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## 2004 Water Quality Education Onboard the Gundalow, Bolster, M

Molly Bolster  
*Gundalow Company*

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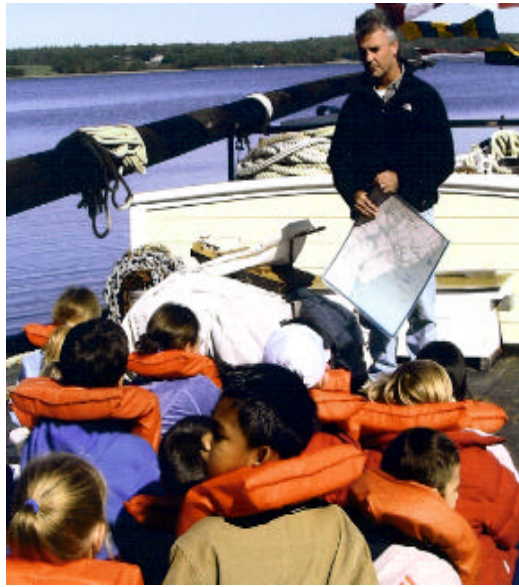
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# 2004 Water Quality Education onboard the Gundalow



A Final Report to

The New Hampshire Estuaries Project

Submitted by

Molly Bolster, Executive Director  
Gundalow Company  
P.O. Box 425  
Portsmouth, NH 03802

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## **EXECUTIVE SUMMARY**

The Gundalow Company (a non-profit 501(c)3 organization) sponsors maritime history and environmental educational programs for school groups and the public onboard the replica gundalow Captain Edward Adams from May through November in 12-15 riverfront locations in the Piscataqua region.

The project funded by the NHEP in 2004 included the development of an expanded Gundalow Company education program curriculum in order to motivate all gundalow visitors to appreciate the relationship between regional maritime history, contemporary water quality issues and future stewardship responsibilities. The NHEP grant also supported the Gundalow Company's efforts to bring the gundalow to Durham and Newmarket.

The content of the curriculum is adaptable to all the programs offered by the Gundalow Company staff and volunteers including formal one-hour programs with school groups onboard the gundalow and in classrooms, general interpretive tours when the gundalow is open to the public, group tours for adults, and special events.

## INTRODUCTION

Prior to receiving funding from the NH Estuaries Project for March through September, 2004, the Gundalow Company board developed a Strategic Plan and identified several priorities including:

- ❖ Create and fill a newly defined full-time staff position combining the duties of Gundalow Captain and Director of Education Programs.
- ❖ Develop and implement new educational programs for school groups and the public.
- ❖ Build partnerships with nature centers, museums, water quality monitoring groups, land/water stewardship groups, riverfront redevelopment groups, heritage festival planners etc. in order to develop collaborative programs and bring the Gundalow to more Piscataqua region riverfront communities each spring/summer/fall.

In April, 2004, the Gundalow Company hired Chuck Holloway to fill a newly defined position - "Director of Education Programs and Gundalow Captain". With an M.A. in Oceanography and a 1600 ton USCG license, Chuck brings considerable teaching experience onboard ocean-going sailing school research vessels as well as traditional classroom teaching experience. Before moving to Portsmouth in April, Chuck had been living in Hawaii and was employed by the University of Hawaii as the pilot of a submersible research vessel, gathering material for a team of marine scientists. Within a week of relocating to Portsmouth, Chuck was fully immersed in volunteer training and running school group programs on the Gundalow, as well as overseeing the schedule of moving the Gundalow to 15 locations in May-November.

## **PROJECT GOALS AND OBJECTIVES**

The main **objective** of this project was to maximize the potential of the gundalow education programs to carry a message that heightens awareness of the relationship between our local maritime cultural history and issues relating to future estuarine stewardship. The gundalow education programs are framed around activities and discussions that reinforce the connections between issues such as the role of gundalows (carrying timber and raw materials), historic land-use (clear-cutting and heavy industry), the changes in the state of the estuary over time (erosion, siltation, turbidity, harvesting of natural resources, pollution, development), and last but not least, the successful efforts currently underway to address issues such as land conservation, water quality, oysters, clams, eelgrass, and waterfowl in order to protect the future health of the estuary.

The primary **goal** of this project was to hire a full-time Educator, whose job consists of framing the education programs offered by the Gundalow Company and in collaboration with several other institutions and organizations in such a way that our objectives are met. Included in this goal have been the development and implementation of new programs, as well as recruiting and training new volunteers who will become more involved with the implementation of new programs.

## ACTIVITIES

Following is the summary of the Gundalow Company programs, activities, and events that took place between May and November, 2004. This year's calendar of events was significantly more ambitious than previous years. The gundalow traveled to 15 locations this year compared to only 8 in 2003. Several new partnerships were formed and new collaborative programs were established. There were 34 new volunteers who contributed over 1,200 hours.

**May 3-14: Daily school group programs on the gundalow** in conjunction with Old York Historical Society.

**May 15/16: The gundalow departed York and was towed up the Piscataqua River.** Anchored overnight in order to take advantage of low tide next morning when there was enough clearance to fit under the Route 103 bridge. Proceeded up the Salmon Falls River with the incoming tide to land at shore in front of the Hamilton House.

**May 17-28: Daily School group programs on the gundalow** in conjunction with the Society to Preserve New England Antiquities (SPNEA). Over 750 students, grades 1-6, from 4 schools participated in the gundalow program.

**May 20: Old Berwick Historical Society Annual Meeting at the gundalow** and Hamilton House. An informal program was offered on the gundalow to approximately 50 people prior to the business meeting.

**May 22: The public was invited to launch their row boats, canoes or kayaks at the Route 103 ramp and row/paddle together up the Salmon Falls River to the gundalow** at the Hamilton House. Co-sponsored by the Gundalow Company and the Great Works Regional Land Trust and the Great Works Watershed Coalition, this event was unfortunately rained out and had very few participants.

**May 22: A reception** was held at the Old Berwick Historical Society's Counting House Museum to honor over 65 volunteers who helped in getting the gundalow to Berwick. A special exhibit was organized and on display featuring photographs and memorabilia of Captain Gooch Chaney, South Berwick's last gundalow captain and owner.

**May 29: The gundalow departed from the Hamilton House** and proceeded down the Salmon Falls River and the Piscataqua River to a mooring near Dover Point. The next day, the gundalow was towed to Prescott Park.

**June 10 and 24: Onboard Training for 20 new Volunteers** involved in interpreting the gundalow daily at Prescott Park.

**June 12: Market Square Day and Opening Day on the gundalow.** Regular daily schedule in effect. Gundalow open to the public - Wednesday through Sunday 11-4 and at other times by reservation.

**June 22: Gundalow Company Annual Meeting,** with 65 people onboard the gundalow followed by the business meeting and presentations by staff and board members in the Players Ring Theater. Guest speaker Alex Herlihy (former gundalow board member and Oyster River High School teacher) presented a slide show and lecture about gundalows. After the meeting, guests were invited onboard the M/V Heritage for a Harbor Tour.

**June 30: Strawberry Banke Annual Meeting.** Gundalow Company was invited to set up a table with Gundalow Company information during the reception.

**July: Gundalow was open to the public daily** Wednesday through Sunday. and at other times by reservation. Gundalow staff and volunteers interpreted the vessel daily.

**July 8:** Several conversations between Gundalow Company and Strawberry Banke staff revealed the fact that there are so many new staff members at the museum who are not familiar with the gundalow, and the Gundalow Company has new programs and a new mission. To address this situation, **Gundalow Company staff and Volunteers were given a tour of Strawberry Banke in order to be better informed about the museum when talking to visitors on the gundalow. Chuck Holloway attended a Strawberry Banke ALL-STAFF meeting. In addition to giving them an update on the Gundalow Company and its programs, he also invited Strawberry Banke staff and volunteers to visit the gundalow at any time.** Conversations continued throughout the summer between Strawberry Banke and Gundalow Company staff resulting in planning for collaborative programs in 2005.

**July 21: Gundalow was towed to Kittery Landing Marina. Fifty invited guests were onboard** while the gundalow was tied to the dock. Gundalow staff and board members gave tours and presented a summary of new educational programs and future plans for the Gundalow Company. The gundalow returned to Prescott Park on July 22.

**August 3-9: Gundalow was tied up in front of the Wentworth-Gardner House,** and was open to the public Wednesday through Sunday.

**August 4: The public was invited to attend a lecture** about Tobias Lear at the Wentworth-Gardner House. Approximately 70 people attended the lecture and were invited to board the gundalow for tours before and after the lecture. This



event was co-sponsored by the Wentworth-Gardner House, the Portsmouth Historical Society and the Gundalow Company.

**August 8: The Gundalow Company and the South End Neighborhood Association co-hosted a reception onboard** from 11-3. Visitors were given a tour of the gundalow and an informal presentation of our education programs. The Wentworth-Gardner house was also open for tours at the same time.

**August 10: Moved the gundalow back to Prescott Park**

**August 11: Moved the gundalow from Prescott Park to the NH State Pier**

**August 12-17: Gundalow at the NH State Pier** in conjunction with the tall ship FRIENDSHIP. Both vessels were open to the public.

**August 18-22: Gundalow open to the public daily at Prescott Park**

**August 23: Moved gundalow to Tucker's Cove, Sagamore Creek.** Forty invited guests were onboard the gundalow for tours and informal presentation by gundalow board members and staff. The gundalow returned to Prescott Park the next day.

**August 28: Moved gundalow to Gundalow Landing in Newington.**

**August 29: Fifty invited guests onboard the gundalow** for tours and presentation by gundalow staff and board members.

**August 30: Moved gundalow from Newington to Adams Point and the UNH Jackson Estuarine Marine Lab.**

**September 3: Public was invited to Adams Point, the Jackson Lab, and the gundalow for tours.** Adams Point is named for the family of Captain Edward Adams and was the location of the family house until it was turned over to NH Fish and Game Dept. in 1961. In 1970, the UNH Jackson Estuarine Lab was built on Adams Point. This was the first time the Captain Edward Adams visited Adams Point, and gave the Gundalow Company an opportunity to introduce its mission and new education programs to residents of Adams Point and Bay Road. UNH Marine Docents provided tours of the Jackson Estuarine Lab while gundalow staff and volunteers gave tours of the gundalow.

**September 7: Moved gundalow from Adams Point to Peter and Margie Smith's dock on the Oyster River.**

**September 8: Forty-five invited guests onboard the gundalow at the Smith's dock** for tours and presentation by gundalow staff and board members. This event was specifically designed to bring many long-time gundalow supporters together

in order to introduce our new programs and plans for the future. Many of these people have been involved with the gundalow since before it was launched, and several of them were friends of the Adams family. This event was the first time this group had been formally brought together since the Gundalow Company began in 2002.

**September 9: Moved gundalow from Smith's dock to Serena's Marina on the Oyster River.**

**September 10: Volunteer training onboard** for Great Bay Stewards and other volunteers involved in the education programs on the gundalow at Sandy Point.

**September 10: Fifty invited guests onboard the gundalow** for tours and presentation by staff and board members, followed by a concert onshore.

**September 11: Moved gundalow to Wagon Hill Farm** for Ducker's Day. Gundalow open to the public for tours.

**September 12: Gundalow open to the public** as part of Durham Day.

**September 13: Moved gundalow to Sandy Point Discovery Center.**

**September 15: Elderhostel group onboard** for gundalow presentation and tour

**September 16: Moved gundalow to Newmarket** for the Newmarket Heritage Festival. One day of the festival was rained out. The gundalow was open for tours on Saturday and Sunday.

**September 20: Moved gundalow to Sandy Point Discovery Center.**

**September 21-October 29: Daily programs on board the gundalow** in conjunction with Sandy Point Discovery Center. Over 1300 students participated in this program.

**October 4: Group tour onboard the gundalow** for residents of River Woods.

**October 14: Group tour onboard the gundalow** for Road Scholars/Elderhostel.

**October 20: Group tour and presentation of education program onboard the gundalow** for the National Estuarine Research Reserve Conference attendees.

**November 1: Gundalow Volunteer Recognition and Awards Celebration** at Sandy Point. Ceremony for 38 Gundalow Volunteers who contributed over 1,025 hours.

**November 9: Moved the gundalow to the Bellamy River.**

**November 10: The NH Coastal Program invited the gundalow to be the platform for a press conference and celebration at the Lower Sawyers Mills on the Bellamy River** marking the removal of the old dam that has prevented migrating fish from getting upstream to spawn.

**November 12: Moved the gundalow to its winter berth** at the John Hancock Wharf on the York River, York, ME.

## RESULTS

- ❖ Curriculum guidelines and materials describing the standard “*Gundalow Education Program*” have been assembled and are being used to promote programs that will be offered starting in 2005. (See Appendix 1).
- ❖ Guidelines and materials to be used for recruiting and training Volunteers starting in 2005 have been assembled. (See Appendix 2).
- ❖ An Education Committee made up of two Gundalow board members, teachers, UNH Marine docents, and education staff members from Strawberry Banke, Sandy Point Discovery Center, Old York Historical Society, has been established and meets regularly. (See Appendix 3).
- ❖ New collaborative program partners were established in 2004 including Old Berwick Historical Society, Historic New England/SPNEA, Strawberry Banke, Portsmouth Historical Society, Wentworth Gardner House, and the UNH Jackson Estuarine Lab.
- ❖ Thirty-four new Volunteers were trained and assisted with all aspects of the gundalow education programs in 2004.
- ❖ The gundalow spent two weeks visiting four locations on or near the Oyster River: Adams Point and the UNH Jackson Estuarine Lab, Serena’s Marina, Smith’s Dock, and Wagon Hill Farm. All of the events at these locations gave the Gundalow Company new opportunities to collaborate with new and old partners, to re-connect with long-term gundalow supporters, and to promote its educational programs. The visit to Adams Point was especially meaningful for two reasons; first, it attracted the attention of new residents of Adams Point and Bay Road who were not familiar with the gundalow story and second, it was the beginning of a new relationship with the UNH Jackson Estuarine Lab, with plans for further collaborative programs in 2005.
- ❖ The gundalow spent four days in Newmarket and was open for interpreted tours during the Newmarket Heritage Festival. Students from Newmarket Schools were invited to participate in our program, but had already been scheduled to visit the gundalow at Sandy Point.
- ❖ A new Gundalow Outreach Program is being offered in classrooms in NH and ME during the winter/spring season.

## **CONCLUSIONS**

The opportunity to hire an educator to develop and implement innovative and meaningful programs using the Gundalow as a traveling platform has been an important step for the Gundalow Company. As we continue developing new education programs for a variety of audiences and establish additional program partnerships, the curriculum guidelines and materials can be adapted and refined to meet our needs.

Volunteers will have an increasingly important role in the success of the Gundalow Company education programs as we develop new collaborative programs with partners throughout the Piscataqua region. The ability of Volunteers to successfully implement our programs is directly related to the quality and depth of the training they are given. By establishing an annual training routine for new volunteers, with ongoing “refresher sessions” for those more experienced volunteers, we are more likely to get a group of enthusiastic and dedicated volunteers.

Our ability to promote and implement our education programs to new audiences and train volunteers has been vastly improved as a result of this project.

## **APPENDIX 1**

### **THE GUNDALOW COMPANY EDUCATION PROGRAM CURRICULUM**

The Gundalow Company offers education programs to school groups onboard the gundalow in May, June, September and October. These programs are offered in collaboration with programs at Old York Historical Society, Old Berwick Historical Society, Hamilton House, Strawberry Banke, and Sandy Point Discovery Center. The program is aimed at 2nd – 5th graders, and is designed for groups of not more than 20 students, plus teachers and chaperones. The program can be adapted to fit a 30 minute or 50 minute time-slot. All programs are designed to meet several specific history, science, and social studies curriculum standards, learning proficiencies, and performance indicators for grades k-12 in New Hampshire and Maine.

#### **GOALS**

1. To understand the role of gundalows in the economic development of the Piscataqua region between 1695-1900.
2. To understand the geographical relationship between the Piscataqua River, the York River, the Salmon Falls River, the Cocheco River, the Bellamy River, the Oyster River, the Lamprey River, the Squamscott River, and the towns on those rivers.
3. To understand the connections between the Piscataqua region's past (including its natural resources, its cultural and maritime history) and the region's future (including the impact of humans on the estuaries of Great Bay, Little Bay and the rivers of the Piscataqua region).

#### **OBJECTIVES**

1. Students will be able to identify design characteristics of gundalows that are related to the local natural characteristics of the region's waterways.
2. Students will gain an appreciation for the variety of natural resources in the region.
3. Students will be able to identify types of cargo carried by gundalows.
4. Students will understand the importance of gundalows to the development of riverfront towns and the success of industries such as mills, fishing, brick yards, and forestry.

5. Students will understand the technological advances that eliminated the need for gundalows.
6. Students will be able to identify negative environmental impacts on the rivers and estuaries as a result of humans AND positive ongoing efforts to address the damage and to influence decisions made in the future.
7. Students will understand the reasons for building a replica gundalow, and why it is named for Captain Edward Adams.

## **MATERIALS**

Historic and contemporary charts and maps:

**NOAA Charts** showing Portsmouth to Dover to Exeter (#13285) and Portsmouth Harbor, Cape Neddick Harbor to the Isles of Shoals (#13823)

**Contemporary map** of the Piscataqua Region published in Cross-Grained & Wily Waters

**“I.S” map**, published in the 18th century, and reprinted by Old Berwick Historical Society showing the Piscataqua region, houses and buildings, roads, and animals.

**Multibeam Sonar Image** of the Piscataqua River

Photographs and artistic renderings (both historic and contemporary) of gundalows and their cargo, under construction, tools, mills, brickyards, salt marsh hay, individual towns, members of the Adams family.

Model of the gundalow with moving parts that can be touched by students

Samples of gundalow cargo including bricks, salt marsh hay, lumber, cord wood, barrels, granite, etc.

Samples of tools used to build gundalows such as trunnel-maker, adze, plane, caulking irons and mallet, cotton and oakum, wood samples, trunnel, canvas, rope, tar, pine pitch, block and tackle, etc.

## **PROGRAM OUTLINE**

### **I. Introduction and welcome aboard**

### **II. What is a gundalow? Using the model, discuss the following:**

#### **A. Design characteristics**

1. flat bottom
2. shallow draught
3. open deck
4. leeboard
5. sweeps
6. low freeboard
7. lateen rig

#### **B. Natural characteristics of Piscataqua region. Use the charts and maps to discuss:**

1. deepwater port of Portsmouth
2. towns developed on inland rivers
3. shallow rivers
4. strong currents
5. tide cycles
6. abundance of natural resources
7. waterways were the highways, connecting inland rivers and towns to Portsmouth and the world beyond

### **III. How did gundalows move without an engine?**

#### **A. Tidal currents**

#### **B. Sail with unique rig designed to be lowered to pass under bridges**

#### **C. Oars or “sweeps”**

### **IV. Gundalows and cargo**

#### **A. What did they carry, where did it go, and why?**

1. Salt marsh hay
2. Raw materials delivered to mills
3. Finished goods delivered to Portsmouth
4. Mud and cord wood to brickyards
5. Bricks to Portsmouth and Boston
6. Lumber
7. Information such as news, gossip, mail

#### **B. The importance of gundalows in the development of towns, industry, economic success.**



V. Gundalow construction

- A. Wood
- B. Trunnels
- C. Canvas
- D. Caulking, cotton, oakum, pitch
- E. Tools
- F. Parts of the boat

VI. Who built gundalows

- A. Farmers, owner-operators
- B. Captain Edward Adams was the last gundalow builder and captain

VII. The importance of estuaries

- A. Habitat for fish, birds, animals, plants
- B. The effects of human impact and pollution
  1. Textile and Saw Mills
  2. Tanneries
  3. Farmers
  4. Brickyards
  5. Lumberyards and loggers
  6. Modern industrial pollution
  7. Non-point source pollution
- C. Despite rapid and widespread expansion, a heightened awareness of the Piscataqua region's importance has helped preserve its health and natural beauty.

VIII. Conclusion

- A. Decline and disappearance of gundalows
- B. The ongoing role of the Captain Edward Adams

## REFERENCES

- Adams, John P. Drowned Valley: The Piscataqua River Basin, Hanover, NH, 1976.
- Adams, John P. The Piscataqua River Gundalow, Durham, NH, 1982.
- Bampton, Matthew, "From Social Conflict to Environmental Change: Colonial Forestry's Impact on New England's Piscataqua Drainage Basin", *Historical Geography* 27:193-211, 1999.
- Bolster, W. Jeffrey. editor. Cross-Grained and Wily Waters, Portsmouth, NH: Peter E. Randall Publishers, 2002.
- Browne, Evelyn, "The Adamses of Adams Point," *New Hampshire Profiles* 10, August, 1961.
- Giffen, Sarah and Kevin Murphy, editors, A Noble and Dignified Stream: The Piscataqua Region in the Colonial Revival 1860-1930, York, ME: York Historical Society, 1992.
- Jackson, C.F. A Biological Survey of Great Bay, New Hampshire by the Marine Fisheries Commission, Durham, NH: State Planning Development Commission, 1944.
- Konisky, R. et al. Great Bay Coast Watch 1990-1999: A Ten Year Report on the Volunteer Water Quality Monitoring of the Great Bay Estuarine System, UNH Cooperative Extension/Sea Grant Technical Report UNH MP-AR-SG-00-12, 2000.
- Jones, Stephen H., ed. A Technical Characterization of Estuarine and Coastal New Hampshire, Durham, NH: Jackson Estuarine Laboratory, 2000.
- Saltonstall, William G. Ports of Piscataqua, Cambridge, MA: Harvard Univ. Press, 1941.
- Short, Frederick. The Ecology of the Great Bay Estuary, New Hampshire and Maine: An Estuarine Profile and Bibliography, NOAA Coastal Ocean Program, 1992.
- Sundquist, Dan, New Hampshire's Changing Landscape: Population Growth, Land Use Conversion, and Resource Fragmentation in the Granite State, Concord, NH: Society for the Protection of New Hampshire Forests and the Nature Conservancy, 1999.
- Whitehouse, Robert A. and Cathleen Beaudoin. Port of Dover: Two Centuries of Shipping on the Cocheco. The Portsmouth Marine Society, Portsmouth: 1988.
- Winslow, Richard E., III. The Piscataqua Gundalow: Workhorse for a Tidal Basin Empire. Portsmouth, NH: Portsmouth Marine Society, 1983.
- Winslow, Richard E. III. and Robert Whitehouse. A Piscataqua Gundalow Log of Newspaper Clippings 1810-1893.

## APPENDIX 2

### THE GUNDALOW COMPANY

#### VOLUNTEER GUIDELINES

#### OPPORTUNITIES

Volunteers are always welcome on the gundalow and are crucial to the success of our education programs. There are many ways for volunteers to get involved with the gundalow year-round. We offer general training sessions in the spring for NEW volunteers as well as special trainings throughout the year for specific programs, activities, or events as needed.

Following is a brief description of each Volunteer position:

***Volunteer Educators*** assist Gundalow Company staff with school groups, Monday through Friday, 8:00-12:00. Previous experience working with school groups required. Required training sessions in April with handouts and additional reading suggested.

Starting in late April through the middle of June, the gundalow is available for school groups by reservation for a 45 minute program onboard the gundalow. The season begins in York, ME with programs offered in collaboration with the Old York Historical Society. The gundalow moves to South Berwick in mid-May and spends two weeks running programs onboard the gundalow with collaborative programs offered by Historic New England at the Hamilton House, and at the Old Berwick Historical Society's Counting House Museum.

By early June, the gundalow moves to Prescott Park for programs onboard in collaboration with Strawberry Banke. NEW in 2005: The gundalow will be available in June and July to groups from day camps for a program that will include other activities such as building a gundalow model. The gundalow will go to Little Harbor for one week of programs in collaboration with the Seacoast Science Center Summer Camp.

In September, the gundalow moves to Sandy Point Discovery Center for 7 weeks of school groups. This program is taught by Gundalow Company staff and volunteers and Sandy Point Discovery Center staff and the Great Bay Stewards. Some additional training is necessary for Gundalow Volunteer Educators who want to help with this program.

***Interpreters*** assist Gundalow Company staff by giving informal tours of the gundalow to the public and during fundraising events. The schedule and location varies throughout the season. Previous experience working with the public is helpful. Required training sessions in April with additional reading and handouts.

From the middle of June until early September, the gundalow is open to the public (except during scheduled school group programs). Locations where the gundalow will be open to the public or hosting fundraising events in 2005 include: Prescott Park, Wentworth-Gardner House, Little Harbor, NH State Pier, Adams Point, UNH Jackson Estuarine Lab, Serena's Marina, Newington, Exeter, Dover, and Wagon Hill Farm. Other locations or events may be scheduled as time and funding permits.

***Volunteer Crew*** assist the Captain when the gundalow moves from port to port. Previous boat experience is helpful. Special training required. *Volunteer crew* also assist with ongoing projects on the gundalow such as putting up and taking down the winter cover, daily deck washings in the summer and daily pump checking in the winter. Other projects in 2005 include caulking (some training required), sanding and painting etc. No previous experience required!

***Outreach Volunteers*** assist the Education Director with a NEW program offered in classrooms in New Hampshire and Maine. Designed for 2nd-5th graders, this 45 minute program includes an introduction to gundalows and building a half-model of a gundalow. This program is offered December-March and can be adapted to meet the curriculum needs of teachers.

## **VOLUNTEER TRAINING**

Training sessions for Volunteers are scheduled on three days in March and April. Each session lasts from 9:00-12:00

Session I: "What is a gundalow?": Background information about gundalows with handouts and suggested reading list. (see Appendix 1).

Session II: "On deck and below": Tour of the gundalow and safety training.

Session III: "Content and Methods": Specific training for those working with school groups and the public, covering the education curriculum (see Appendix 1) and interpretation techniques.

Session IV: "Details": Filling out emergency health forms, keeping track of hours, making entries in the LOG. Also at this session we will ask volunteers to commit to certain days of the week during the season and begin filling up the calendar.

Additional sessions will be scheduled for Volunteer Crew and for those involved with special events.

### APPENDIX 3

#### GUNDALOW COMPANY EDUCATION COMMITTEE

NAME	AFFILIATION
John Crandall	Gundalow Company board member, Volunteer Educator and Interpreter since 2002.
Sharon Meeker	Recently retired after 25 years as Director of UNH Marine Docent Program. Sharon has been involved with the gundalow since it was launched in 1982.
Kelle MacKenzie	Director of the Sandy Point Discovery Center
Sandy Devins	Special Education Teacher and former Gundalow Company Board member.
Alex Herlihy	Former Director of the Piscataqua Gundalow Project. Author of "Piscataqua River Basin: A Teaching Unit" used in his classroom at Oyster River High School since 1988.
Michelle Moon	Director of Education at Strawberry Banke Museum. Former Educator at Mystic Seaport Museum
Francoise Morison	UNH Marine Docent, teaches the Living Lab Program, Discovery Cruises, and Cultural Cruises.
Anne Poubeau	Director of Education at Old York Historical Society

## Appendix 4.

# THE GUNDALOW COMPANY AND THE REPLICA GUNDALOW CAPTAIN EDWARD ADAMS

**The mission of the Gundalow Company is to preserve the Gundalow *Captain Edward Adams* in order to serve as a platform for maritime, historical, social and environmental education on and about the waters of the Piscataqua Maritime Region.**

### **What is a gundalow?**

The gundalow is a flat bottomed, shallow drafted cargo vessel once common on the rivers, estuaries and coasts of New Hampshire's Great Bay and the Southern Gulf of Maine. Early forms of the gundalow were probably among the very first vessels built in New Hampshire by arriving colonists, and the last commercial gundalows disappeared from our waters in the first decades of the 20<sup>th</sup> century. The Gundalow Company owns the only surviving replica of an historic, functioning Piscataqua gundalow.

### **What is the historical significance of the gundalows and the replica gundalow *Captain Edward Adams*?**

“Gundalows were the tidewater trucks of the Piscataqua region from the 1600s through World War I. The word first appears in writing in 1669 as “gondola,” a pronunciation that still survives among some native watermen. The earliest of these craft were simple lighters, undecked, without sailing rigs. They were rowed short distances between the Portsmouth shore, which lacked wharves, and ships anchored in the stream. Their job was to unload the ships newly-arrived from England, carrying their cargoes of manufactured goods to shore and then to reload the ships with the furs, timber, and dried fish being produced by the new colony. As upriver settlements in South Berwick, Dover, Exeter, and elsewhere developed freight service to Portsmouth was needed. The gundalows became larger and more numerous, with the addition of decks for ease of loading and sailing rigs to save rowing as trade grew. These vessels were well suited to the shallow rivers. They were flat bottomed, allowing them to float in a minimum depth of water and to “take the ground” at low tide, sitting comfortably until the flooding tide refloated them.

The real key to the success of gundalows, though, was the speed of the tidal currents in the Piscataqua region. The main channel of the river in Portsmouth is judged to be the second-fastest navigable tidal river in the continental United States, surpassed only by the Columbia River on the West Coast. This current essentially acts as an engine for a riverboat, a natural resource to be harnessed just as mills harnessed wind or falling water. A skipper simply timed his moves to the tide, riding upriver with the incoming or flood tide and floating seaward on the ebb. There was always the sail to help when the breeze was favorable, and long oars to get into a tricky cove, but day in and day out the

power of the tidal currents gave gundalows on the Piscataqua an ease of movement envied by barge and scow operators from the Penobscot to the Chesapeake.

The final unique aspect of a Piscataqua River gundalow was its triangular lateen sail, hung at an angle from a pivoting yard. Counterbalanced correctly, the peak of this yard could be quickly pivoted to the deck, reducing the overhead clearance needed from fifty or sixty feet down to twelve or sixteen, depending on the exact dimensions of a given vessel. This proved to be a tremendous advantage in passing under the low fixed bridges typically built on the smaller rivers.

Gundalows were usually owner-operated, and quite often the skipper was a part-time waterman, being also a farmer or mechanic of some sort. One high-seas captain said that, lacking the glamour of their blue-water brethren, “a man that would sail a gundalow would rob a churchyard.” Rivermen were known for their fondness for strong drink and strong language. In 1811 after a trip upriver from Portsmouth to Dover, itinerant Baptist minister Enoch Hayes Place wrote in his journal, “If the people in Sodom and Gomorrah was given to the practice of Swearing as much as they are here in this packet I do not wonder at Lot’s being willing to leave the place.”

The last gundalow to operate commercially was the *Fanny M.*, launched from Adam’s Point in Durham in 1886, abandoned on Dover Point circa 1920, and totally lost during the spring ice-out in 1926. In 1982 a reproduction of the *Fanny M.* was launched and named the *Captain Edward H. Adams* in honor of the last gundalow skipper. The *Adams* recently part of Strawberry Banke Museum, has now been transferred to the new non-profit Gundalow Company and can be visited in Prescott Park [and elsewhere around the area]. September and October finds the *Adams* on Great Bay conducting school programs in environmental and maritime history of the Piscataqua region.” – Michael Gowell, *Cross-Grained & Wily Waters: A Guide to the Piscataqua Maritime Region*, W. Jeffrey Bolster, Editor; Peter Randall, Publisher, Portsmouth, NH 2002

### **Why the Gundalow Company?**

In 1982, a 70-foot replica of a gundalow was launched from Strawberry Banke, created by the then-new non-profit Piscataqua Gundalow Project. All who participated saw this not just as a vessel project, but as an educational platform from which to teach school children and entire communities about the natural and cultural history of the region. Operated first as an independent non-profit and later as a program at Strawberry Banke, the historic *Captain Edwards Adams* gundalow has now been released by Strawberry Banke to the newly formed Gundalow Company. The new Gundalow Company is committed to a vision of the gundalow as the connecting-force and collaborative leader of a shared maritime heritage of the Greater Piscataqua watershed, encompassing a 120 square mile area from York in the north, down each river way and water basin that leads to the Piscataqua Coast: The York River and Brave Boat Harbor, the Squamscott, Lamprey, and Oyster Rivers, the Bellamy, Cocheco and Salmon Falls Rivers, Great Bay, Little Bay and the Piscataqua River, to Rye and the Hamptons in the south. The mission of the Gundalow Company is to preserve the Gundalow *Captain Edward Adams* in order to serve as a platform for maritime, historical, social and environmental education on and about the waters of the Piscataqua Maritime Region.

The Gundalow Company serves as a regional facilitator to collaborate and provide programs on maritime history, environmental history and stewardship, and environmental education as it pertains to the Great Bay, and the Piscataqua and York River watersheds. Active program partners in 2004 and for the upcoming year include Old York Historical Society, Historic New England, Old Berwick Historical Society, Great Bay Stewards, UNH Marine Docents, Sandy Point Discovery Center, Seacoast Science Center, Strawberry Banke Museum, Wentworth-Gardner and Tobias Lear Houses, Portsmouth Historical Society, and the Newmarket Heritage Festival Committee, as well as several other partnerships currently being developed in Dover and Exeter.





Preserving the Captain Edward Adams as a platform for maritime, historical, and environmental education programs throughout the Piscataqua Region.

FOR IMMEDIATE RELEASE

Contact: Molly Bolster, Executive Director 603-433-9505 or [info@gundalow.org](mailto:info@gundalow.org)

Date: 20 December, 2004

## **“Gundalow sails into local classrooms”**

The replica gundalow known as the Captain Edward Adams is secured at its winter berth at the Hancock Wharf at the Old York Historical Society in York, Maine. Having completed a very ambitious season of visiting 15 locations along the rivers of the Piscataqua Region and providing maritime history and environmental education programs to school groups and the public, the gundalow now gets a rest for a few months until programs begin again in May.

However, Chuck Holloway, the Gundalow Company’s Education Director and Gundalow Captain, will keep telling the gundalow story all winter long. While it is much too cold to invite students to come aboard the replica gundalow this time of year, Chuck Holloway will be traveling to classrooms in New Hampshire and Maine in order to provide a new program about the gundalow.

The classroom program, offered by the non-profit Gundalow Company, is intended for elementary grades and can be adapted to meet the curriculum goals of teachers. Gundalows were a locally unique flat-bottomed sailing barge, usually built and operated by farmers, and are described as the “Tractor-trailors” of the 1600-1800’s. They carried cargo on the shallow rivers between Portsmouth and all the towns connected by water to the Piscataqua River. The rivers were the highways, but the rivers were tidal and shallow, making it difficult for big sailing ships to get beyond Portsmouth. The successful development of towns including Durham, Exeter, Newmarket, Dover, Stratham, Newington, and South Berwick all relied on the gundalows.

While the classroom program focuses on the role of gundalows in the economic development of river-front towns prior to the Industrial Revolution, other related topics are included such as human impact over time on the Piscataqua Region environment and its natural resources, navigation, nautical charts, tides and currents, shipbuilding, and the various habitats in estuaries and watersheds. Teachers have the option of using the classroom program as an introduction to the gundalow and are invited to bring their students to the gundalow in May or June at York, South Berwick, and Portsmouth for a one-hour program that can be combined with programs available at Old York Historical Society, the Counting House Museum, the Old Berwick Historical Society, the Hamilton House, and Strawberry Banke Museum.

The Gundalow Company is a non-profit organization whose mission is “to preserve the replica gundalow Captain Edward Adams as a traveling platform for maritime history and environmental education programs for school groups and the public throughout the Piscataqua Region.” In April 2004, the Gundalow Company hired a new Education Director, Chuck Holloway in order to develop new educational programs and to expand the gundalow curriculum content. Using the gundalow as a metaphor that connects the towns on the rivers of the Piscataqua Region, the expanded curriculum is designed to heighten awareness of the relationship between local maritime and environmental history, contemporary water quality issues and future stewardship responsibilities.

The Gundalow Company curriculum development and expansion has been made possible by a grant from the New Hampshire Estuaries Project, whose mission is to protect, enhance, and monitor the environmental quality of the state's estuaries.

The Gundalow Company Classroom Programs have been made possible by a grant from the Tidewater Seed Fund and the Otto Funds through a charitable giving partnership of the Greater Piscataqua Community Foundation. The Foundation is a regional division of the NH Charitable Foundation, the state-wide community foundation. The Foundation utilizes gifts and bequests from individuals, families and organizations to provide financial support for non-profit organizations serving residents of the seacoast communities of Maine and New Hampshire.

For more information about the Gundalow Company education programs, please contact Molly Bolster, Executive Director or Chuck Holloway, Education Director and Captain at 603-433-9505.

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Molly Bolster, Executive Director

P.O. Box 425 Portsmouth, NH 03802

[info@gundalow.org](mailto:info@gundalow.org)

Chuck Holloway, Education Director & Captain

603-433-9505

[www.gundalow.org](http://www.gundalow.org)