The AquaFish Innovation Lab and related programs have been promoting and developing aquaculture research throughout the world for almost 30 years. Shellfish species (molluscs and crustaceans) are an important and growing portion of the total global aquaculture production. Finding ways to improve shellfish product quality and safety will help create a source of nutritious food and sustainable income for vulnerable and impoverished communities.

**Nutritional benefits:**
- Many bivalve species provide almost all the dietary essential amino acids for maintenance and growth of the human body.
- Good source of omega-3 fatty acids.
- Excellent source of protein.
- Rich in iron.

In addition to benefits to human health, many shellfish species also provide positive environmental impacts.

**Environmental benefits:**
- Reduce turbidity through filtration
- Carbon sequestration
- Habitat/shoreline stabilization
- Nutrient uptake

Minimal capital costs and few inputs (i.e., feed, fertilizer, etc.), combined with ecological and nutritional advantages, have contributed to the increase in shellfish aquaculture production over the last 60 years.

**Food Security**
AquaFish promotes food security by fostering research and outreach that increase nutrient-rich food choices and provide sustainable income opportunities for those with limited resources.

![Kernel distribution of bivalve spats collected at month 0 (left) and month 59 (right).](image)

After five years of community-based management and monitoring, the no-take zones have proved successful in increasing the number of cockles in the estuary. Due to this success, the Nicaraguan government is considering adopting this type of management system in the region.

**Food Safety**
Those with limited food choices need to be sure that the food they consume is safe to eat. Identifying hazards and developing strategies to eliminate them are cornerstones of AquaFish research.

The red swamp crayfish (*Procambarus clarkii*) is a commercially important aquaculture species in Asia. Often, water quality in culture ponds is compromised by blooms of harmful *Mycrocystis* algae, known to be toxic to both humans and animals.

![Effect of different densities of *Mycrocystis* algae on survival rates of juvenile crayfish.](image)

Juvenile crayfish survival was significantly correlated with algae concentration.

This research can inform further studies to find ways to eliminate toxins in shellfish to safeguard people against food-borne illness and contamination.

**Future Research**
Research and trainings are planned to begin in 2014 in Tanzania on spat collection and nursery methods for shellfish culture. These studies and outreach activities will address obstacles that have hindered small-scale aquaculture development in this region, and potentially offering nutritious food options and income alternatives for poor communities.

**Why Shellfish?**
With over 850 million people undernourished throughout the world, shellfish consumption can enrich diets with animal protein, fatty acids, vitamins, and minerals that are lacking from many staple foods consumed in developing countries.

![Photo courtesy of M. Haws.](image)