



VIRGINIA SEA GRANT—NOAA CHESAPEAKE BAY OFFICE POSTGRADUATE FELLOWSHIP: ECOSYSTEM-BASED FISHERIES MANAGEMENT & IMPLEMENTATION

Summary: In partnership with the NOAA Chesapeake Bay Office, Virginia Sea Grant announces the availability of a two-year, postgraduate fellowship in ecosystem-based fisheries management (EBFM). This fellowship seeks to advance EBFM in the Chesapeake Bay by improving the understanding of linkages between fisheries, land-use changes, habitats, and the ecosystem services they provide. The fellow will leverage past EBFM work in the region, conduct literature review and extensive expert consultation, synthesize and integrate available scientific information, and develop decision support materials and conduct outreach to Chesapeake Bay coastal resource managers. While the specific EBFM project to be conducted will be determined in part by the expertise of the selected fellow, we envision a fellow working on a narrowly defined, concise project within one or more of the following thematic areas: climate change impacts on fisheries resources; ecosystem indicators for fishery management; habitat and fisheries linkages; or valuation.

The fellow will be paid \$42,000/year for two years with full employee benefits at the Virginia Institute of Marine Science (VIMS) with the College of William & Mary. In addition, there are funds available for travel and supplies. Qualified applicants may apply via the College of William & Mary jobs website: <http://jobs.wm.edu/postings/17883>. Applicants will be asked to submit (via the website): (1) a cover letter, including a statement reflecting their interests and expertise in EBFM and its implementation; (2) a CV that lists all GPAs and relevant graduate coursework; (3) a short writing sample (preferably less than 5-pg) targeting an end-user audience (e.g., manager, policy maker, citizen, stakeholder) and (4) three letters of recommendation submitted by referees. Review of applications will begin July 19, 2014.

Background

The Chesapeake Bay watershed hosts 17 million residents, with an additional 150,000 people moving to the 64,000 mi² region annually. By 2030, the Chesapeake Bay watershed population is projected to grow to approximately 20 million. This increase in population brings further development pressures and land use changes, with implications for habitat degradation and loss of fisheries productivity. Therefore, advancing ecosystem-based fisheries management (EBFM) in Chesapeake Bay will require an improved understanding of the linkages between fisheries, land-use changes, habitats, and the ecosystem services they provide. While there is available research and monitoring data on these individual components of the broader ecosystem and emerging understanding of some linkages between them that might inform management, there is a need for integrative analysis, synthesis, and translation of these data into decision support products. Virginia Sea Grant (VASG) and the NOAA Chesapeake Bay Office (NCBO) are jointly supporting a postgraduate fellowship in EBFM science synthesis to provide this analysis and development of products.

The Chesapeake Bay region has long been a leader in ecosystem-based management, and a large body of data, reports, scientific advice, management action, and other information exists on the implementation of EBFM. For example, Maryland Sea Grant led a multi-year initiative to develop research-based guidance for managers on EBFM (see: www.mdsg.umd.edu/topics/ecosystem-based-fisheries-management/ecosystem-based-fisheries-management). Further, there is an extensive regional science and management structure in the Chesapeake Bay to facilitate ecosystem-based management discussions and considerations across the watershed. For example, there are multi-state and sector Goal Implementation Teams in sustainable fisheries, habitat, water quality, watersheds, stewardship, and leadership (see www.chesapeakebay.net/groups/group/sustainable_fisheries and

www.chesapeakebay.net/groups/group/habitat_goal_implementation_team). The Chesapeake Bay Program conducts extensive data monitoring and stakeholder engagement. The fellow will build upon this body of knowledge and experience.

Fellowship Description

The fellow will apply his/her research expertise and training to better understand the linkages between habitats and ecosystem services. The specific project undertaken by the fellow will be discrete and feasible within the fellowship's two-year timeframe and will be informed by the expertise and strengths of the selected candidate. However, in general it is expected that the fellow will review the grey and peer-reviewed literature and existing informational resources, and consult with scientists throughout the Bay watershed to be aware of what is known about habitat change in the Bay, fisheries stock health and status, socioeconomics, and the connection between habitat and fisheries. Synthesis and integration products will be generated to consider the interactions between the drivers of habitat change and fish stock health and status. The products derived by the fellow will directly inform resource management and restoration decisions for NOAA and the Chesapeake Bay Program, i.e., the primary audience for the synthesis and integration products will be resource managers.

The fellowship goals are to:

- Advance EBFM in Chesapeake Bay by improving the understanding of linkages between fisheries, habitat, and land-use changes.
- Develop and provide sound scientific information to decision-makers that support ecosystem-based approaches to managing the coastal and marine environment and enhancing ecosystem health, services, and resilience.
- Provide valuable training and professional development for a postgraduate student in science integration and synthesis, and the science-to-management process.
- Promote collaboration and communication among NCBO, VASG, and other key state and regional science organizations, such as the National Estuarine Research Reserve System, Chesapeake Research Consortium (CRC), Maryland Sea Grant, and the Virginia Marine Resources Commission.

The fellow will report to the VASG Director who will manage the fellow's day-to-day operations. A small advisory group of 4-5 members consisting of representatives from VASG, NCBO, CRC, and other scientists and managers from the Chesapeake Bay area will be formed to provide longer term guidance and oversight. The fellow will meet with the advisory group on a regular basis (e.g., quarterly) to provide updates and receive feedback and guidance on available information resources and synthesis/integration methods. While the fellow will be physically located in Virginia, s/he will be required to spend time working with and traveling to other institutions in the Chesapeake Bay watershed. The fellow will work with a diverse group of partners including NCBO; the National Estuarine Research Reserve System; the Chesapeake Bay Program's Sustainable Fisheries Goal Implementation Team; and academic institutions, state and local resource managers and policy makers, non-governmental organizations, and other local constituents in Maryland and Virginia.

The fellow will develop at least one synthesis and decision support product, as well as conduct the outreach to ensure that this product is relevant and credible for managers and thus more likely to be integrated into management. In addition to immediate improvements to management as a result of the fellow's activities, the fellow will have a unique opportunity to develop interdisciplinary expertise in

science synthesis and integration, and the translation of science to policy and management. Further, the fellow will hone facilitation and communication skills and learn from multiple perspectives by being exposed to a diverse and multidisciplinary cadre of researchers, managers, decision makers, and other marine professionals and stakeholders in the region. These types of skills and professional networks will be invaluable to a future workforce implementing EBFM.

The topical area of the specific EBFM project will be determined in part by the expertise of the selected fellow, although we envision a fellow working on one or more of the following thematic areas (listed in alphabetical order):

- ***Climate Change Impacts on Fishery Resources***—assess potential impacts of climate change (e.g., temperature, freshwater flow, acidification, sea level rise) on productivity of key Chesapeake Bay fish species. Of particular concern are impacts to the suitability of juvenile habitats and consequent impacts to levels of production and recruitment.
- ***Ecosystem Indicators for Fishery Management***—develop a suite of ecosystem, fisheries health and sustainability indicators for key Chesapeake Bay fisheries. Indices could integrate across disciplines, e.g., oceanographic and estuarine physical dynamics, biological indicators, habitat requirements, other stressors, socioeconomic conditions.
- ***Habitat and Fisheries Linkages***—identify and prioritize habitats (i.e., spawning, feeding, nursery) for key Chesapeake Bay fishery species and quantify characteristics of spatial and temporal arrangements of habitat relative to fish productivity. Include consideration of ecosystem dynamics, such as predator-prey interactions.
- ***Valuation***—quantify the social and economic values associated with ecosystem services at the interface of fisheries, habitat and land-use changes in the Chesapeake Bay, including consideration of changes in those ecosystem services and their valuation under various climate change scenarios.

While the list above reflects priority concerns for the Chesapeake Bay, it is not necessarily an exhaustive list and fellowship candidates can propose alternative topical areas for their work or approaches that explore the interaction between themes.

Location

The fellow will join a dynamic, interactive group of faculty, staff, and students at the Virginia Sea Grant Office on the campus of the Virginia Institute of Marine Science, Gloucester Point, Virginia. The fellow will be required to spend time traveling to other academic institutions in the Chesapeake Bay watershed and working with policy makers and resource managers located in Annapolis, Maryland. Applicants must possess a valid drivers' license permitting driving within the U.S.

Fellowship Period

The fellowship will be for a two-year fixed term appointment. The preferred start date is as soon as possible. Please submit application materials by July 19, 2014.

Salary and Benefits

The fellowship provides an annual stipend of \$42,000 and full Virginia Institute of Marine Science employee benefits. In addition, there are funds available to allow for travel around Virginia and Maryland, annual attendance at a professional conference, and supplies.

Eligibility and Qualifications

Applicants must be a U.S. citizen, lawful permanent resident, or hold an appropriate visa to work within the U.S.

Minimum skills and qualifications include:

- Recent Ph.D. (within last five years) from a relevant social, natural, or interdisciplinary science program with emphasis in areas such as marine policy, natural resource management, ecosystem service valuation, or socio-environmental systems research.
- Interdisciplinary background that includes some combination of environmental and natural resource policy, ecology, and fisheries expertise, with experience in coupled human-natural systems.
- Strong research and analytical skills.
- Strong interpersonal, written, and verbal communication skills, including excellent command of English.
- Creative, motivated, and capable of working well both independently and cooperatively within an interdisciplinary group.

Preferred skills and qualifications include:

- Demonstrated interest and experience working at the interface of science and resource management.
- Demonstrated ability to translate scientific and technical concepts across disciplines and audiences.
- Familiarity with large ecosystem protection and restoration programs.
- Strong quantitative skills for human-natural systems data meta-analysis, synthesis research, or policy studies.

To Apply

Qualified applicants may apply via the College of William & Mary jobs website:

<http://jobs.wm.edu/postings/17883>. Applicants will be asked to submit (via the website): (1) a cover letter, including a statement reflecting their interests and expertise in EBFM and its implementation; (2) a CV that lists all GPAs and relevant graduate coursework; (3) a short writing sample (preferably less than 5-pg) targeting an end-user audience (e.g., manager, policy maker, citizen, stakeholder) and (4) three letters of recommendation submitted by referees. Please submit application materials by **July 19, 2014**. Applications received after this date will be considered if needed.

The College of William & Mary values diversity and invites applications from underrepresented groups who will enrich the research, teaching and service missions of the university. The College is an Equal Employment Opportunity/Affirmative Action employer. The College conducts background checks on applicants for employment.