Process Improvement for the Carolina Coastal Discovery Marine Education Program

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South Carolina Department of Natural Resources

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An important part of life everyday, some natural resources are essential for survival, while others add tremendously to our quality of life. Air, land, water, plants, animals and people are all part of nature and the environment. We must protect natural resources for our survival and enjoyment, and we have the responsibility to pass on to future generations a healthy environment for plants, animals, and man. ¹

Background

It is the mission of the SC Department of Natural Resources (DNR) to serve as the advocate for and steward of the state’s natural resources. As guardians of these resources, the DNR strives to ensure healthy, sustainable levels for the use and enjoyment of present and future generations.

The DNR accomplishes its mission based upon an agenda outlined in the DNR Board’s strategic plan entitled The Natural Resources Agenda: A Strategy for Managing South Carolina’s Natural Wealth. Among the strategies outlined is Strategy 3: Education and Public Involvement which states that the DNR will “educate the public about natural resources and involve them in resource management decisions.” ²

More specifically the plan calls for DNR to:

1) Educate the public about the state’s natural resources and encourages them to make more informed contributions to the management, use, stewardship and enjoyment of our natural resources,

2) Promote safe, ethical and responsible use of the state’s natural resources,

3) Emphasize the importance of education as a portion of every DNR employee’s work responsibility. ³

To address these education priorities the DNR’s Marine Resources Division (MRD) has a long history of conducting marine educational programs for teachers and students at its facilities in Charleston

1. South Carolina. Department of Natural Resources. *Education Programs of the South Carolina Department of Natural Resources.* 1999.


3. Ibid.

¹

²

³
and the ACE Basin. These programs, conducted through the Office of Public Affairs (OPA), provide hands-on marine science experiences in the field and aboard a research vessel. Programs specifically focus on conservation and appreciation for the state’s diverse coastal resources.

By far the most popular marine education program at the MRD has been the educational cruise program. The cruise program first began back in the late 1960s when the DNR was located at Bears Bluff Laboratories on Johns Island, and continued to grow in popularity over the years, with thousands of students and teachers participating annually. The cruise program allows students and teachers the opportunity to participate in a variety of sampling procedures used by marine scientists at the DNR. General ecological concepts and life histories of marine organisms collected during the cruise are discussed.

Program Needs

Various opportunities and barriers affect DNR’s success in fulfilling its mission and achieving its strategic goals. The agency continues to implement the vision of placing the highest priority on protecting and managing the state’s natural resource base. However, recent reductions in the state budget have affected all of the agency’s programs and the ability to meet objectives.4

Budget reductions have hit the MRD especially hard in the area of marine education. In 2001, the marine education program was eliminated. This elimination was due not only to staff reductions and dwindling budgets, but also to the lost of the primary educational vessel due to old age and mounting repair bills.

Since 2001, efforts to bring back the popular marine education program have proceeded very slowly. Although the program was discontinued for an indefinite period of time, its popularity has not decreased. Frequent requests from teachers and students across the state prompted OPA staff to evaluate creative funding opportunities with a goal of one day reestablishing the marine education program.

A strategy was devised that included purchasing a new vessel, which would be more ideally suited specifically for educational cruises. Fundraising efforts were coordinated by OPA and staff was successful in securing significant support to provide new infrastructure for the marine education program. One-time funding to purchase a new vessel was provided by the Harry Hampton Memorial Wildlife Fund, DNR, S.C. Saltwater Recreational Fishing License Program, Charleston County Legislative Delegation, Berkeley County Legislative Delegation, and the National Oceanic and Atmospheric Administration. In March of 2003, the arrival of the Educational Vessel (E/V) *Discovery*, a 45-foot fiberglass catamaran, became the first step in obtaining the resources necessary to begin the reestablishment of the marine education program.

In an interview on December 15, 2004 with the Director for OPA, one of the original cruise developers, Charles Farmer stated, “This is a new way for state government to do business. The efforts to reestablish a valuable marine education program through the integration of private, federal and state funds reflects a new approach in state government. The fact that students and teachers will continue to be able experience first-hand the diversity of our state’s marine resources is invaluable.”

As the infrastructure began to accumulate, the OPA commenced with a very limited number of marine education programs aboard the *E/V Discovery* in the fall of 2003. New challenges quickly began to arise in regards to the process of coordinating and conducting these programs. For the first time, OPA was now responsible for the care and maintenance of the educational vessel, a responsibility which had originally been assigned to the Vessel Operations section of the MRD. In addition, the captain to pilot the vessel, also originally provided by Vessel Operations, was no longer available on demand. Most importantly, there was no educational staff available to coordinate or conduct the marine education programs. Staff had to be pulled from other areas of responsibility in order to assist with the program.

It did not take long to realize that the old way of doing business was not appropriate for a newly reestablished marine education program. It was virtually impossible to conduct programs with no staff assigned to those specific duties. Demand for the new vessel was greatly outweighing the availability of
staff to operate it. In addition, the *E/V Discovery*, a major investment, had no one assigned to maintain its operational readiness or ensure proper use.

Stress levels among staff began to escalate, yet the OPA attempted to maintain the minimum level of cruises over the next year with only minor efforts to change the crippled process. This status quo quickly began to erode employee motivation.

**Process Improvement**

John Kotter writes in his book *Leading Change*, “To date, major change efforts have helped some organizations adapt significantly to shifting conditions…and have positioned a few for a far better future. But in too many situations the improvements have been disappointing…with wasted resources and burned-out…frustrated employees.” ⁵

Changing the process for marine educational programs at the MRD was inevitable. The current process, with minimal improvements, was producing the “burned-out, frustrated employees” that Kotter described. The underlying impediment towards progress was the failure to give the reestablishment of the educational program the importance that it needed.

Although talk continued at staff meetings and annual retreats of the importance of the marine education program, it was never cemented as a priority for the office or the division. Kotter explains, “This error is fatal because transformations always fail to achieve their objectives when complacency levels are high.” ⁶ By providing this inconsistency in words and action, the progress of change was being undermined.

To facilitate change and provide for a more improved process, the marine education program had to be made a priority and additional time and monetary resources had to be invested. Once this sense of urgency was established, process improvement began to take shape.


⁶. Ibid.
Gathering Information

In order to begin improvement of the process, all customers had to be identified and input had to be gained. In the current atmosphere of budget reductions, and limited staff and resources, the first and most important customer in the process was the internal customer defined as the existing staff involved in the marine education program. To begin an outline of process improvement, a series of small group meetings were conducted with existing staff. Through these meetings, ideas began to form and problems that needed addressing were defined. Key problems are outlined as follows:

- No personnel resources are assigned to the program.
- Program continuously gets sidetracked and put on the back burner due to other responsibilities of staff.
- Staff is excellent and willing to pitch in (with a few exceptions) but is beginning to get burned out.
- “Big picture” for program never gets put into a planning stage.
- Communication is ineffective - spend more time trying to communicate but do not get message across.
- Participant opinions of program are unknown. Are we were providing the best customer service, easy access to programs and a quality experience?
- Too many players are involved in the process which created lots of room for error.
- No real sense of ownership for the program therefore, no one willing to be responsible. No one to hold accountable for quality service or equipment standard.

In reviewing the list of key problems, it was strikingly obvious that a majority of the issues could be addressed by providing the appropriate personnel resources to the project. There was an immediate need to hire an MRD Educational Coordinator to oversee, plan, organize and conduct all marine education program activities. In addition, there needed to be an increased interest and support from all MRD staff regarding the importance of an educated constituency. An effective marine educational
program cannot be conducted without the expertise and support from employees across the division, not just within the OPA. However, division support could not be coordinated without education personnel. Until this basic need was met, the marine educational program would continue to exist as a basic, minimal program.

In July of 2004, MRD senior staff and the Saltwater Recreational Fishing License Committee agreed to fund a temporary Education Coordinator from the 2004 – 2005 fiscal year state revenue budget. In doing so, this propelled the marine education program to the forefront of the 2004 - 2005 goals for the MRD. An Education Coordinator was hired in August of 2004.

Once the Education Coordinator was employed, outlining and implementing an action plan for process improvement was set in motion. Key to the speed at which this process takes place is the fact that we have employed an individual with a background in marine education and a two-year history with the agency. She is extremely familiar with the marine education program, the agency mission and with the needs of teachers in the state. This has saved valuable time in training an employee.

In order to delve deeper into the questions and problem areas sited by staff, and to identify other possible areas of needs, a number of methods were employed to gain independent data from additional customers.

Internal Customers: One-on-one interviews were conducted with staff, both present and past, during November and December. Individuals interviewed included the Director for OPA, a former education specialist, current staff within OPA, and a former boat captain for the marine education program. Interviews were casual with valuable experiential information gained. Specific questions were also addressed including:

1) What are some things from the marine education program that you would like to see continued?
2) What are some things you would like us to stop doing?
3) What new ideas do you have for the program?
4) What are some areas of concern you may have regarding the program?
Data collected for these specific questions is summarized in the table below. Many responses were similar in nature and have been grouped together as one comment.

<table>
<thead>
<tr>
<th>Continue</th>
<th>Discontinue</th>
<th>Ideas</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offering a variety of programs.</td>
<td>Scheduling on one day each year or based on a lottery.</td>
<td>Add new topics and curricula especially for land-based programs.</td>
<td>Not enough people to run program. No one responsible.</td>
</tr>
<tr>
<td>Accompanying cruise programs with land-based programs.</td>
<td>Touring the lab until we can make more exciting.</td>
<td>Develop creative, informative take-home packet for participants.</td>
<td>Need a captain assigned specifically to the E/V Discovery.</td>
</tr>
<tr>
<td>Sampling resources from a variety of substrates/habitats.</td>
<td>Offering programs for free. Need to recover the cost of the program.</td>
<td>Get better evaluation process in place. Provide pre-tests and post-tests.</td>
<td>Centralize scheduling process with one person so programs aren't overlooked.</td>
</tr>
<tr>
<td>Offering programs in Charleston and ACE Basin.</td>
<td>Allowing teachers to &quot;drop kids off&quot;. Need to make them more involved in discipline, chaperoning, etc.</td>
<td>Develop a Website, brochure and other printed materials for teachers to have easier access to information.</td>
<td>Develop better list of what types of activities are allowed on vessel, who is in charge, etc. to ensure life of vessel.</td>
</tr>
<tr>
<td>Establishing different months in each locale to avoid driving vessel back and forth weekly.</td>
<td>Allowing bios to talk about any random topic. Have a more structured program with specific curricula.</td>
<td>Find additional funding and recover program costs in order to be self-sufficient and not rely on state funds.</td>
<td>Develop a more formal way of applying for programs. Capture data from applications for more detailed database.</td>
</tr>
<tr>
<td>Getting assistance for cruises from biologists in lab.</td>
<td></td>
<td>Need live tank onboard vessel to minimize casualty of resources.</td>
<td>Get realistic about how many programs we can successful do with the resources at hand.</td>
</tr>
</tbody>
</table>

**External Customers:** To gain information from outside users, a stratified random sampling technique was employed. A population set was determined from an existing database of teachers/schools that had previously attended or previously requested a marine education program. Use of this population set would ensure that respondents had some background knowledge about the program. The population set consisted of 60 teachers or coordinators from requested program between 2000 and 2004.
Questionnaires (A-1) were mailed to respondents with an enclosed self-addressed stamped envelope. The direct mail option was used as opposed to an online survey site because of the large number of open-ended questions. These types of questions were determined to be important because marine education programs are typically individualized for groups based on school needs. Therefore, it was difficult to unify some of the responses, and capturing individual experiences was important.

Data collected from participants included their degree of satisfaction with the program, overall quality of the program, opinion of staff, knowledge gained from program, areas needing improvement, and suggestions for the future. Analysis of the data is indicated below. Responses to open-ended questions and additional data on program expectations can be found on the analysis page in the Appendix (A-2). The majority of the respondents rated their experiences high. Areas needing improvement included the scheduling process, responsiveness to requests, communication with requestors, and program organization.

Overall Program Ratings scaled from 1 to 5, with 5 being “very satisfied” and 1 being “unsatisfied”.

<table>
<thead>
<tr>
<th></th>
<th>5 - 88.9%</th>
<th>4 - 11.1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Quality of program</td>
<td></td>
<td></td>
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<tr>
<td>b) Ease of scheduling</td>
<td>5 - 36.8%</td>
<td>4 - 26.3%</td>
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<td>c) Responsiveness</td>
<td>5 - 47.3%</td>
<td>4 - 42.1%</td>
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<td>d) Communication</td>
<td>5 - 52.6%</td>
<td>4 - 26.3%</td>
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<tr>
<td>e) Instructor knowledge</td>
<td>5 - 94.4%</td>
<td>4 - 5.6%</td>
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<tr>
<td>f) Enthusiasm</td>
<td>5 - 88.8%</td>
<td>4 - 5.6%</td>
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<tr>
<td>g) Professionalism</td>
<td>5 - 94.4%</td>
<td>4 - 5.6%</td>
</tr>
<tr>
<td>h) Quality of facility</td>
<td>5 - 83.3%</td>
<td>4 - 16.7%</td>
</tr>
<tr>
<td>i) Enjoyment</td>
<td>5 - 83.3%</td>
<td>4 - 16.7%</td>
</tr>
<tr>
<td>j) Program Organization</td>
<td>5 - 66.6%</td>
<td>4 - 27.8%</td>
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</tbody>
</table>

Problems associated with this data collection method included a large number of non-returns and validity of responses. Of the 60 questionnaires mailed, 20 responses were received. The majority of those surveyed responded favorably to the project. This may have been a valid attitude of participants, given the
correlation of high requests for programs. However, it was difficult to determine the true validity of the data as an accurate assessment of feelings due to the low number of respondents.

The possible reason for the large number of non-returns and the potential of invalidity of the data may arise from several factors. These factors might include unclear instructions included in the questionnaire, a misunderstanding of the questions, and the omission of a strong statement regarding anonymity. Respondents may have believed that enough information could have been gained to determine the identification of the respondent. This may have led to a fear of repercussions by not receiving a future program if the responses were critical.

As customer satisfaction is crucial to the overall evaluation of the program, the questionnaire will be revised to improve upon the problematic areas above and be redistributed to participants after each program.

Although customer satisfaction is important to the process and the data collected was included in outlining an action plan, it was determined that data collected from staff would serve a more dominant role in process improvement. This is due to the stark reality that the current budget climate, including limited resources and funding, will dictate the direction of the marine education program rather than the external customer’s wants and needs.

A series of additional small group meetings were conducted with existing staff to finely tune all data analysis into a workable action plan.

**Action Plan**

Based on the analysis of the various data, an action plan to improve the quality of the marine education program and the process associated with it was developed. Goals and objectives established for the marine education program for 2004-2005 are below:

1) Establish a policy for the marine educational program including guidelines for conducting programs, eligibility and program costs

2) Develop specific vessel and land programs with associated curricula
3) Establish a policy for use of the *E/V Discovery* including maintenance schedules

4) Develop an application/scheduling process for participants

5) Establish a flowchart of responsibilities for a more efficient scheduling process

6) Develop a participant package including responsibilities of participants, materials list, directions, and the like

7) Identify potential funding support for the program’s future

8) Develop a marketing plan and associated materials to “sell” the program to teachers and to solicit additional funding

9) Develop an evaluation process to determine program success

**Progress to Date**

As of January 2005, several goals and objective for the marine education program have been accomplished.

1) A program policy (A-3) was written and approved by MRD senior staff. The policy will guide staff and participants in scheduling and conducting educational programs at the MRD. It outlines safety concerns and restrictions for vessel and land programs, scheduling procedures, cancellation procedures, liability and program support.

2) A flowchart (A-4) diagramming the scheduling process was developed and distributed among staff and supervisors.

3) A teacher/participant package (A-5) was developed including an application to request marine education programs, participant and chaperone responsibilities, material lists and directions.

4) A policy for the use and maintenance of the *E/V Discovery* was drafted (A-6). Additional revisions are necessary to ensure that all aspects of operation are included in the policy.

5) A marketing plan for the program was outlined (A-7). Several ideas and materials to support the marketing plan have been finalized including 1) establishing a new marine education program...
name, 2) designing an attractive new logo (A-8) to represent the program, and 3) designing a brochure (A-9) to highlight the program for distribution to teachers and other groups.

Plan for Remaining Goals

Specific goals that remain to be accomplished are outlined in the milestone chart below. All goals for the 2004 – 2005 fiscal year should be completed or near completion by May. Funding milestones will be subject to business fiscal cycles, and grant and charitable foundation proposal timelines.

<table>
<thead>
<tr>
<th>Implementation Plan</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
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<tbody>
<tr>
<td>Finalize use and maintenance directive for the <em>E/V Discovery</em>.</td>
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<td>Design and order promotional items including pens, stickers, etc. to provide</td>
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<td>participants.</td>
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<tr>
<td>Design a Website highlighting the marine education program including how to apply,</td>
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<td>who's eligible, etc.</td>
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<tr>
<td>Recruit and train MRD staff to serve as biologist and deckhands on cruises.</td>
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<tr>
<td>Produce promotional DVD which highlights the program for use as a &quot;selling&quot; tool.</td>
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<td>Direct mail and attend faculty meetings in BCD school districts to pilot new</td>
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<td>program and how to apply.</td>
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<tr>
<td>Identify potential funding opportunities through grants, charities and local</td>
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<td>businesses, and target for support.</td>
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<tr>
<td>Conduct a Business Appreciation Day to solidify program support of potential</td>
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<tr>
<td>donors.</td>
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</tbody>
</table>
Evaluating Success

Progress of the outlined goals for the marine education program will be followed via biweekly OPA staff meetings. These meetings will allow staff the opportunity to discuss problems that arise, obtain instruction or clarification of goals, receive needed assistance, and allow for time extensions to address obstacles. Being flexible in achieving these goals will avoid frustration of staff and head off abandonment of the improvement process.

During the next year, it will be important to evaluate the overall success of the marine education program and the improvement steps that have been implemented. In order to do this, data will continue to be collected from both internal and external customers. This data will be analyzed to ensure that the improvement steps have had the intended effect. In addition, this data should allow staff to discover any unintended results of the new process.

Accomplishments of the improvement process will be evaluated by OPA staff and supervisors every six months for the next two years, and at OPA annual retreats during the subsequent years. Data will be gathered using checklists by staff involved in the process. Information measured will include program standards such as amount of funding, number of employees available, number of participants, number of complaints, and number of problems encountered (i.e., conflicts with scheduling, boat maintenance issues, etc.). This data will be compared with previous data to determine if gains are being made. Areas of improvement will be apparent and can be addressed in these biannual planning meetings.

The overall success of the marine education program will be evaluated by staff using data gained from external customers. Exit evaluations, similar to the questionnaire (A-1) previously distributed, will be provided to participants after each program. Data compiled into radar charts or similar tools will be analyzed twice a year (summer and winter) following each cruise season. Through these tools, staff can determine the level of participant satisfaction and develop improvement plans for areas of deficiency.

Throughout the process, it will be vital to adjust flowcharts and areas of staff responsibility as the program grows and changes in staff occur. New employees must be trained in the new process in order to maintain the energy and enthusiasm for change, and to drive the process forward.
Ensuring the future

Although the marine education program is a longstanding program within the MRD, the new approach has met some resistance among the “old school” staff. Although the new process is seen by most as a definite improvement, maintaining the enthusiasm for the change will take effort of all staff and supervisors.

Kotter says, “Until new behaviors are rooted in social norms and shared values, they are always subject to degradation as soon as the pressures associated with a change effort are removed.” 7 As we move farther away from the spotlight on the reestablishment of the marine education program, the draw for it to slip back into its minimal state of existence will be powerful. By allowing the staff to have more of an ownership in establishing the process, its foothold should become more deeply entrenched. However, with additional budget cuts looming and employee incentives on the back burner, maintaining the enthusiasm for the program and its future will be a challenge.

Efforts to increase support from the agency director and the DNR Board members will be a high priority in the future. Getting additional buy-in from this level will be important in keeping education as a critical part of the mission of the DNR.

The DNR must educate citizens, especially young people, about the vital importance of maintaining a healthy natural resource base. We should put a priority on our efforts to reach young people at an early and impressionable age in order to affect the way they think and act toward natural resources throughout their lives. The individuals who experience our marine education programs will one day represent the decision-makers who will ensure the conservation of all of our natural resources in the future.

Dear Teacher/Participant:

Thank you for your past participation in the South Carolina Department of Natural Resources’ (SCDNR) Marine Education Program. We are evaluating our customer satisfaction in an effort to improve upon the quality of our service. We appreciate your patience as we begin the process of reestablishing of our educational program and we hope to see you at our facilities soon. Thank you for your valuable input.

1) Program(s) attended _______________________________________

2) Age/grade of group ________ approximate # in group ________

3) Location of program (mark all that apply):
   _____ Michael D. McKenzie Field Station (Bennett’s Point)
   _____ Donnelley Wildlife Management Area
   _____ Edisto Interpretive Center
   _____ Edisto Beach State Park
   _____ School Classroom
   _____ SCDNR Marine Resources Division (Charleston)
   _____ SCDNR Vessel (circle vessel that applies, if know):
       R/V Anita   R/V Carolina Pride   E/V Discovery
   _____ Other ______________________

4) Did the program(s) meet your expectations? YES____ NO____

5) Have you participated in our program before? YES____ NO____

6) Would you attend another of our programs? YES____ NO____
   Why or why not?

________________________________________________________________

7) Would you refer our program to other groups? YES____ NO____
   If no, please explain:
   __________________________________________________________________

8) What scheduling process did you use to arrange your program (mark all that apply)?
   _____ Lottery system (via mail-in request)
   _____ September/Labor Day scheduling (via phone)
   _____ Other (please describe) _______________________________________

________________________________________________________________________
9) Please rate the following (circle one number per question):

<table>
<thead>
<tr>
<th>Category</th>
<th>Very satisfied</th>
<th>Unsatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Overall quality of program</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>b) Ease of scheduling</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>c) Responsiveness to program request</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>d) Communication with staff prior to visit</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>e) Instructor knowledge of subject matter</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>f) Enthusiasm of instructors</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>g) Professionalism of instructors</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>h) Quality of facility</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>i) Participants' enjoyment</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>j) Organization of program</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

10) What did you learn from participating in our program(s)?

____________________________________________________________________________________

11) What was the best part of the programs(s)?

____________________________________________________________________________________

12) What part of the program(s) needs improvement?

____________________________________________________________________________________

13) How did you find out about the program(s)?

E-mail   newspaper   flyer   word of mouth   other_____________________

14) What additional topics for programs would you like us to offer in the future?

____________________________________________________________________________________

Thank you for filling out this survey! We appreciate your comments.

Please return form to SCDNR Education Coordinator, Elizabeth Vernon, P.O. Box 12559, Charleston, SC 29422 or via the enclosed postage paid envelop.
Dear Teacher/Participant:

Thank you for your past participation in the South Carolina Department of Natural Resources' (SCDNR) Marine Education Program. We are evaluating our customer satisfaction in an effort to improve upon the quality of our service. We appreciate your patience as we begin the process of reestablishing of our educational program and we hope to see you at our facilities soon. Thank you for your valuable input.

1) Program(s) attended ____________________________________________

2) Age/grade of group _______ approximate # in group ______

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   ______ Michael D. McKenzie Field Station (Bennett’s Point)
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   ______ Edisto Beach State Park
   ______ School Classroom
   ______ SCDNR Marine Resources Division (Charleston)
   ______ SCDNR Vessel (circle vessel that applies, if know):
       R/V Anita        R/V Carolina Pride        E/V Discovery
   ______ Other __________________________

4) Did the program(s) meet your expectations?          YES ___    NO ___

5) Have you participated in our program before?        YES ___    NO ___

6) Would you attend another of our programs?
   Why or why not?

7) Would you refer our program to other groups?         YES ___    NO ___
   If no, please explain:

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   ______ Lottery system (via mail-in request)
   ______ September/Labor Day scheduling (via phone)
   ______ Other (please describe)

A - 1 - 1
9) Please rate the following (circle one number per question):

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<tr>
<td>c) Responsiveness to program request</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>d) Communication with staff prior to visit</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>e) Instructor knowledge of subject matter</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>f) Enthusiasm of instructors</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>g) Professionalism of instructors</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>h) Quality of facility</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>i) Participants’ enjoyment</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>j) Organization of program</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

10) What did you learn from participating in our program(s)?

________________________________________________________________________

11) What was the best part of the programs(s)?

________________________________________________________________________

12) What part of the program(s) needs improvement?

________________________________________________________________________

13) How did you find out about the program(s)?

   E-mail   newspaper   flyer   word of mouth   other

14) What additional topics for programs would you like us to offer in the future?

________________________________________________________________________

Thank you for filling out this survey! We appreciate your comments.

Please return form to SCDNR Education Coordinator, Elizabeth Vernon, P.O. Box 12559, Charleston, SC 29422 or via the enclosed postage paid envelop.
Questionnaire Results

Total number of responses = 20 out of 60

Logistics and Types of Programs
Cruises with land-based programs: 65%
   Of those cruises:
      Charleston – 61.5%
      ACE Basin – 30.8%
      unknown – 7.7%

Land-based programs only: 35%
   Of those programs:
      Charleston – 71.4%
      ACE Basin – 28.6%

Program Experience
Program Met Expectations:
Overall: Yes 95% No 5%
   Cruise: 100% 0%
   Land only: 85.7% 14.3%

Prior Program Attendance:
Overall: Yes 45% No 55%
   Cruise: 69.2% 30.8%
   Land only: 0% 100%

Would Attend Again:
Overall: Yes 100% No 0%
   same for both categories

Would Refer to Others:
Overall: Yes 100% No 0%
   same for both categories

Scheduling Process:
Overall: Lottery 28.6% Labor Day 33.3% Other 38.1%
   Cruise: 33.3% 66.7% 0%
   (1 – no response; Others included: 3 – call ins, and 1- no specifics)
   Land only 26.7% 46.6% 26.7%
   (Others included: 2 – call ins, 1 – planned, and 1 – through Open Land Trust)
Rating of Program
Scaled from 1 to 5, with 1 being “unsatisfied” and 5 being “very satisfied”

Overall:
a) Quality of program 5 - 88.9% 4 - 11.1%
b) Ease of scheduling 5 - 36.8% 4 - 26.3% 3 - 15.8% 2 - 5.3% 1 - 15.3%
c) Responsiveness 5 - 47.3% 4 - 42.1% 3 - 5.3% 2 - 5.3% 1 - 5.3%
d) Communication 5 - 52.6% 4 - 26.3% 3 - 10.5% 2 - 5.3% 1 - 5.3%
e) Instructor knowledge 5 - 94.4% 4 - 5.6%
f) Enthusiasm 5 - 88.8% 4 - 5.6% 3 - 5.6%
g) Professionalism 5 - 94.4% 4 - 5.6%
h) Quality of facility 5 - 83.3% 4 - 16.7%
i) Enjoyment 5 - 83.3% 4 - 16.7%
j) Program Organization 5 - 66.6% 4 - 27.8% 3 - 5.6%

(Land only programs rated a, and e – j at 100% very satisfied (5).)

Open-ended questions / comments
Why would you attend the program again?
Cruise:
• good field compliment to classroom studies
• exciting for students and relevant to standards
• interesting and educational
• relevant information for marine biology course
• comments on specific staff – excellent program from [particular staff member], some staff not too great
• staff very knowledgeable
• unique experience

Land only:
• age appropriate and great hands-on activities
• exciting
• student enjoyment
• comments on specific staff – very patient and well prepared
• learned a lot through hands-on interactive environment
• didn’t receive program – would like to attend but understand program was cut due to budget

Why would you refer the program?
Cruise:
• good opportunity for students who have never been on the water or explored the marsh
• students learn more from hands-on aspect of teaching
What did you learn?
Cruise:
• how dynamic and interesting estuaries and salt marshes are.
• variety of sea life
• importance of water quality and effects on marine life
• importance of estuaries to wildlife and quality of life
• how to tell the difference between male and female shrimp
• DNR uses scientific research to make management decisions
• different species of fish in waters and benefit to us
• animals that live in the estuaries and salt marsh
• invertebrates and fish identification
• different substrates in the Charleston Harbor, variety of animals and the mission of DNR
• best resources for marine studies

Land only:
• too much to list
• all about star fish
• different hermit crabs and animals that make shells
• all about the salt marsh

What was the best part?
Cruise:
• the cruise (x3)
• student interest in live animals
• hands-on experiences (x3)
• realizing what a treasure we have in the Lowcountry
• learning about the environment and wildlife
• tour of mariculture lab
• seeing all the things that we normally wouldn’t see
• field experience compliments classroom work
• cruise and salt marsh – most students have never done this

Land only:
• beach search
• collecting things (x2)

What needs improvement?
Cruise:
• way to hear staff on the boat
• evident there is limited budget and staff is stretched thin
• parts of tour need spicing up, new displays and more hands-on activities
• scheduling was very difficult – too hard to get through on just one day
• tour of facility can be boring
• more hands-on for marsh
Land only:
- would like to attend a program, hope funds will come back

Additional topics you’d like to see?
Cruise:
- none – selection is great
- careers in marine science and wildlife biology
- bird watching
- genetics in marine animals
- dissection, geology and water quality
- more opportunities for shadowing employees

Land only:
- incorporate painting or other artwork into program so kids can take something home

**Marketing**
How did you find out about program?

<table>
<thead>
<tr>
<th>Overall</th>
<th>Email 15.8%</th>
<th>Flyer 5.3%</th>
<th>Word of Mouth 57.9%</th>
<th>Other 21%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cruise</td>
<td>7.7%</td>
<td>7.7%</td>
<td>53.8%</td>
<td>30.8%</td>
</tr>
<tr>
<td>(Others included: 1 – teachers, 1 – Marine Education Association, 1 – Open Land Trust, and 1 – have been coming for years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land only</td>
<td>33.3%</td>
<td>0%</td>
<td>66.7%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Program Policy

The South Carolina Department of Natural Resources' (SCDNR) Carolina Coastal Discovery Marine Education Program provides destination-based marine science programs for participating groups. Vessel and land programs focus on the conservation and protection of the state’s marine and coastal natural resources. The Program Policy below reflects the SCDNR’s commitment to quality and safety while aboard the vessel and while participating in the land-based activities.

Vessel Policy

1) The Education Vessel (E/V) Discovery will be docked at the SCDNR’s Marine Resources Division in Charleston or at the Michael D. McKenzie Field Station in the ACE Basin. The vessel’s location is determined by seasonal school program scheduling, and the SCDNR will not relocate the vessel except during the scheduled relocations that are set each year.

2) The E/V Discovery can accommodate 49 participants including captain and crew, but the number of participants is the discretion of the captain and Program Coordinator.

3) One chaperone must be present per 10 students. A Chaperone Responsibility Form will be mailed out separately upon approval of Program Request Form.

4) All participants must be at least in the 5th grade.

5) All participants should wear appropriate attire and footwear. Tennis shoes, and sandals with a back-strap are acceptable. Flip-flops are not allowed. Loose or baggy clothing should not be worn. The vessel captain will determine if attire is appropriate.

6) All non-SCDNR participants under the age of 21 are required to wear a US Coast Guard approved Personal Floatation Device (PFD), or life jacket while on board. PFDs are provided to participants upon boarding.

7) SCDNR staff will give a safety talk before boarding the vessel. Staff will indicate the location of first aid kits, life jackets and procedures to follow in the event of an emergency.
8) Inappropriate behavior such as not following directions, throwing objects or litter from the vessel, horseplay, running, hanging from sides, lack of cooperation, etc. will not be tolerated. Should this type of behavior occur, the captain has the authority to terminate the program and return to the dock.

9) Any groups with participants requiring special accommodations, such as wheelchair assistance, must submit a description of accommodations needed on the Carolina Coastal Discovery Program Request Form.

10) Group coordinator should indicate on the Program Request Form any medical conditions and medications of participants with asthma, diabetes, etc. If no medical conditions exist among participants, this should be indicated on the Program Request Form. It is the passenger’s responsibility to have medication available and with them onboard.

**Land Program Policy**

1) Land-based programs will take place outside, in a classroom or both.

2) Group coordinator should inform participants to wear appropriate outdoor clothing.

3) Students must stay with their assigned groups and chaperones at all times. It is the chaperone’s responsibility to ensure all students are accounted for throughout the program.

4) Land programs are suitable for every grade and age. The content will vary based on the ages of the students. Special topic requests may be indicated on the Land Based Program Form, and the Program Coordinator will try to accommodate the request.

5) Dissections will utilize sharp tools, and in some cases, chemically treated specimens. Upon request, SCDNR staff will provide gloves.

6) Binoculars, field guides and all other educational supplies will be provided.

7) Inappropriate behavior will not be tolerated, and the program may be terminated in the event of misbehavior.

**Scheduling Procedures**

Requests for programs must be received at least **three weeks prior** to requested program date. No exceptions are allowed unless authorized by the SCDNR’s Office of Public Affairs (OPA).

All groups are required to fill out a Carolina Coastal Discovery Marine Education Program Request Form, no exceptions. Submission of the Program Request Form does not guarantee approval. The Program Coordinator will notify groups
via phone, mail or e-mail of their approval or denial no more than 10 business days after Program Request Form is received.

Be sure to complete all necessary forms when applying for a program:

1) **Program Request Form** with a list of names, ages and grades (if applicable) of all participants.

2) **Land Based Program Form**. Please indicated a first and second priority on the space provided

Upon approval of a program request, the Program Coordinator will send the following additional information: Chaperone Responsibility Form, Materials List, Directions, and a Program Agenda.

**Requesting the E/V Discovery for Scientific Projects**

To request the use of the *E/V Discovery* for scientific purposes, submit the following to OPA: 1) a written summary describing the type of work that will be conducted, and 2) the completed Carolina Coastal Discovery Program Request Form. All forms must be submitted at least **three weeks** before the requested project dates. Vessel usage dates are scheduled on a first-come, first-serve basis. If approved, the requestor will receive approval notification and available dates from the OPA.

The OPA in consultation with Vessel Operations will decide which projects are appropriate for the *E/V Discovery*. The vessel is not appropriate for projects that may damage or stain the canvas or deck.

The vessel will depart no earlier than one-half hour after sunrise and must be docked no later than one-half hour before sunset.

**Program Support**

**For additional information on half or full day education programs and associated costs please contact:** Elizabeth Vernon at (843) 953-9359 or vernone@mrd.dnr.state.sc.us

**Liability**

The SCDNR cannot be held responsible for any lost, damaged or stolen property before, during or after a **Carolina Coastal Discovery** Marine Education Program, scientific cruise, or at any SCDNR facility or property.
Scheduling Flowchart for Carolina Coastal Discovery Programs

Call received for information on program.

- Explain why we can't accommodate request.
- Is call a legitimate program request?

- Take information and mail application or refer to Web site.
- Is application received?

- Review application for information and eligibility.

- Explain why we can't accommodate request.
- Is group legitimate and willing to incur program cost?

- Contact for alternative dates
- Is date requested available?

- Schedule captain and biologist.

- Contact group and confirm date. Arrange for payment of program cost.

- Are program costs received?

- Disregard request.
- Contact group and make arrangements.
- Conduct program.
Chaperone Responsibilities

The Carolina Coastal Discovery Program provides fun, hands-on learning experiences for formal and informal education groups. The South Carolina Department of Natural Resources (SCDNR) requires the presence and aid of chaperones to ensure the safety and cooperation of participants during each program. *Each chaperone must review the duties listed below and initial at the end.

1) **One chaperone/teacher must be present per 10 students.**
   Prior to arrival, each chaperone must obtain from the teacher(s) the names of the students in their group. It is the chaperone’s responsibility to become familiar with their group and be aware of any medical needs or disabilities.

2) **Chaperones are in charge of group behavior.**
   Chaperones must monitor the behavior and manners of their students and assist in enforcing the SCDNR's rules. It is imperative that rules are followed during the program. If rules are not followed, SCDNR staff reserves the right to terminate the program.

3) **Chaperones help SCDNR staff remain on schedule.**
   Schedules will be provided to each chaperone at the beginning of the visit, and chaperones are asked to help staff in getting students to follow the schedule to ensure that they enjoy the program to its maximum potential.

4) **Chaperones monitor disposal of litter.**
   The facilities you are visiting are kept in a presentable condition and should remain so for future groups. If you observe litter on the ground, be a good role model and pick it up or have the students collectively do a trash pick-up. Groups that damage or leave the facility in disarray may not be allowed to schedule a program in the future.

5) **Chaperones refuse student participation due to misbehavior.**
   Please alert the lead teacher and appropriate SCDNR staff for further instructions on this matter.

6) **Chaperones monitor the behavior of students in other groups.**
   If you observe misbehavior, disobeying of the rules, or any other form of disruptive action from a group other than your own, please offer assistance to the chaperone of that group and alert SCDNR staff.
7) **No alcohol, drugs or weapons will be tolerated**
Any alcohol, drugs, weapons, or other illegal items or actions must be reported immediately to SCDNR personnel and appropriate authorities.

_I have read the aforementioned responsibilities, and I understand that my role as a chaperone is very important to the safety and success of our visit. I am willing and physically able to carry out my duties as a chaperone._

School Name

Date of Program

Lead Teacher Signature

Chaperone Initials:

________  __________  __________  __________  __________

________  __________  __________  __________  __________
Land-Based Program Form

Please indicate a first and second priority on the space provided below the program description and return with the Program Request Form.

Wetland Workout!
This program is designed to showcase our most treasured jewel in the Lowcountry...the salt marsh and estuary. Learn all about estuaries, the salt marsh, and the animals that inhabit these areas through field exploration, hands-on activities, demonstrations and games.

Marine Geology/Plate Tectonics
Using a brightly colored plate tectonics puzzle, CD-ROM and edible activities, students will learn the three important layers of the earth and learn the difference between the continental drift theory and the plate tectonic theory.

Octopus Lesson and Squid Dissection
Think they are just squishy and gross? Think again! Discover two of the smartest marine organisms through this hands-on octopus program and squid dissection. Optional cooking and eating of calamari at the end!

Precious Plankton
Discover the surprisingly exciting world of phytoplankton and zooplankton. Students will learn how to use a plankton net to capture plankton. Students will use microscopes to identify the varieties of plankton present in our estuaries as well as enjoy entertaining hands-on games and activities.
Something's Fishy...

Learn the external and internal anatomy of fish through these activities:

1) Gyotaku (fish printing): Learn the history of Gyotaku and make fish prints on T-shirts, paper or even make a quilt!

2) Crinkle Can Fish/Bottle Fish: Using recyclable soda cans and plastic bottles as the body of a fish, students will make creative decorations on their own fish!

3) Fishing Techniques/Regulations with a Conservation Message (recommended):
   Learn about South Carolina’s fishing size and catch limits and why these regulations are important. Students will learn how to use a rod and reel, throw a cast net and use a crab pot.

Friend or Foe?

Did you know that there are over 30 species of sharks off South Carolina’s coast? Students will learn about the different kinds of sharks, shark senses, shark myths, and shark biology through a variety of hands-on demonstrations and activities. Look at fossilized sharks teeth and learn how to determine the size of the shark!
Materials List and Directions

What to Wear/Bring

- Outdoor clothing (ex: jeans, T-shirt, sneakers, jacket, hat)
- Sunglasses
- Camera
- Bugspray
- Lunch/Drink (no refrigeration is available)
- Water (no water is available in the ACE Basin; a few water fountains are located in the lab at the SCDNR in Charleston)

What NOT to Wear/Bring

- Skirts, dresses, open-toed shoes, high-heeled shoes, flip-flops or loose clothing
- Drugs, alcohol, guns, knives or any other weapon
- CDs, Walkman, IPOD, games or other electronic devices (items will not be allowed during program and must be left on the bus if brought).
- Valuable jewelry or personal items

Directions to Marine Resources Division

From I-26:
Go East on I-26 until the interstate ends. Exit I-26, taking US 17 South towards Savannah (Exit 221A). After 5th traffic light, fork right towards Lockwood Blvd. At traffic light, take left onto Lockwood Blvd. Take on ramp to SC-30 to James Island/Folly Beach. Take Exit 2 onto Harborview Road. Bear right and remain on Harborview Road for ~3 miles. Turn left onto Fort Johnson Rd and proceed ~1 mile to Marine Resources Center complex.

Traveling North on US 17 (from Savannah):
Proceed north on US 17 to Wesley Road SC-171 (Exxon and an Ice Cream Shop will be on the left). Take right at the signal light, stay in the middle lane and follow the signs to Folly Beach/James Island (SC-171/Folly Road). Cross the Wappoo Cut Bridge. Take left at 3rd stop light onto the Harborview Road. Proceed on Harborview for ~3 miles. Turn left onto Fort Johnson Rd and proceed ~1 mile to Marine Resources Center complex.
Traveling South on US 17 (from Georgetown):
Proceed south on US 17 over old Cooper River Bridge. After bridge, proceed on US 17 in the center lane. After 5th traffic light, fork right towards Lockwood Blvd. At traffic light, take left onto Lockwood Blvd. Take on ramp to SC-30 to James Island/Folly Beach. Take Exit 2 onto Harborview Road. Bear right and remain on Harborview Road for ~ 3 miles. Turn left onto Fort Johnson Rd and proceed ~ 1 mile to Marine Resources Center complex.

Directions to Michael D. McKenzie Field Station (ACE Basin):
*From Georgetown, get on Hwy 17 heading south. From Savannah, get on Hwy 17 heading north (if coming from Colleton County, take Hwy 303 to Hwy 17 and head north).

Once in Colleton County, stay on Hwy 17 and look for a sign for Bennett’s Point and Bear Island, and turn at the sign onto Bennett’s Point Road (if traveling south, turn left; if
traveling north, turn right). Go approximately 16 miles where the road will curve sharply to the right, and you will pass a small brick fire station on your left. The Michael D. McKenzie Field Station will be on your left soon after the fire station. Turn into the gate and park in front of the building in any of the available spaces. If you get to B&B Seafood, you’ve gone too far and are just past the field station.

**Directions to the Edisto Interpretive Center:**

*From Georgetown, get on Hwy 17 heading south. From Savannah, get on Hwy 17 heading north. Turn on Hwy 174 from Hwy 17 heading towards Edisto Beach State Park. The turn off will be on your RIGHT if heading north on Hwy 17 and will be on your LEFT if you are heading SOUTH on Hwy 17. Stay on Hwy 174 for approximately 20 miles. After about 20-22 miles you will pass the Edisto Post Office, the Atwood Agency, and the Edisto Super Market (which is now closed), all on the right. Look for a brown sign on your right for the Edisto Interpretive Center. Turn right onto Palmetto Road, and go approximately 1.5 miles down this road. Take your first left onto a dirt road (if you go too far, you will enter into a subdivision called "The Neck"). There will be a brown sign advertising Live Oak Landing and the Edisto Interpretive Center. *Be careful turning left--it is a blind curve and people speed around the curve!* Drive past the iron ranger check station and keep going straight on the dirt road until you see the Edisto Interpretive Center sign on your right. Turn right and follow the road around to the center and parking area.
Program Request Form

CONTACT INFORMATION
Name__________________________________________
Affiliation________________________________________
Address__________________________________________
City________________ State______ Zip__________
Telephone________________ Fax ______________ Email ______________

THIS REQUEST DOES NOT GUARANTEE APPROVAL. NOTIFICATION WILL BE GIVEN WHEN APPROVED.

Today’s Date: ________________________________
Requested Program Date: _________________________
Alternate Date 1. _____________________________
Alternate Date 2. _____________________________
Requested Program Location: Charleston Harbor ACE Basin
Requested Program Time: Beginning ___________ Ending ___________

***Programs are restricted to one-half hour after sunrise and one-half hour before sunset.

OFFICIAL USE ONLY

___ C ___ CH ___ IDT ___ M #
Initial ___ Initial ___

Departure Location: __________
Departure time: ______________
Captain: ________________
Mate: ________________

217 Fort Johnson Road P.O. Box 12559 Charleston, SC 29422-2559 (843) 953-9359 A - 5 - 8
GUEST INFORMATION
Name of Group ________________________________________________

Type of Group (school group, civic club, etc.) __________________________

Number of Students/Passengers ______ Grade/Age of Students/Passengers ______

Number of Chaperones ___________ (one chaperone per 10 students required)

****Please attach a list of all names of participants (students and adults)

REASON FOR APPLYING
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Please list any medical conditions of participants in the table below.

<table>
<thead>
<tr>
<th>Name</th>
<th>Condition</th>
<th>Medication</th>
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<tbody>
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Use and Maintenance Directive
For Captains and Crew

The purpose of this directive is to regulate the use and maintenance of the SC Department of Natural Resources’s (DNR) Marine Resources Division’s Education Vessel (E/V) Discovery.

Logistics: The E/V Discovery will be moored at one of two locations: the Michael D. McKenzie Field Station in the ACE Basin or the DNR’s Marine Resources Division in Charleston. The vessel’s location will be determined by seasonal school program scheduling. The Office of Public Affairs (OPA) will coordinate all maintenance requirements through Vessel Operations at the Marine Resources Division.

Design and Capabilities: The E/V Discovery is equipped with a Global Positioning System (GPS) and radar. It is outfitted with canvas on all sides and top, which limits the types of research that can be conducted onboard. For example, the vessel is not appropriate for bottom sampling or other projects that may damage or stain the canvas.

Obligations: The OPA will identify the U.S. Coast Guard (USCG) licensed captain and crew in charge of all E/V Discovery operations. The appointment of captain and crew will be scheduled during monthly E/V Discovery meetings. The Education Coordinator, all eligible captains and crew, as well as other appropriate OPA staff are expected to attend monthly meetings. The captain and crew will be responsible for compliance with all regulations.

Captain’s Responsibilities

Float Plan

The captain will file a float plan with the Education Coordinator at the monthly meeting. The captain will turn in float plan and maintenance checklist to the Education Coordinator within 48 hours of returning from a program. The Education Coordinator is responsible for confirming vessel return according to the float plan. After each E/V Discovery program, the captain is responsible for briefing the Education Coordinator on any discrepancies with the original float plan including overdue time. In the event that the vessel misses the overdue time, the emergency plan must be followed. A float plan form and an emergency plan form are located in Appendix ##. All float plans should be canceled when the vessel returns to dock.

Safety

The E/V Discovery will not depart without having at least one captain or crewmember onboard that is certified in CPR and First Aid Training.

The captain is responsible for the safety of all passengers and should not permit inappropriate footwear or attire. Flat, soft-soled shoes are required. The winch operator should not wear any loosely fitted clothing when the winch on the E/V Discovery is used.

In the event of inappropriate and/or dangerous behavior by passengers, it is the captain’s discretion to return to the dock and terminate the program. If this occurs, the captain must submit in writing a letter to the Education Coordinator explaining the cause for program termination.
Logbook

All pertinent information shall be recorded in the vessel’s logbook including date, time of departure, number of passengers, any missing items, vessel damage, equipment damage, malfunctioning equipment, etc. It is the captain’s responsibility to keep the logbook current and in good condition. The captain will submit the completed and current logbook to the Education Coordinator during monthly E/V Discovery meetings. The Education Coordinator will copy the logbook twice and return it to the captain.

The Education Coordinator will give one copy of the logbook to OPA Assistant Director.

The Education Coordinator will file the second copy in the official copy program directive.

Vessel

It is the captain’s responsibility to ensure that all USCG required safety equipment is onboard and in proper working order. Minimum USCG requirements:

1. Vessel Registration Card
2. One USCG approved Type III PFD (Personal Flotation Device, or life jacket) for each person onboard (Total Passenger Capability 49)
3. Two USCG approved Type IV throwable PFDs
4. USCG approved Class B fire extinguisher
5. Audible distress signaling devices (hand-held horn, whistle, bell, etc.)
6. Visual distress signaling devices (hand-held flares, aerial flares, smoke)
7. Proper navigation lights when working at night

Other Equipment Provided by OPA:

1. First Aid Kit
2. Emergency repair kit and tools
3. Mobile telephone
4. Spare Fuel
5. Boat Hook
6. Bilge pump, bailing device
7. Spare dock lines

Other suggested equipment:

1. Drinking water
2. Food
3. Sunscreen/bug repellent
4. Hat and Sunglasses
5. Motion sickness medication

Fuel

It is the captain’s responsibility to ensure that the E/V Discovery is adequately fueled for each scheduled program. Chapman’s Piloting handbook suggests following the “one-third rule” with respect to fuel: one-third to go, one-third to return, and one-third of your total fuel supply to be held in reserve as a margin of safety.

Operations Underway

The captain is responsible for turning on the radio and ensuring it is on Channel 16, and turning on the GPS unit prior to getting underway.
Each captain must have a current USCG captain's license. The captain is responsible for the safety of
the vessel, crew and passengers at all times, and should never operate the vessel in a manner that
threatens the safety of the vessel, crew or passengers. The captain should ensure that all DNR
personnel aboard the vessel are wearing PFDs when deemed necessary such as in bad weather. PFDs
(life jackets) are required to be worn at all times for non-DNR individuals under the age of 21.

Prior to vessel departure, it is the captain's responsibility to see that the vessel is in compliance with
all USCG and SCDNR Law Enforcement requirements. This vessel is not exempt from any state or
federal boating safety laws and the captain is subject to citation for any violations. Section 701.03 of
the SCDNR Policy Manual lists No Action to Termination for First Offense when convicted of violation
of Boating Laws. The vessel must comply with weight and passenger limits (49 passengers) and may
not operate when overloaded. The vessel should never get underway with fewer than two persons on
board, unless extenuating circumstances exist. These circumstances require the captain to receive
prior approval from the OPA. During the circumstance in which a DNR employee must operate the
vessel alone, they must wear a PFD, and have a functioning radio or other communication device (cell
phone), and submit a precise float plan.

Personnel are not permitted to enter the water while the vessel's engines are running. In event of a
boating accident, the captain is the primary person responsible for the vessel, crew and passengers. If
vessel, crew or passengers are in imminent danger, the captain should contact the USCG immediately.
If there is no threat of loss of life or limbs, the captain should contact the OPA immediately upon
return to dock. All boating accidents must be reported to the DNR's Law Enforcement Boating Safety
Office, the USCG (if structural damages are over $500 or there is personal injury), and the OPA. A
detailed written report is mandatory following a boating accident. All incidents including
confrontations with the public, any action or condition of a nature serious enough to cause a safety
hazard, should be reported to the appropriate agency, either the USCG or the DNR Law Enforcement
Division. If an incident is reported to either the USCG or the DNR Law Enforcement Division, it
should also be reported to the OPA immediately upon return to the dock.

Captains are responsible for vessel wake even when outside of a "No Wake Zone."

Unless special permission has been granted by the OPA, the E/V Discovery will launch no sooner than
one-half hour after sunrise and return to shore one-half hour before sunset.

Eligibility and Responsibilities of the Crewmate

It is mandatory for at least one crewmate to be present in addition to a vessel captain for each instance
the E/V Discovery is in use. To qualify as a crewmate, an employee must have successfully completed
an approved small boat safety and operation course. The course may be taken through the DNR Law
Enforcement Division, the Power Squadron, the USCG Auxiliary, or any other certified entity
approved by the OPA. Employees participating as crewmates on the E/V Discovery must provide the
OPA with verification of successful completion of an approved boating safety course before being
scheduled for a program.

Crewmates must comply with all regulations set forth in the Operation Underway section of this
document, and will assist the captain in the Safety section.
Maintenance

The captain must turn in a maintenance checklist to the Education Coordinator for each cruise when turning in a float plan after a cruise. These items should be turned in within 48 hours of an E/V Discovery program.

The captain and crew are responsible for cleaning the vessel after each use including any equipment used during the operation. They are also responsible for inspecting the vessel for damages and/or repair resulting from a program. If any parts are needed to repair the vessel, the captain and crew will be responsible, and charges will be posted to the appropriate accounts. These repairs do not include normal “wear and tear” of equipment used in an appropriate manner during standard operations. Any concerns about these charges may be submitted in writing to the Education Coordinator. All accidents, damages and/or malfunctions must be reported verbally to the OPA immediately upon return and in writing within 5 business days of cruise. All PFDs, life rings, lines, mechanical equipment, boat hooks, tools, first aid equipment and anchors shall remain on the vessel and are the responsibility of the captain and crew.

E/V Discovery Maintenance Schedule:

Post Cruise:
- Secure vessel with bow, stern and spring lines.
- Flush engines.
- Spray down boat and motors with freshwater.
- Hang net to dry.
- Remove all dead animals from net and deck.
- Fill out logbook.
- Ensure all electronics are accounted for and in working order.
- Ensure head is clean and in working order.

Bi-Weekly:
- Check bilge weekly or biweekly and clean as necessary.
- Check holding tank and chemicals in the head. Pump as necessary.
- Spray winch, motors under cowlings, and electronics under console and on glove box with silicone spray.

Monthly:
- Trickle charge on both batteries.
- Check and account for all life jackets.
- Ensure all emergency equipment is accounted for and serviceable (life rings, flares, whistles, horn).

As Needed:
- Scrub boat with soap.

Yearly:
- A yearly maintenance will be scheduled during a two-week yard period sometime during December or January.
**- Be prepared for annual USCG inspection:

- Open all vessel spaces and clean bilges
- Examine, count, stack life preservers
- Annual servicing of fire extinguishers
- Have all certificates, documents, and instructions posted or available aboard the vessel
- Stencils and other markings on the vessel should be legible
- Ensure that equipment is in good condition and operational
  - Life saving equipment
  - Emergency signals and lights
  - Fire pump and hose
  - Navigation lights
  - Steering gear
  - Electronics
  - Skin valves, remote fuel shut-off valves, and reach rods

Every Two Years:

- Clean exterior hull
- Open all vessel spaces and clean bilges
- Open and clean skin and sea valves for internal examination
- Open and clean all internal sea strainers
- Have all certificates, documents and instructions posted or available aboard the vessel.
How-To Emergency

To radio the US Coast Guard (USCG):

The radio is in the compartment above the steering console.

This radio is equipped with a distress button if time does not allow a discussion with the USCG.

Make sure radio is on Channel 16.

To speak, pick up hand receiver and press talk button only when speaking.

Important: Always identify the vessel, E/V Discovery, each time you speak into the receiver.

To send a “mayday”:

Use the mayday signal in the event of any emergency including medical injury, vessel damage or any potential life-threatening situation.

When contacting the USCG, repeat the mayday signal and vessel name 3 times each.

Always speak slowly, calmly and precisely.

State the issue of your emergency.

Describe the vessel and give the location of the vessel to the USCG.

Important: Identify the vessel E/V Discovery each time you speak into the receiver.

If the emergency is medical, state the condition and description of the victim and location of vessel.

If the emergency is concerning a sinking vessel, state the number of adults and children onboard and the location of the vessel. Also state if you are abandoning ship.
Mayday Examples:

For a medical emergency:

- You: “Mayday, Mayday, Mayday…This is the Discovery, Discovery, the Discovery.”
- USCG: “Vessel Discovery, this is the US Coast Guard Base Charleston.”
- You: “USCG, this is the Vessel Discovery. We have a white male age 50 whose arm has been severed in a trawling cable. He is bleeding profusely and we request immediate evacuation. We are located at the Ashepoo River system near Fenwick Cut on the Intracoastal Waterway. We are a large 45-foot Catamaran with a white top and green canvas sides. Our location is 80 Degrees North, 32 Degrees West.

For a vessel emergency:

- You: “Mayday, Mayday, Mayday…This is the Discovery, Discovery, the Discovery.”
- USCG: “Vessel Discovery, this is the US Coast Guard Base Charleston.”
- You: “USCG, this is the Vessel Discovery. The vessel is taking on water and in immediate danger of sinking. We are (are not) abandoning ship. We are located at the Ashepoo River system near Fenwick Cut on the Intracoastal Waterway. We are a large 45-foot Catamaran with a white top and green canvas sides. Our location is 80 Degrees North, 32 Degrees West. There are 20 children and 5 adults onboard.

To determine location:

A GPS (Global Positioning System) unit is located to the left of the radio. The radio is in the compartment above the steering console.

The coordinates of the vessel are visible on the screen of the GPS unit.

There may also be other landmarks on the screen that may be helpful.

To turn motors off:

A. Turn the keys to the “OFF” position.

   Key switches are located to the left of the gearshift handles on the steering console.

B. If the above Option A is not feasible, there are two red battery switches that may be turned to the “OFF” position.
Turning off the battery switches will cut all power to all electronics on the vessel including the GPS unit, the radio, and the wench.

**Important:** The motors will not restart unless the battery switches are turned back to the “ON” position.

Battery switches are located behind the plexiglass cover on the fuse panel located on the left side of the steering console.

**To restart the motors:**

**Important:** The motors will not restart unless the battery switches are turned back to the “ON” position.

1. Make sure the gearshift levers are straight up and down. This is in the neutral position.
2. Turn keys past the “ON” position and release when motors start.
   
   The motors are quiet so you may need to read the gauges to verify ignition. If the gauges are registering, then the motors are running.
3. For reverse, pull the gearshift levers down towards you.
4. For forward, push the gearshift levers forward, away from you. Slowly push them farther forward to increase speed.

**Steering:**

The boat is just like a car but its size makes the E/V *Discovery* difficult to steer.

If a passenger must steer, find the person with the most boating experience.

**Anchoring:**

If driving the boat is not an option, deploy the anchor.

A small anchor is located on the front of the vessel under the seat. If this anchor is not sufficient, a large anchor can be found below in the hull compartment on the port side (left) toward the stern (rear) of the boat.

1. Make sure the anchor is tied to the vessel before throwing overboard.
2. Make sure your feet are not tangled in the line.
3. Hold the anchor by the handle and toss out into the water in front of the boat.
To turn off the winch:

1. Locate the “Winch” switch found on the fuse panel on the left side of the steering console.

2. Flip switch down to the “OFF” position.

Remember: Turning the red battery switches to “OFF” will also turn off the wench.

If the vessel is sinking:

Life jackets are located in the bow of the boat in the hull compartment. Children’s life jackets are on the port (left) side and adults’ life jackets are on the starboard (right) side.

1. A selected adult should distribute life jackets to all passengers onboard. A second adult should make sure all passengers’ life jackets are properly fastened.

2. Follow the instructions of the captain.

If the vessel is sinking and the captain is incapacitated:

Life jackets are located in the bow of the boat in the hull compartment. Children’s life jackets are on the port (left) side and adults’ life jackets are on the starboard (right) side.

1. A selected adult should distribute life jackets to all passengers onboard. A second adult should make sure all passengers’ life jackets are properly fastened.

2. Follow mayday radio protocol for abandoning ship.

3. Throw all life rings into the water.

   Life rings are located behind the bench in front of the steering console and in the same location on the port (left) side of the vessel.

4. Abandon ship.

   Important: Do not abandon ship unless absolutely necessary, i.e., sinking is imminent.

5. Swim a safe distance from the sinking vessel.

   Remain in large groups making every effort to ensure that no one gets separated.
If a fire occurs:

The fire extinguishers are located on the bow (front), at steering console and on the stern (back).

1. Locate one or more of the 3 fire extinguishers on the vessel.
2. Pull the pin on the handle of the fire extinguisher.
3. Aim the fire extinguisher toward the base of the fire and squeeze the handle. Continue spraying while making sweeping motions.

Man Overboard:

A life sling is located midship on the port (left) side of the vessel, directly across from the steering console on the railing.

1. Inform captain that a passenger is overboard.
2. Follow captain’s instructions.
3. In the event the captain is overboard, throw the nearest flotation device (life jacket, life ring) to the captain.
4. Deploy life sling according to instructions on cover of life sling.
EDUCATIONAL VESSEL

Discovery

Float Plan

IDENTIFICATION
NAME: E/V Discovery
MAKE/YEAR: 2002 Catamaran
HULL TYPE: Plastic
UNIQUE FEATURES: Green Canvas Siding and Aluminum Railing
PROPULSION: Mercury twin, 4-stroke, 225 hsp, gasoline, outboard motors

OWNER: SCDNR
LENGTH: 45 ft.
HULL COLOR: White

COMMUNICATION
RADIO CALL SIGN: Whisky-Zulu-Delta (WZD) 6656 or Discovery
COCKPIT RADIO: VHF/FM 25 watt
HANDHELD RADIO: Yes
CELL PHONE: 843-834-5697
CHANNEL: USCG 16, 21, 22 only

SAFETY EQUIPMENT ONBOARD
PFDs: TYPE I __5__
TYPE II __0__
TYPE IV __3__
TYPE V __0__
HORN
WHISTLE
BELL
FLASHLIGHT
SPOTLIGHT
ANCHORS: Working 50 ft.
Storm 100 ft.
FIRE EXTINGUISHERS __3__
HAND & GUN TYPE FLARES
FIRST AID KIT

ITENERARY

NAME OF CAPTAIN: ___________________________ NAME OF MATE: ___________________________

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PASSenger LIST ATTACHED
A - 6 - 11
Marine Education Program – Marketing Plan

Timeline: To be completed by spring 2005

• Design attractive logo for Carolina Coastal Discovery Marine Education Program. Should be fun, creative and attractive to kids.

• Design brochure for teachers and other member of the public to give background information and highlight available programs.

• Design informative, attractive Web site. Should allow teachers to download all important information including application.

• Design a “take home” package for teachers to include promotional items for students (pens, pencils, etc.), DNR publications, posters and the like.

• Develop a promotional DVD to send to school science departments throughout the state and to send to businesses and potential sponsors of the program. DVD should show actual footage of programs, include educational materials and resources, and the like.

• Develop business plan/strategies to “sell” program and get support for funding program in the future. Identify potential sources through the Chamber of Commerce and other associations.

• Identify possible grant and charitable foundation funding and apply for funds.

• Invite potential sponsors on education programs to show first hand the types of programs offered to students.
Carolina Coastal Discovery

Marine Education Program
Carolina Coastal Discovery
Marine Education Program

plankton collection

marine life

watersheds

plankton study

plankton collection

water quality

creative learning

interesting creatures

sharks

Carolina Coastal Discovery
Marine Education Program

South Carolina Saltwater Recreational Fishing License
Carolina Coastal Discovery Program

The Carolina Coastal Discovery Program provides destination-based marine science education through hands-on activities and field experiences. This program introduces participants to coastal South Carolina's animals, plants and habitats, and encourages wise use of these valuable resources.

Carolina Coastal Discovery Programs are conducted in Charleston or the ACE Basin, and include land activities and/or a trip aboard the Education Vessel Discovery. Land activities are suitable for all ages, and vessel trips are available for students in the fifth grade or higher.

Aboard the Education Vessel Discovery, South Carolina Department of Natural Resources (SCDNR) staff will instruct participants on topics such as:

- Ecology and value of estuarine and salt marsh ecosystems
- Biology of estuarine animals and plants
- Identification of birds and other wildlife
- Water quality collection methods and the importance of clean water
- Saltwater fishing techniques and regulations
- Salt marsh field study
- Phytoplankton and zooplankton identification
- Marine animal dissections
- Marine geology
- Fish biology

Land programs are conducted in the salt marsh or the SCDNR classroom. Programs may be adapted to fit specific areas of study. Topics available to choose from include:

Discover South Carolina's Coastal Treasures!

Join the SCDNR for a Carolina Coastal Discovery Program, and have fun learning about South Carolina's valuable marine resources!

For an application or additional information:
Elizabeth Vernon, SCDNR Marine Education Program Coordinator
(843) 953-9359
vernone@mrd.dnr.state.sc.us

The Carolina Coastal Discovery Program is supported in part by the SCDNR Saltwater Recreational Fishing License Program and the Harry Hampton Memorial Wildlife Fund.