Christopher Golden PhD, MPH
Assistant Professor of Planetary Health and Nutrition
Department of Nutrition
Boston, MA 02115

Request for Applications for Post-doctoral Research:
The use of life cycle analysis (LCA) to improve nutrition sensitive aquaculture

Objective

This project is in collaboration with The Nature Conservancy's Global Aquaculture Program, for a full-time postdoctoral researcher to be based at the Harvard TH Chan School of Public Health and supervised by Dr. Chris Golden. The postdoctoral researcher will also be co-advised by Dr. Jessica Gephart at the National Socio-Environmental Synthesis Center and Robert Jones of the Nature Conservancy. The postdoctoral researcher will identify aquaculture systems that provide maximum nutrition with minimal environmental impacts by integrating nutritional dimensions into aquaculture life cycle analysis (LCA). We will develop the method using published LCA data and use the reviewed studies to identify priority locations and aquaculture systems for further empirical data collection and novel analysis. This project consists of four stages: 1) review and synthesize previous aquaculture LCAs; 2) integrate a nutritional dimension into the reanalysis of previous LCA studies; 3) identify gaps and priority areas to collect data for original LCA studies; and 4) conduct a series of novel LCAs for selected aquaculture species and production types. In doing so, the results of this project will outline aquaculture systems with high potential to positively contribute to environmental conservation, sustainable development, and global human food security.

Background

Fish and other aquatic foods (hereafter, seafood) are a critical source of nutrition, providing nearly 20% of global animal protein, along with essential fatty acids and micronutrients. Global per capita consumption of seafood has increased by 3.2 percent annually since 1961 and demand is increasing with population growth and rising incomes. This increased global seafood production growth has occurred, despite stagnation in global capture fishery catch, due to the rapid expansion of aquaculture. Going forward continued aquaculture expansion will likely play a central role in meeting global food demand. However, for aquaculture growth to contribute to sustainable development, aquaculture must be oriented to meet the needs of the present, by maximizing its contribution to nutrition ('nutrition-sensitive'), without compromising natural resources and environment.

Aquaculture production consists of a wide range of cultured species, production methods, and final product forms. As a result, both the nutritional composition and environmental impacts stemming from aquaculture vary widely. Differences in environmental impacts vary with the specific environmental conditions of the aquaculture site (e.g. hydrology, evaporation, biological sensitivity), production methods (e.g. type of enclosure, level of intensity), and the needs of the species (e.g. feed requirements).

Identifying systems with a high potential to contribute to sustainable development requires comparing the nutritional and environmental tradeoffs across species and production systems with a consistent methodology. Life cycle analysis is an approach to estimate the environmental impacts throughout a production chain and compare the environmental impacts of different products. Incorporating a nutrition dimension to aquaculture LCA will enable comparisons of environmental impacts relative to nutrition output across species, production systems, and product forms.

Position details

The position includes a salary of $57,000 per year and full benefits, including employee health insurance eligibility. The researcher is expected to be present in Boston for the entire period of the contract and office space will be provided at the Harvard TH Chan School of Public Health. Alternative arrangements can be made if there is an excellent fit with a researcher who does not want to move to Boston.

Qualifications

- PhD in environmental science, fisheries, agriculture, natural resources, engineering, or related field is required
- Knowledge of current LCA methods and literature and experience conducting LCA
- Excellent verbal, written, visualization and interpersonal communications skills
- Ability to work collaboratively in a decentralized network with a culturally diverse and international team
- Experience and interest in food systems, with a preference for experience working with seafood production systems
- Strong statistical and quantitative analysis background is required and expertise in R and/or LCA-specific programs is preferred
- Preference for experience working with large datasets and integrating multiple kinds of data in an analytic framework

To apply: Please submit
-a CV and a brief cover letter detailing relevant experience and reason for interest
-relevant past publications or writing samples
-the names/contacts of three references
to Dr. Chris Golden (golden@hsph.harvard.edu) by July 20th. Applications will be reviewed on a rolling basis. Interviewing and hiring will take place prior to August 15th. Ideally, the candidate will start the position around September 1st, but a later start date can be negotiated.

For more information on the broader vision of the project, please visit:
http://www.hsph.harvard.edu/christopher-golden/**;** http://www.mahery.org