant program was appropriated \$5 Million to support fisheries, aquaculture and fisheries social science projects in the Northeast. Although, funding for broad topic collaborative research projects has suffered, organizations like the S-K program have allowed for partnerships and cooperative projects to continue through 2009. Consequently, it continues to be critical for the fisheries extension program to identify and develop outreach and technology transfer mechanisms that will encourage the incorporation of conservation minded fishing gear into the industry. By promoting the transfer of collaborative research to the industry and fisheries communities will continue to illustrate the importance of science and industry working together to local/federal government and NGO sponsors.

What has been done

Fisheries extension activities through 2008 continued to be focused on increasing stakeholder awareness of cooperative research efforts in the northeast, building cooperative research partnerships, continuing safety awareness in the NH commercial fishing fleet and transferring size selection technology to the Northern shrimp fishery. In addition, programming was expanded to include marine debris and derelict fishing gear mitigation, sustainable seafood and aquaculture. The primary fisheries extension goals continue to be to transfer conservation gear technology that will reduce bycatch and minimize the impact of fishing gear on benthic habitats.

The focus of 2008 extension activities were to continue to promote cooperative research, engage new industry members with collaborative research, and educate the general public, industry, management and science communities of the tangible benefits of cooperative research.

Results

Fishing industry awareness of cooperative research and the benefits of partnering with the science community were increased. Awareness was increased using industry publications, websites, and Sea Grant publications. Seven (7) articles were published in the Commercial Fisheries News (CFN), of which (4) highlighted cooperative research and (3) focused on the Haddock Symposium, Collaborative Research Visioning Project and the Northeast Regional Tagging Symposium.

Interest and participation in cooperative research was increased through extension contacts with fishermen and researchers region wide (MA, NH and ME). In 2008, a total of (6) fisheries related cooperative research proposals were submitted to the Northeast Consortium, NMFS CRPP, NOAA Saltenstall-Kennedy, and the International Foundation for Animal Welfare. Four projects were funded and one is currently in review. A total of twenty (20) fishermen and eight (8) scientists partnered in the development of these proposals.

Since 2005, fishing gear technology has been transferred to the seasonal Northern Shrimp fishery in ME and NH. During the 2007- 2008 season, (4) commercial fishermen used size selectivity gear developed through cooperative research, instead of the traditional Nordmore grate. A total of twenty (20) industry adopters are expected for the 2008 - 2009 season. Adopters will include ME, NH and MA fishermen. This represents approximately 70% of the active shrimp fishermen. The FEE program anticipates that as the market demand for local shrimp increases, shore-side processing facilities will return and adoption by the regional shrimp fishery will continue to increase.

4. Associated Knowledge Areas

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

Outcome #34**1. Outcome Measures**

Water Quality Monitoring on New Hampshire's Lakes - crosscutting

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The fresh waters of New Hampshire represent a valuable resource contributing to New Hampshire's economic base through recreation, tourism and real estate revenues. Some lakes and rivers also serve as current or potential drinking water supplies. For most residents, our waters help insure a high quality of life. However, New Hampshire currently leads all New England states in the rate of new development and redevelopment. The long-term consequences of the resulting pressure and demands on the state's precious water resources remain unknown.

Of particular concern is the increasing non-point source pollutant loading due to watershed development and land use activities. Local citizens, lake/watershed associations and local decision-makers remain in dire need of additional information required for the intelligent management of our water resources. Limited financial resources do not allow for adequate monitoring of these waters by state or federal agencies, and the increased development and recreational use require a more accurate assessment of the water quality of our estuaries, lakes, ponds, rivers and streams.

Recent research confirms the importance of maintaining the quality (and quantity) of our fresh water resources. For the Lakes Region of New Hampshire, it was determined that a perceived decline in water quality in lakes and rivers would result in a \$245 million loss in sales, an \$8.8 million loss in local income and an estimated loss of at least 396 jobs (Nordstrom 2007). A previous study (Gibbs et al 2002) estimated as much as a 25% loss in property value occurs from a loss in water clarity. In addition with water demand exponentially increasing against development and growth our pristine NH waters, especially our lakes are poised to serve as primary and secondary water supplies.

What has been done

The NH Lakes Lay Monitoring Program (LLMP), supported and administered by UNH Cooperative Extension, offers a cost-shared, quality-assured water quality monitoring and assessment program taking advantage of the commitment of county residents to serve as volunteer monitors. We have worked with a majority of the towns and local lake and watershed associations in New Hampshire's Lake's Region (for over 35 years in some cases) providing monitoring and water quality assessment assistance.

Results

New Hampshire LLMP volunteers are empowered to act as local experts on the water quality conditions and in providing assessment results as well as resource stewardship support through UNH Cooperative Extension and cooperators (NH Lakes Association, NH Dept. of Environmental Services, NH Fish and Game) outreach programs and materials. Over 84% of our participants report back to their local communities in this way. There are over 500 active lake and tributary monitors working in New Hampshire and they contributed 5,482 hours in 2008. At the 2007 volunteer rate of \$19.51 (www.independentsector.org) this equates to a value of \$106,954.

Thirty annual reports for lake monitoring participants were produced and shared with communities. Some reports included data from multiple lakes (i.e. Milton Three Ponds, Wentworth/crescent report, Squam lake report).

More than \$106,950 was generated by NH LLMP programs for use as match for federal and state grants for the UNH Center for Freshwater Biology (CFB), the UNH Water Resources Research Center, NH Municipalities, and NH Department of Environmental Services. The CFB/LLMP Analysis Laboratory provided over \$25,000 in discounted water analyses and field sampling to NH municipalities and communities.

The CFB/LLMP Analysis Laboratory provided over \$15,000 in free laboratory analyses to NH municipalities and communities and provided \$3,025 in free or discounted laboratory analyses for UNH faculty and students and by lending sampling and water quality analysis equipment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
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 and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}