



## FACTSHEET

### The benefits of aquaculture



## Background

Aquaculture's contribution to the world's food basket is essential as global demand for fish grows. Today, fish provides more than 1 billion people with most of their daily animal protein. And, in regions with the greatest number of resource-poor and vulnerable people, fish is often the primary animal-source food.

Fish provides micronutrients that are essential to cognitive and physical development, especially in children, and are an important part of a healthy diet. In some of the most resource-poor countries, fish is the primary source of nutrition, creating growing demand for this staple.

Aquaculture's contribution to the human food basket is essential, as the world's wild fish stocks have long since peaked. In 2011, 29% of marine fish stocks were classified as overfished and 61% as fully fished. Today nearly half of all fish consumed comes from aquaculture, making it the fastest-growing agro-food sector over the last 30 years.

By 2050, the global population is projected to reach 9.6 billion. Global average annual fish consumption rates have risen from 16 kilograms (kg) per capita in 2000 to 18.6 kg per capita in 2010 and are predicted to increase further with upward trends in wealth and urbanization. In order to meet this growing demand for fish, aquaculture production must more than double from today's level of 67 metric tons (t) to 140 Mt by 2050.

More than 100 million people depend on the aquaculture sector for their livelihoods, including areas like fish processing and marketing. It is estimated that by 2050 aquaculture could provide employment for an additional 76 million people. Most of these will be in the developing world, where aquaculture growth is expected to be greatest.

## Sustainable aquaculture

Intensifying the production of aquaculture to meet current and future demand can be done sustainably and in a way that minimizes impact on the environment and natural resources.

Aquaculture can produce more food with less impact than most other animal-source foods. Farmed finfish are efficient at converting feed into body mass. Thus, much less feed is needed to produce 1 kg of carp than beef, chicken or pork. But, there is still considerable scope for improvement.

## Key Facts

- By 2030, aquaculture will contribute 62% of all fish for human consumption (World Bank 2013).
- By 2050, aquaculture production will need to more than double from today's level in order for global per capita fish consumption rates to increase without exerting further pressure on wild fish stocks (Waite et al. 2014).
- World per capita apparent fish consumption has increased from 9.9 kg in the 1960s to 19.2 kg in 2012 (FAO 2014).
- In developing regions, annual per capita apparent fish consumption rose from 5.2 kg in 1961 to 17.8 kg in 2010 (FAO 2014).
- Asia accounts for nearly 90% of global aquaculture production (Waite et al. 2014).
- More than 100 million people—from farmers to fish processors and retailers—rely on the aquaculture industry for their livelihoods (Waite et al. 2014).

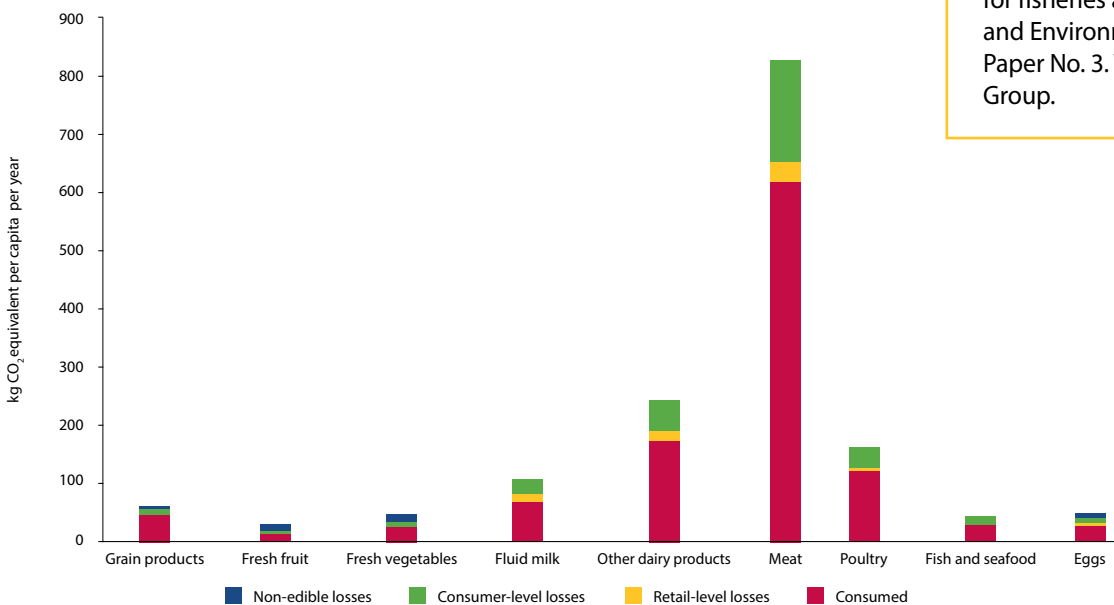
## Feeds

The use of feeds that contain wild fish as fish meal and oils is an area of concern for the aquaculture industry, as it can place pressure on marine ecosystems and there are concerns that it may reduce the amount of wild fish available for human consumption.

Today, 80% of all aquaculture production consists of omnivores, herbivores and filter feeders that consume little to no fish-based feeds. For those species that require a fish-based diet, the industry is working to further utilize “recycled” fishmeal from wild fish processing waste. In 2013, 35% of fishmeal used in aquaculture was recycled. Ongoing research is being conducted into methods to reduce the amount of feed needed in aquaculture.

## Water, land and climate

In 2010, aquaculture consumed 2% of global agricultural fresh water and approximately 1% of all global agricultural land. As the aquaculture sector covers a diverse range of species, farming systems and environments, the environmental performance of the sector varies. However, overall the industry produces fewer greenhouse gas emissions than other food production sectors like meat and poultry.



Annual greenhouse gas emissions per capita associated with producing the 2010 U.S. food availability

## WorldFish research

To support and improve the growth of sustainable aquaculture, WorldFish conducts research in the following areas:

- genetic improvement programs to develop productive strains of fish and aquatic invertebrates that meet the needs of resource-poor producers and consumers
- improving access to profitable and environmentally sound fertilizers and feeds, and adoption of better fertilizer and feed management systems
- reducing the risk of disease in fish
- cost-efficient quality seed multiplication and dissemination programs that improve access by resource-poor producers
- adoption of aquaculture production technologies and development of value chains that produce safe and affordable produce that meet the nutrition needs of resource-poor consumers
- reducing the environmental impacts of aquaculture.

## Resources on aquaculture

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