Addressing Hunger and Undernutrition
Through Sustainable Aquaculture

Jenna Borberg*, Paris Edwards, Bhakti Chavan, and Hillary Egna
AquaFish Innovation Lab – Oregon State University – Corvallis, OR 97331
aquafish.oregonstate.edu ◆ aquafish@oregonstate.edu
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Introduction
The United Nations Food and Agriculture Organization (FAO) estimates that nearly 805
million people suffered from chronic hunger and undernourishment from 2012-2014.
Hunger is concentrated in developing nations and especially affects women and
children in poor, rural environments.
Fish is a significant source of high quality protein in diets globally, and currently makes
up over 50% of the animal protein consumed in several developing countries, including
Bangladesh, Cambodia, and Vietnam. As demand for animal-source protein continues
to grow, aquaculture stands out as an efficient, sustainable, and affordable
method of food production. According to the FAO, aquaculture is the fastest growing
animal food production sector, increasing across the globe by about 7% a year since
1970.

Research Strategies
Developing technologies and Best Management Practices (BMPs) aimed at-
Increasing protein production and reducing costs by optimizing the culture of species
that require fewer feed inputs, such as:
- Tilapia (Oreochromis niloticus)
- Carp (Cyprinus carpio)
- Catfish (Clarias gariepinus and Pangasius)

Increasing production of nutrient-dense, small-sized fish
When eaten whole, these fish are rich in essential vitamins and minerals critical to
human health and development, including:
- Fat-soluble vitamins (A, D and E)
- Water-soluble vitamins (B complex)
- Minerals (calcium, phosphorus, iron, iodine, zinc, selenium)

Understanding and addressing nutritional needs, particularly for women and children

Assess end-user needs through techniques such as:
- Interviews
- Surveys
- Focus groups

Transfer knowledge via training activities, including:
- Workshops
- Women’s fish farming groups to train women and communities

Role of AquaFish
The AquaFish Innovation Lab (AquaFish), funded primarily by the the United States
Agency for International Development (USAID), works to enrich livelihoods and
promote health through partnerships with institutions in the US and participating host
countries. As part of the US Feed the Future Initiative, AquaFish advances sustainable
aquaculture practices to address hunger and undernutrition globally through
research and capacity building. Current projects are focused in Africa and Asia.

Research Highlights
Enhancing food security and household nutrition of Cambodian women and
preschool children through evaluation and outreach

Methods
- Collected dietary intake data through interviews with 300 women and 343
  preschoolers in three Cambodian provinces to identify commonly consumed fish
  using a single 24-hour recall period
- Determined nutritional value (energy, micronutrients, and macronutrients) of intake
  using the ASEAN Food Composition Table

Results
- Fish play a significant role in food and nutrition among Cambodian women and
  children, comprising 17% of the total diet intake of women and 11% for preschool
  children

Fish Contribution to Diet (% of animal source)

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Preschool Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>80%</td>
<td>78%</td>
</tr>
<tr>
<td>Energy</td>
<td>70%</td>
<td>72%</td>
</tr>
<tr>
<td>Fat</td>
<td>54%</td>
<td>60%</td>
</tr>
<tr>
<td>Iron</td>
<td>74%</td>
<td>57%</td>
</tr>
<tr>
<td>Zinc</td>
<td>45%</td>
<td>44%</td>
</tr>
<tr>
<td>Calcium</td>
<td>83%</td>
<td>93%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>87%</td>
<td>56%</td>
</tr>
</tbody>
</table>

Next Steps
Train 500 professionals
and educate over 300
women on nutritional
research findings

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