Wild or Farmed Shrimp: The choice is yours

“Shrimp is the fruit of the sea. You can barbecue it, boil it, broil it, bake it, sauté it. There’s shrimp-kabobs, shrimp Creole, shrimp gumbo. Pan fried, deep fried, stir-fried. There’s pineapple shrimp, lemon shrimp, coconut shrimp, pepper shrimp, shrimp soup, shrimp stew, shrimp salad, shrimp and potatoes, shrimp burger, shrimp sandwich.”

With this quote, Bubba—the now ubiquitous Forrest Gump character and namesake of a seafood restaurant chain, illustrates America’s obsession with shrimp. Since 2001, shrimp has topped the Top 10 most popular seafood list. For more than a decade, Americans have consumed more shrimp than any other type of seafood and the amount of shrimp that Americans are consuming continues to rise. In fact, in 2009 Americans ate an average of 4.1 pounds of shrimp per person, nearly twice the per-capita consumption in 1990.

Shrimp are also Florida’s most valuable and popular seafood. Approximately 80% of the shrimp landed in the United States are warm-water shrimp from the Gulf and South Atlantic region. Three commercially important species of penaeid shrimp occur on both coasts of Florida: white, pink and brown shrimp. In 2010, white shrimp, *Litopenaeus setiferus*, dominated the catch in the Atlantic whereas pink shrimp, *Panaeus duorarum*, were the primary catch in the Gulf. Rock, royal reds, and North Florida hoppers are also harvested in Florida waters.

The size of Florida’s annual crop is primarily determined by weather and annual fluctuations in shrimp production are normal. However, competition from foreign imports and increased fuel and operating costs have contributed to declines in domestic landings over the past decade. The average annual harvest from Florida for 2000-2010 is more than 20 million pounds and worth an average of $40 million. Despite healthy and sustainable stocks, America’s love affair with this tasty crustacean is exceeding U.S. domestic supply. Prior to 1979, domestic shrimp landings accounted for more than half of the U.S. supply of shrimp. Consumer demands for shrimp now exceed domestic supply and imported shrimp are continually becoming a growing contributor to U.S. shrimp supply.

America’s appetite for shrimp is now so large that only about 10% of the shrimp eaten in the U.S. comes from U.S. waters. The remaining 90% are imported from other countries and the majority of these shrimp are grown in aquaculture. The U.S. imports shrimp from 125 countries globally. Six countries dominate the market (Thailand, Indonesia, Ecuador, Vietnam, China and Mexico) however more than 30% of imported shrimp comes from Thailand. In 2009, the U.S. imported 1.2 billion pounds of fresh and frozen shrimp valued at $3.75 billion dollars. This drastic influx of low-priced imported shrimp product has become significant competition for the wild domestic fisheries.

Where do we import our shrimp from?

![Pie chart showing shrimp imports by country](image)

A troubled past

Shrimp fisheries

Wild shrimp are often caught with shrimp trawls. Trawling gear includes a funnel-shaped net held open by heavy doors when deployed. A tickle chain in front of the net scrapes the seabed and scares shrimp up and into the net. Depending on the type of trawl and the weight of the chain, bottom trawls may damage essential bottom habitat by scraping and ploughing the seafloor, resulting in varying degrees of habitat loss and degradation.

By design, trawling gear is highly non-selective and is responsible for excessive levels of bycatch of non-
targeted species. Bycatch may include juveniles and undersized fish, sea turtles and other biologically important species. Research from the Gulf of Mexico and South Atlantic shrimp trawl fisheries indicate that up to 84% of commercial catch may consist of bycatch. 

Shrimp aquaculture

Aquaculture is the farming of aquatic organisms, and like land-based agriculture, it is bound to have some effects on the environment. Aquaculture is responsible for augmenting the global demand for shrimp and may have positive potential by reducing the pressure on wild populations and limiting environmental damage as a result of trawling. However, adverse effects associated with aquaculture may include habitat destruction, effluent discharge, and chemical contamination.

Aquaculture first became profitable for shrimp in the 1970s and commercial production has since grown into a global enterprise. Unfortunately, growing market demand from the 1980s - 1990s led to an explosion of small-scale farms; many of which were started with little to no foresight or planning. Improper siting of ponds resulted in considerable environmental damage and the clear-cutting of ecologically important mangroves. In Thailand and Asia, large shrimp operators avoided mangroves since degradation of the coastal zone makes aquaculture more difficult and abandoning ponds becomes extremely costly. Instead, 40% of the small-scale operations are responsible for the loss of mangroves and a disproportionate amount of the environmental degradation .

Globally, shrimp farming is responsible for less than 10% of the loss of mangroves, yet the industry has borne the brunt of the criticism. This is because in certain regions the impact to mangroves has been much greater; Thailand for example cleared 64% of it’s mangroves for shrimp farms. 

Intensive shrimp farms, those with high stocking densities, are responsible for discharging effluents (pollutants) from fertilizers, feces, and excess artificial feed. These effluents can contribute to a high organic load which may pollute and eutrophy surrounding coastal waters. Chemicals used in shrimp culture are minimal, though the use of antibiotics is of concern because of the emergence of resistant bacteria.

Lastly, in some countries (Ecuador for example) post-larvae used to stock grow-out ponds are harvested from the wild as opposed to being grown in hatchery facilities. While the impacts of these practices is not documented, removal of wild larvae may have adverse effects on the recruitment of wild shrimp populations in those areas. 

You’ve come a long way, baby

Shrimp fisheries: Florida

The regional councils that manage both of Florida’s commercial fishing industries, the South Atlantic Fishery Management Council and the Gulf of Mexico Fishery Management Council, have established fishery management plans for shrimp designed to reduce bycatch, minimize gear conflicts, and manage over-harvesting. In Florida, Bycatch Reduction Devices (BRDs) are required for penaeid (white, brown, and pink) shrimp trawls in the federal waters of the Gulf and South Atlantic regions.

Turtle Excluder Devices (TEDs) have been required on trawl nets since 1988. A TED is a grid of bars fitted into the net of a shrimp trawl that allows small animals to pass through the bars and larger animals to eject through an opening at either end of the bars. The use of TEDs eliminates the incidental catch of marine turtles and larger marine animals while retaining smaller catch species.

In conjunction with TEDs, shrimp trawls are outfitted with Bycatch Reduction Devices. BRDs allow for the release of finfish and other non-targeted species, while the targeted shrimp species is maintained and directed toward the cod end of the net. Certified BRDs reduce the bycatch of finfish by at least 30% by weight (in the Gulf of Mexico) or demonstrate a 40% reduction in the number of fish (in the South Atlantic).
Shrimp aquaculture

In the late 1990s, growing awareness of increased ecological problems resulted in pressure and criticism from consumer countries and NGOs. Governments started to implement stronger regulations and global organizations like the Food and Agriculture Organization of the United Nations (FAO) recognized the need for developing and implementing best management practices for aquaculture industries. FAO developed the Code of Conduct for Responsible Fisheries and Article 9 of the Code is devoted to aquaculture development. A further example is the development of the Global Aquaculture Alliance, “an international non-profit trade association dedicated to advancing environmentally and socially responsible aquaculture.”

As a result, recent advances have made significant reductions in the environmental impacts of shrimp farms.

- In the industry, there is a shift in using semi-closed or closed-culture systems during the grow-out phase. These systems have minimal water exchange with the natural environment and will reduce the amount of pollutants entering the system.
- Large-scale farmers are continuing to site ponds away from mangrove habitats whereas small farms are joining cooperatives and pooling resources, thereby sharing knowledge and resources whilst reducing impacts.
- Shrimp farmers are moving away from intensive systems and overstocking. They are learning ways to fight diseases and are using improved feeds that make their productions more efficient and less damaging.6

Consumer Choices

Stronger regulations and recent advances in technology and have made wild and farm-raised shrimp good choices for informed consumers. Not only is shrimp a beloved seafood choice for Americans, but shrimp is low in calories and saturated fat, and a good source of protein, calcium, iron, selenium and vitamin B12.

Consumers who purchase local Florida shrimp can be assured that they are supporting local industries and that the stocks are healthy, sustainable and well-managed. Delicious Florida shrimp can be found fresh or frozen year round. Imported farmed shrimp offers a cheaper alternative for families and many farms are now being certified as sustainable by third-party regulators.

Whatever you decide, the important thing is that the choice is yours. Since 2005, the USDA has enforced the mandatory labeling of seafood. By law, all retailers must ensure that seafood commodities are properly labeled with the country of origin and the method of production (wild-caught or farm-raised). If you’re uncertain, ask your fishmonger. Informed consumers now have the tools necessary to choose whether they purchase wild or farmed-raised and whether they want local or imported seafood.

References:
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