

**Please note the following  
deadlines:**

Hudson River Research Grant  
Preproposals:  
**Monday, November 12, 2012**

Hudson River Research Grant  
Full Proposals:  
**Monday, January 21, 2013**

Tibor T. Polgar Fellowship  
Applications:  
**Monday, February 11, 2013**

Mark B. Bain Graduate  
Fellowship Applications:  
**Monday, March 18, 2013**

**HUDSON  
RIVER  
FOUNDATION**

FOR SCIENCE AND  
ENVIRONMENTAL  
RESEARCH

**Hudson River  
Fund:  
Call for  
Proposals  
2013**

17 Battery Place  
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New York, New York 10004

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## CONTENTS

<b>The Hudson River Foundation .....</b>	<b>2</b>
<b>The Hudson River Fund .....</b>	<b>3</b>
Background .....	3
The Foundation’s Role in Hudson River Science.....	3
2013 Call for Proposals.....	5
<b>The Hudson River Fund Grants Programs .....</b>	<b>8</b>
Hudson River Research Grants .....	8
Travel Grants .....	11
Expedited Grants.....	11
Mark B. Bain Graduate Fellowships.....	12
Tibor T. Polgar Fellowships .....	13
<b>Appendix A: General Research Interest Areas of the Hudson River Fund .....</b>	<b>15</b>

## **THE HUDSON RIVER FOUNDATION**

The Hudson River Foundation supports scientific and public policy research, education, and projects to enhance public access to the Hudson River. The Foundation was established in 1981 under the terms of an agreement among environmental groups, government regulatory agencies and utility companies seeking the constructive resolution of a long series of legal controversies concerning the environmental impacts of power plants on the Hudson River.

The Foundation's principal funding source is the **Hudson River Fund**, which was created in recognition of the critical need for an independent institution to sponsor scientific research programs that would contribute to the development of sound public policy concerning the River's ecological system. The Hudson River Fund was initially established with \$12 million in 1982. Since then the Fund, which has tripled in value, has enabled the Foundation to award 746 grants and fellowships totaling approximately \$35.6 million to date.

In 1985, New York State provided \$1.5 million to the Hudson River Foundation to establish the **Hudson River Improvement Fund** to support projects to enhance public use and enjoyment of the River's natural, scenic and cultural resources. The emphasis of the Improvement Fund is on physical projects requiring capital construction, development, or improvement. Since its inception, the Improvement Fund has awarded 720 grants, totaling approximately \$5.8 million. The funding priorities have included support for parkland on the River, docks and shoreline projects enhancing public access, riverfront facilities dedicated to Hudson River education, and restoration and preservation of Hudson River lighthouses. Additional information about the Hudson River Improvement Fund and application guidelines for its grant cycles can be obtained from the Foundation.

In 1994 the Foundation established a third fund, the **New York City Environmental Fund** (NYCEF), whose purpose is to foster "restoration, care, public enjoyment of, and education about New York City's natural resources." An initial fund of \$5 million was provided by the Consolidated Edison Company under the terms of an agreement between Consolidated Edison and the New York State Department of Environmental Conservation (DEC). Subsequently, over \$3 million has been added to the fund through agreements between DEC and the City of New York. To date, the Foundation has awarded 780 grants, totaling \$10.5 million, from NYCEF and a related fund dedicated to projects in the Newtown Creek area, to environmental and community groups in New York City and Westchester County. Additional information about this fund and its grants program can be obtained from the Foundation.

## **THE HUDSON RIVER FUND**

### **BACKGROUND**

Under the terms of the Settlement Agreement that established it, the Hudson River Fund is dedicated to supporting

*“scientific, ecological, and related public policy research on issues and matters of concern to the Hudson River, its tributaries and its drainage basin, with emphasis given, but not limited to, mitigating fishery impacts caused by power plants, providing information needed to manage the fishery resources of the Hudson River, understanding the factors related to the abundance and structure of fish populations, and gaining knowledge of the Hudson River ecosystem.”*

The Hudson River Fund supports scientific research on all aspects of the Hudson River ecosystem, with emphasis on studies that bear on human uses of the system. Since utilization of fishery resources and other human uses have been dominant issues in the estuarine portion of the River (New York Harbor to the Troy Dam), the Foundation devotes particular attention to this part of the Hudson River ecosystem. However, the Foundation will consider proposals related to any part of the watershed or nearby coastal areas. Such areas are defined as those that either serve as seasonal habitats for biota of the estuary or influence the physical, chemical, or biological characteristics of the estuary in other ways.

Although the central purpose of the Hudson River Fund is to sponsor research in the natural sciences and public policy, the Foundation also assists in the coordination of research concerning the Hudson River ecosystem and promotes efforts leading to improved management policies. The Foundation seeks to advance understanding of the issues affecting the River by supporting the dissemination of information gained through Foundation-funded research programs and through other sources. The Foundation sponsors workshops and conferences, bringing together authorities working within the Hudson River Valley and elsewhere to discuss scientific and public policy issues. Reports from these meetings give direction for further scientific work and improve the information used as a basis for public policy decisions.

### **THE ROLE OF THE FOUNDATION IN HUDSON RIVER SCIENCE**

The Foundation seeks to elucidate the dynamic interactions among the physical, chemical, and biological processes that are important to the Hudson River ecosystem. In particular, the Foundation encourages research in areas that are both scientifically important and relevant to current or anticipated public policy issues affecting the River and its drainage basin. Recognizing that both basic and applied research are fundamental to the management of Hudson River resources, the Foundation places special emphasis on research that has clearly articulated significance for identified policy issues and is conducted in the context of other ongoing research and monitoring in the River and drainage basin.

Through formal scientific workshops and symposia, as well as ongoing participation in Hudson River resource management programs, including the New York State Hudson River Estuary Program, the New York/New Jersey Harbor Estuary Program and the Hudson-Raritan Ecosystem Restoration Program, the Foundation reviews regularly the overall status of scientific understanding of the Hudson and identifies both broad areas of research and particular scientific questions that merit attention over the next several years. The Foundation continues to believe that funding a portfolio of projects that includes basic research along with studies that address both immediate and emerging environmental policy issues is important to and eagerly sought by both the research community and the government agencies with Hudson River management responsibilities.

The Foundation has recently completed a strategic planning process that will inform and guide both its internal programs and its external grants programs over the next ten years. As part of that effort the Foundation has identified several areas of interest that require expanded scientific inquiry during this period. These areas are consistent with the goals and objectives of several important management programs, including the Hudson River Estuary Management Program (<http://www.dec.ny.gov/lands/4920.html>), the New York/New Jersey Harbor Estuary Program (<http://www.harborestuary.org/actionplan.htm>), and the Comprehensive Restoration Plan for the lower estuary (<http://www.nan.usace.army.mil/harbor/crp/>):

- ***Restoring the signature fisheries of the Hudson River to their full potential.*** The status of the Hudson River's most important fish species is mixed, with several (e.g., shad, river herring and sturgeon) in marked decline in recent years. Better scientific information is necessary to understand the factors controlling the abundance of these fish and to apply this knowledge to their management. The Foundation will continue to add to this base of knowledge and integrate its work with Hudson River and coastal fisheries managers. Fisheries restoration is a fundamental goal of the New York State Hudson River Estuary Management Program.
- ***Restoring and improving habitats within the Hudson River Estuary.*** The massive alteration of habitats sets much of the Hudson River and its drainage basin apart from many other regions, and all of the major management programs operating in the estuary and the Comprehensive Restoration Program (CRP) have set habitat restoration goals. The Foundation has already provided the scientific basis for the CRP restoration efforts and will continue to generate technical information and guidance for implementation of habitat restoration, including oyster reefs.
- ***Understanding the watershed (drainage basin) and its influence on the Hudson River.*** The Foundation considers tributaries to be important components of the Hudson River drainage basin and will provide scientific input into the planning and implementation of programs to conserve them.

- ***Evaluating climate change impacts and implications.*** The Foundation will seek to develop new scientific understandings of the impacts and implications of climate change in the Hudson Valley.
- ***Understanding human use and interactions.*** The Hudson River is situated in the most densely populated region in the United States. It is therefore incumbent on the Foundation to focus appropriate efforts on understanding how human uses have affected and continue to affect the Hudson ecosystem.
- ***Understanding emerging and existing contaminants.*** The discharge of toxic materials into the Hudson River has left a legacy of contamination that is expected to cause environmental problems well into the future. This consequence, coupled with the continuing introduction of new chemicals into the environment, requires new understandings of their behavior and environmental impact. The Foundation will focus on developing a strong scientific understanding of these issues in order to inform policies aimed at protecting both the people and biota living in the Hudson River ecosystem.
- ***Evaluating ecosystem value and services.*** While it is generally recognized that the natural resources of the Hudson River and its drainage basin have great value, very little has been done to date to quantify the services that the ecosystem provides. Given the high degree of competition for government resources that currently exists, and will likely continue to exist, the Foundation, in collaboration with others, seeks to define and articulate more clearly the value of the resources of the Hudson River ecosystem in economic terms.

## **2013 CALL FOR PROPOSALS**

The Foundation will focus on the above interest areas over the lifetime of the strategic plan, coordinating a portfolio of activities that include internal programs, partnerships with the many resource management agencies and programs operating within the Hudson River and its drainage basin, and engagement of the research community through the external grants program of the Hudson River Fund. In addition, it will continue to identify gaps in the scientific understanding of the River's ecosystem relative to the areas of interest stated above and support research to address those gaps. All of these activities will evolve as needed to support the fulfillment of the Foundation's mission in the coming years. **This 2013 Call for Proposals seeks proposals addressing research in the following specific areas:**

### **Signature Fisheries**

- American shad, Atlantic sturgeon, American eel, and river herring have experienced serious declines in recent years. Commercial and recreational fishing of these species have been curtailed as one method of management to reduce mortality. However, there are other factors, both in the River and in the adjacent ocean, that are likely having a

negative impact on these stocks of fish. Such factors may include habitat availability, predation, food availability and quality, bycatch, fishing pressure in other estuaries, and other ecosystem interactions. The Foundation therefore seeks research to elucidate the importance of these other factors in controlling the abundance of these fish, with an emphasis on American shad.

### **Extreme Events**

- Tropical Storms Irene and Lee in 2011 produced record rainfall in the Hudson River's drainage basin that eroded and reshaped vast tracks of land. Hudson River tributaries added unprecedented amounts of water and sediment to the Hudson River. Preliminary evaluations indicate that huge amounts of sediment have been both moved and stored in the River, submerged aquatic vegetation has dramatically declined, water chemistry changed temporarily, and fish were displaced. The Foundation seeks a fuller understanding of the impacts of these storms and other extreme events to gauge whether any are continuing to affect the River's ecosystem, and whether these storms can provide important insights about watershed-river interactions and future conditions in light of climate change. The Foundation is particularly interested in developing a better understanding of the movement and fate of sediments that entered the River, how they have affected animal, plant and microbial communities, and how they may have affected the levels and exchange of contaminants in the lower estuary (for instance, whether contaminated sediments in New York Harbor have been buried by the influx of new, less contaminated sediments brought in by the storms).

### **Shorelines**

- Recognizing that the Hudson River lies within the most densely populated region of the United States, the Foundation seeks to advance understandings of how human uses have affected and continue to affect the River's ecosystem. The Foundation is engaged with many partners in developing science-based restoration and improvement strategies for the River and estuary. Shorelines are perhaps the most modified segment of the Hudson River ecosystem. The Foundation is therefore seeking research that will guide shoreline restoration and enhancement activities under consideration in advancing the Comprehensive Restoration Plan for the lower estuary, New York City's Waterfront Revitalization Plan, and the restoration plan developed for the Hudson River Estuary Program. In particular, the Foundation seeks better understandings of the ecological value of existing and potentially enhanced shorelines and nearshore habitats.

Although in this grant cycle the Foundation is emphasizing its interest in proposals in the three areas stated above, it remains open to new ideas that can advance science in the Hudson River ecosystem relating to any of its stated goals, including the broad range of research topics found in Appendix A. **In general, the Foundation will consider a project outside the 2013 targets if it is of exceptional scientific merit, includes unique innovation, investigates a new or emerging issue of significant importance, involves cross-cutting issues, or continues a**

**productive avenue of research consistent with the Foundation's strategic priorities as discussed above.**

The Foundation also continues to encourage proposals that utilize existing data sets concerning the Hudson River. Such data sets have been generated over the past several decades, particularly through monitoring activities. Some of the monitoring programs continue today. These data provide an opportunity to conduct additional analyses related to scientific questions and issues that were not contemplated as part of the individual programs. **The Hudson River Environmental Conditions Observing System ([www.hrecos.org](http://www.hrecos.org)) provides a unique opportunity to understand better how and why conditions are changing throughout the entire stretch of the tidal Hudson.** In addition, a new remote water sampling station, located at Marist College, has been added to the HRECOS network and will likely be available for use by investigators next year. Potential investigators are encouraged to consider using this facility for their research, as well as other HRECOS data resources.

For any questions related to the submittal of preproposals, please contact Dr. Dennis Suszkowski, Science Director, 212-483-7667, or [dennis@hudsonriver.org](mailto:dennis@hudsonriver.org). **Anyone interested in conducting research related to topics not included in the three interest areas (Fisheries, Extreme Events, and Shorelines) detailed above should contact Dr. Suszkowski before submitting a preproposal.**

## THE HUDSON RIVER FUND GRANTS PROGRAMS

The Hudson River Fund makes grants in five categories: Hudson River Research Grants, Travel Grants, Expedited Grants, Mark B. Bain Graduate Fellowships, and Tibor T. Polgar Fellowships.

### HUDSON RIVER RESEARCH GRANTS

There will be one formal funding cycle in 2013 for Hudson River Research Grants in the areas discussed in the previous sections.

#### Hudson River Research Grant Policies and Application Procedures

Proposals are sought from researchers at colleges and universities; other non-profit institutions; profit-making institutions; government (local, state, and federal) agencies; and unaffiliated researchers. The Foundation prefers, but does not require, that unaffiliated researchers seek some institutional affiliation for the purpose of conducting the proposed research. There are no geographic restrictions on the location of either the investigator or the institution. Proposals seeking funding for more than two years are generally discouraged; investigators considering a longer-term project should consult with the Foundation's Science Director before submitting a preproposal.

Preproposals, full proposals and fellowship applications are to be submitted electronically. **Necessary forms and full filing instructions can be obtained from the Foundation's website, [www.hudsonriver.org](http://www.hudsonriver.org).**

#### Preproposals

A proposal for a Hudson River Research Grant must be preceded by a preproposal consisting of a cover page, project description of no more than three single-spaced pages, and an estimated budget. **An electronic copy in pdf format** of the preproposal must be submitted to the Foundation **in accordance with instructions on our website, [www.hudsonriver.org](http://www.hudsonriver.org), by 5:00 pm, Monday, November 12, 2012. One hard copy** of the preproposal, **with original signatures by the Institutional Representative and Principal Investigator on the Cover Page and postmarked by November 12, 2012**, must also be sent to the Foundation. The preproposals will be reviewed by the Foundation, and the applicant investigators will be notified by **Friday, December 14, 2012**, as to whether a full proposal should be submitted. Full proposals will be due by 5:00 pm, **Monday, January 21, 2013.**

#### Proposal Design

Full proposals should be combined into one pdf document and include the sections described below insofar as they are applicable. Standardized forms, which should be used for each application, can be found on the Foundation's website, [www.hudsonriver.org](http://www.hudsonriver.org).

The main body of the proposal should be as succinct as possible, and no longer than 15 typewritten, single-spaced pages. However, no limits are set on appendices that support the main body of the text, as long as these materials relate substantively to ideas in the proposal. The contents should be assembled as follows:

The first section of the proposal should contain, in the order indicated:

1. *Proposal Cover Page* - The Proposal Cover Page form is provided on the Foundation's website, [www.hudsonriver.org](http://www.hudsonriver.org).
2. *Proposal Abstract* - A brief, topical abstract (200 words or less) must be typed on the Proposal Abstract form provided on the Foundation's website.
3. *Proposal Budget Summary* - The required Proposal Budget Summary form and instructions for completing this form can also be found on the Foundation's website. Written justifications of expenditures should be provided when special equipment items, extensive personnel, or use of facilities is involved. In the case of multi-year projects, the principal investigator must submit a separate budget for each year along with a combined budget and a proposed calendar of research activities. **Please note:** It is the policy of the Foundation to disallow the charging of student tuition and profits or fees on research grants, and to encourage cost-sharing by the applicant's institution. In general, the Foundation will reimburse indirect costs up to 15 percent of the modified total direct costs (modified to exclude certain large equipment purchases and subcontractor services).
4. *Table of Contents*.

The remainder of the proposal should contain the sections described below, as appropriate.

5. *Statement of research goals and objectives*.
6. *Statement discussing the relevance of the project* to the overall mission of the Foundation and the Hudson River Fund to make science integral to decision-making with regard to the Hudson River and its watershed and to support competent stewardship of this extraordinary resource. In addition, the proposal should state its relevance to one or more of the Foundation's 2013 research targets listed on pages 5 and 6, and/or its relevance to one or more of the seven strategic areas of interest listed on pages 4 and 5.
7. *Description of the approach* to meeting objectives, based on current knowledge in the field of study, showing the relationship between proposed accomplishments and existing information, and describing specifically how data are to be analyzed. Proposers should consider the relationship of their intended research to other ongoing research and monitoring in the River, and should strive to interpret their research results through appropriate models and other synthesis frameworks that link relevant efforts together.

8. *Significance of the research* in its field of knowledge, its relationship to other ongoing research in the Hudson River, and its implications for any public policy issues. The critical information or building blocks of knowledge to be provided by the proposed work should be clear. If this research has been previously supported by the Foundation, this section should present an up-to-date progress report. It should also describe how the proposed study will complement any ongoing research at the proposer's institution or any other institution.
9. *Description of related research* being conducted by the proposer(s) and specific past experience.
10. *List of specific tasks* to be performed (as an itemized list, separate from the description of the approach). If field work is proposed, maps depicting the sampling locations must be submitted. The Foundation has base maps of the entire Hudson Estuary that can be supplied to investigators upon request to the Science Director.
11. *Timetable* for completion of research activities in the project.
12. *List of current and pending research grants or contract support*. Include the project title, agency or foundation sponsoring the research, period of support, time commitment, and amount of award. Mention areas of overlap with the current proposal, if any, and describe time commitments for the principal investigator(s). If the proposed project is a continuation of previously HRF-funded research, a full discussion of the progress of that project, along with a report of any significant results, including publications, must be incorporated into the new proposal.
13. *Bibliography* for proposal (please include article titles).
14. *Résumés* (five-page maximum) of investigator(s) and key support personnel.

**The proposal with signatures on the Cover Page must be submitted electronically in one pdf document.** Any reprints, appendices, or other materials to be considered with the proposal must be electronically attached to the individual proposal. To avoid delay in the review process, the proposal should be complete at the time of submission. Full proposals will be due by 5:00 pm, **Monday, January 21, 2013.** **In addition, one hard copy of the proposal, containing original signatures by the Institutional Representative and Principal Investigator on the Cover Page, must be sent to the Science Director, Hudson River Foundation, 17 Battery Place, Suite 915, New York, New York 10004.**

### **Special Conditions**

Confidentiality, to the extent possible, will be maintained in the review process, and proposals shall not be used for any purpose other than evaluation of merit for funding. Applicants are encouraged to draw the Foundation's attention to confidential or proprietary information contained in the proposal.

## **Criteria for Evaluation of Proposals**

Hudson River Research Grants are awarded after a rigorous review process, including peer review. Decisions are made on the basis of the following factors: 1) technical merit; 2) the appropriateness of the proposed study to the mission of the Foundation and, specifically, the relevance of the project to the priorities described above; 3) qualifications of the investigators and adequacy of facilities for carrying out the proposed research; 4) costs; and 5) likelihood of success, including the publication of the research results in peer-refereed journals. In the case of continuing projects, consideration will also be given to the level of progress achieved to date.

## **The Grant Award**

Notification of Hudson River Research Grant awards will be made by April 2013. After initial approval, the Foundation will arrange specific grant terms with successful applicants.

## **TRAVEL GRANTS**

Travel Grants are available for travel related to the research goals of the Hudson River Fund as discussed in this Call for Proposals. The Foundation is particularly interested in visits by experts from outside the region to share new approaches to environmental questions about the Hudson River. Applications may be made either by individuals or by organizations on their behalf. Applications may be made at any time but should be submitted as far in advance of anticipated need as possible. Institutions may not charge overhead on these grants. Travel requests to attend conferences are discouraged.

Applications should include a letter describing the purpose and time of the travel, a budget, and references. An electronic copy and one hard copy will be required. **All applicants for Travel Grants should contact the Science Director, Dr. Dennis Suszkowski, 212-483-7667, before applying.**

## **EXPEDITED GRANTS**

The Foundation will consider throughout the year proposals for the study of emergency situations affecting the Hudson River, such as unexpected natural or human-induced events, or research for which additional funds are needed to enhance an existing investigation or take advantage of a compelling research opportunity prior to the Foundation's next formal funding cycle.

**All potential applicants for Expedited Grants should contact the Science Director, Dr. Dennis Suszkowski at 212-483-7667 before applying.** Applicants will be informed of the Foundation's decision, including specific conditions governing the grant as soon as possible.

## MARK B. BAIN GRADUATE FELLOWSHIPS

In 2011, the Foundation renamed its graduate fellowship program in honor of Dr. Mark B. Bain for his outstanding contributions to Hudson River science. Dr. Bain was a professor of Systems Ecology at Cornell University for 22 years, and until his death in February 2012, a highly productive researcher studying aquatic systems throughout the world. Dr. Bain had a particular interest in the Hudson River and was supported by the Foundation in several important endeavors. His comprehensive study of sturgeons and ground-breaking work on ecosystem restoration planning have significantly advanced the conservation of natural resources in the Hudson River and estuary. The Foundation is pleased to recognize and remember Dr. Bain's achievements and the respect, admiration and affection for him in the Hudson River scientific community.

In 2013, the Foundation will award up to six full-time research fellowships to advanced graduate students conducting research on the Hudson River system. A fellowship awarded to a **doctoral** student will include a stipend consistent with the policy of the student's graduate institution, in an amount of up to \$15,000 for one year, and an incidentals research budget of up to \$1,000. A fellowship awarded to a **master's level** student will include a stipend consistent with the policy of the student's graduate institution, of up to \$11,000 for one year, and an incidentals research budget of up to \$1,000.

### Conditions

The award is conditional upon a full tuition waiver or reimbursement by the University. Applicants must be enrolled in an accredited doctoral or master's program, must have a thesis advisor and advisory committee (if appropriate to the institution), and must have a thesis research plan approved by the student's institution or department.

The student's home university will be expected to be the primary source of support for materials and expenses required to do the thesis research and will also be expected to cover any indirect costs associated with the project. In special cases, applicants can apply for a 15-month fellowship in order to extend the proposed project through an additional summer. The Foundation will not accept applications for additional funding to extend existing fellowships.

### Application Procedures

The following materials must be included in an application; all necessary forms can be found on the Foundation's website, [www.hudsonriver.org](http://www.hudsonriver.org):

1. *A Proposal Cover page* (form obtained on the Foundation's website, [www.hudsonriver.org](http://www.hudsonriver.org)). Please include the name of the student in the *Principal Investigator* box. The title of the thesis/dissertation should be included in the *Title of Proposal* box. In the *Purpose/Objective* box, please state whether support is sought for a fellowship at the master's or doctoral level. Please list the student's advisor as co-principal investigator on the cover page.

2. *A description* (10 pages maximum) of the thesis project. This should include a statement of the objectives of the project and the approach to the research, as well as a summary of research already completed, and a student resume;
3. *A timetable* for the completion of the research;
4. *A statement of the significance and relevance* of the project to the Hudson River Foundation's objectives;
5. *An estimate of the cost* of supplies, travel, etc. Use *Proposal Budget Summary* (form obtained on the Foundation's website, ([www.hudsonriver.org](http://www.hudsonriver.org)) and include stipend amount in *salaries* and research incidentals under *expendable equipment* (no other line items should be filled in); and
6. *Résumé* of student;
7. *A letter from the University* stating that the student will receive a tuition waiver or reimbursement for the period of the fellowship;
8. *Two letters of recommendation*; one must be from the student's advisor and should certify the student's current status, evaluate the student as a future researcher, and rate student's project both on technical merit and on relevance to the goals of the Foundation. Fellowship awards will be made through the student's academic institution. Therefore, applications must be submitted through the institution's grants administration office.

Applications for graduate fellowships in electronic pdf format must be received by 5:00 pm, **Monday, March 18, 2013**. Decisions will be made by the end of June 2013. Electronic filing instructions can be found on the Foundation's website, [www.hudsonriver.org](http://www.hudsonriver.org). **A hard copy of the application, containing original signatures by the Institutional Representative and Graduate Student on the Cover Page and postmarked no later than March 18, 2013, should be forwarded to the Science Director, Hudson River Foundation, 17 Battery Place, Suite 915, New York, NY 10004.**

## **TIBOR T. POLGAR FELLOWSHIPS**

The Tibor T. Polgar Fellowship program is a research program conducted in cooperation with the New York State Department of Environmental Conservation. Named in honor of the late Dr. Tibor T. Polgar, a major contributor to the early development of the Foundation, this program provides a summertime grant (**\$3,800** for each fellowship) and limited research funds for eight college students (both undergraduate and graduate students are eligible) to conduct research on the Hudson River. The objectives of the program are to gather important information on all aspects of the River and to train students in conducting scientific studies and public policy research.

Over the past 28 years, the Polgar Fellowship program has produced a large body of research in the Hudson River, with a concentration on the four marshes of the Hudson River National Estuarine Research Reserve, compiled in the annual Polgar Fellowship reports published by the Foundation. Anyone interested in obtaining this material in order to plan projects building on the work of previous Polgar fellowships or in discussing potential research topics should contact the Foundation.

Because of the training and educational aspects of this program, each potential fellow must be sponsored by a primary advisor. The advisor must be willing to commit sufficient time for supervision of the research and to attend two meetings (orientation and final reports) with their students. Advisors will receive a stipend of \$500.

### **Application Procedures**

Students applying for a Polgar Fellowship should include:

1. *A letter of interest* in the program;
2. *A short description* (4-6 pages) of the research project, including a statement of its significance;
3. *A timetable* for completion of the research;
4. *An estimate of the cost* of supplies, travel, etc.; and
5. *A letter of support* from the student's advisor.

Applications for Polgar Fellowships in electronic pdf format must be received by the Foundation by 5:00 pm, **Monday, February 11, 2013**. (For filing instructions visit the Foundation's website, [www.hudsonriver.org](http://www.hudsonriver.org).) Successful applicants will be notified of their fellowship awards by the end of March 2013. **A hard copy of the application, postmarked no later than February 11, 2013, must also be submitted to the to the Polgar Fellowship Committee, Hudson River Foundation, 17 Battery Place, Suite 915, New York, NY 10004.**

## **Appendix A: General Research Interest Areas of the Hudson River Fund**

### **Resource and Other Key Species**

- \* The Foundation has since its inception, in accordance with the specific terms establishing the Hudson River Fund, sought scientific information needed to manage the fishery resources of the Hudson River. Important in this regard is research to increase understanding of the variability of spatial and temporal distributions and abundances of key organisms, both native (such as striped bass, shad, bay anchovy, smelt, menhaden, blue crab, oyster and grass shrimp) and introduced (such as carp and zebra mussels), and the processes, both natural and anthropogenic, that control them. These processes should be broadly understood to include factors both within and outside the estuary (including the interactions among resident and anadromous fishes, habitat interactions, and the impacts of coastal fisheries on Hudson River populations). The Foundation is interested in research that addresses these issues, especially on a multi-species basis, and that includes rationales or testable hypotheses that justify the significance of the species to be studied.

### **Dynamics of Hudson River Trophic Webs**

- \* The biological and chemical processes at work in the lower food web of the Hudson are keys to the functioning of the ecosystem in ways that need further exploration. How do nutrients and carbon enter the Hudson and how are they transformed? In particular, how do the lower food web processes affect water quality and to what extent are higher trophic level species, like migratory and resident fishes, affected by the quantity and quality of carbon produced and transformed throughout the Hudson. What affects the composition and biomass of the lower food web itself, and how are the planktonic plant and animal communities changing over time? Studies of these processes, particularly those that will improve the predictive capabilities of numerical models, are particularly important to advancing our understanding of the Hudson River ecosystem.

### **Toxic Substances**

- \* Toxics contamination of the Hudson, particularly sediment contamination, is expected to be a major environmental, public health and economic issue for years to come. Cleanups and other remedial efforts, along with management of health risks through fishing advisories, will likely require better understandings of contaminant fate and effects, including trophic cycling. Research needs include: determining the causes of sediment toxicity; understanding how the ecosystem responds to cleanups, including evolutionary resistance; evaluating the potential impacts of *emerging* contaminants and contaminant mixtures; understanding factors and processes affecting bioaccumulation; and quantifying how chemical stressors affect fish and wildlife populations.

## **Hydrodynamics and Sediment Transport**

- \* Hydrodynamic processes are extremely important since they affect the transport of all organic and inorganic materials dissolved, suspended or swimming in the Hudson River. Several key transport processes are not well understood in the Hudson, hindering accurate predictions of the Hudson's response to natural and man-induced effects. Future research work is warranted to better understand lateral circulation, the influence of abrupt depth change and the effect of margins (e.g., wetlands, shallows, enclosed basins, etc.) on hydrodynamics, salt intrusion dynamics, and the verification of models during extreme events. Also, several geographic areas of the estuary have had little scientific investigation into their hydrodynamic characteristics and their influence on other sections of the system. These include the interconnected waterways of the lower estuary and the tidal freshwater water portion of the Hudson.
  
- \* Sediment erosion, transport and accumulation are important ecosystem processes that also greatly affect human uses of the Hudson (e.g., navigation and contaminants in fish). While progress has been made in recent years in understanding sediment processes, there are still gaps in knowledge that limit our ability to model transport and depositional processes. Research is required to better understand both temporal and spatial variations in transport and trapping processes. More attention should be given to interannual cycles and to areas of the system like the interconnected waterways of New York Harbor, the upper limit of salt intrusion in the Hudson River (i.e., the area between Newburgh and the Tappan Zee), and the tidal freshwater portion of the Hudson.

## **Public Policy/Social Science Research**

- \* The quality of the water and preservation and enhancement of biological resources in the Hudson River are influenced significantly by the actions of federal, state, and local governments. Laws and regulations control human uses of the Hudson and, in turn, influence the River's ecology. The Foundation recognizes the importance of studies that analyze, through the application of social science research, public policies that have had or could have significant impacts on the natural resources of the River and that seek to understand the social and economic values and other factors that shape those policies. The past and potential impacts of policies affecting the River—positive or negative, direct or indirect—include those affecting water quality, habitat, fisheries, access to the River, and public knowledge and understanding of the system. Decision analysis and system dynamics, implications of power generation, land use, evaluation of the resources of the River in economic terms, and other public policy topics related to the River are of interest to the Foundation.

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