

# The Four Fs of Fish: Communicating the Public Value of Fish and Fisheries

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“Fish? Why fish?!” This is a common question we are often asked by those outside our field upon learning our profession. They are curious as to why we devote our lives to the study, conservation, restoration, and propagation of fish and associated habitats. This question can come anywhere and at any time. Though it is a common inquiry, do we, as professionals and as a profession, have a good answer?

Effectively demonstrating the value of fish and the fisheries supply chain they create is as important for the future of our own profession as for the fish. This, however, is no easy task. The average American eats approximately 15.8 pounds of fish and shellfish per year (NOAA 2010) and less than 14% of adult Americans report that they participate in recreational fishing (USFWS 2012). So, in general, Americans have little to no direct interaction with fish. In spite of this, our role as fisheries professionals is to clearly articulate to the public and policy makers that fish are important and have value – locally, regionally, nationally, and internationally. Such demonstration of public value ensures that fish and fisheries are afforded appropriate consideration in decision making – from the dinner table to the United Nations general assembly floor. Fish are important; no, they are more than important. They are essential to the survival of mankind. Fish, after all, directly or indirectly contribute to subsistence, livelihoods, health, and prosperity for much of the world.

As fisheries professionals, we are all passionate about fish. This personal and professional passion emanates for many different reasons, as shown by the diversity of the American Fisheries Society sections and membership. However, our drive is often hard to explain to someone who doesn't share the same interest and wonder for fish, their habitats, and fisheries.

We [*the authors*] propose “The Four Fs of Fish”: Food, Finances, Fun, and Function as a means to effectively communicate the public value of fish and fisheries. Surely, there are other values, but these four can start the discussion and hone our passion into something tangible to the public and policy makers.

## FOOD

Perhaps the most direct argument to make in support of the importance of fish and their habitats is food. Capture fisheries are the last large-scale wild food resource in the world and aquaculture is a quickly growing sector. Both provide essential protein and nutrients to many across the globe. Fish directly provide more than 1.5 billion people with almost 20% of their

animal protein and another 3.0 billion with at least 15% (FAO 2010). This equates to more than 40% of the world's human population.

Fish are also an important indirect source of protein for many others who generally do not realize it. Approximately 12.4% of global fishery production is reduced to fish meal and fish oil (FAO 2009), which is subsequently formulated into specialized feed for livestock and aquaculture operations. So, choosing between chicken and fish as meal options may, in fact, be choosing fish or reprocessed fish. We can do a better job of emphasizing the role of fish in other protein sources. For example, instead of asking “how's the chicken?” to someone enjoying a piece of fried chicken, ask “how's the fish?” By helping people understand the supply chain that leads to their meals, we will help them appreciate the importance of fish as a food source that provides healthy, nutritious meals for many at local and global scales.

## FINANCES

People recognize the importance of economic impact or, as the old adage goes, money talks and employment walks. First-sale value of global capture fisheries production and aquaculture is approximately US\$93.9 billion and US\$98.4 billion, respectively, and US\$192.3 billion, collectively (FAO 2010). Numbers that large can seem intangible, but the first-sale of value of fisheries basically equates to one-seventh of the U.S. Gross Domestic Product.

More than strict monetary value, fisheries are significant sources of employment, income, and livelihood. Globally, 44.9 million people are directly engaged in capture fisheries or in aquaculture (FAO 2010). So, fisheries employ over 20 times more people than Walmart, the world's largest private employer. Taking families and dependents into account, fisheries are an important source of income and livelihood for 8% of the world's population, around 540 million people (FAO 2010). And, these are just minimum estimates. These Food and Agriculture Organization of the United Nations (FAO) statistics are very likely a gross underestimate of their full value because obtaining accurate capture and employment statistics on small-scale fisheries, the bulk of the world's fisheries, is difficult as they are highly dispersed and underreported (Cochrane et al. 2011).

## FUN

Fish, lest we forget, also provide fun. Recreational fishers, snorkelers, SCUBA divers, and hobby aquarists seek enjoyment and relaxation through interacting with fish and their habitats. Though we cannot over-emphasize the value of these experiences to the individuals who find fish fun, the financial value

of recreation can be understood even by those choosing not to engage in these types of activities. In 2011, for example, American anglers spent \$41.8 billion in support of fishing activities (e.g., trips, equipment, licenses; USFWS 2012). Even those who have never picked up a fishing rod or visited an aquarium can appreciate the employment and economic stimulus generated by recreational fishing and fish watching.

Fish are important components of most human systems. While some cultural values, like recreation and tourism, can be translated into economic impact, other religious, spiritual, or artistic values are more difficult to assess economically. Nonetheless, fish are symbolized in every major world religion and the natural beauty of aquatic ecosystems is commonly evoked in art.

## FUNCTION

Without question, fishes are the most diverse, numerous group of vertebrates on the planet. The estimated 27,977 species of fishes make up more than half of the approximate 54,711 recognized living vertebrate species (Nelson 2006) and occupy almost all major aquatic habitats (Helfman et al. 2009). In this role, fishes are a particularly important taxa for biodiversity conservation and resilience of ecosystems to change (Naeem 2012). As such, they often serve as symbols of the health and integrity of their habitats. They are, for all practical purposes, the aquatic version of “canaries in a coal mine.” Fish are critical links in aquatic systems – indicators of ecosystem health and a litmus test of what the potential impacts could be for humans.

For people who fish, eat fish, or recreate in aquatic environments, the value of fish and fisheries is an easy sell. They use and appreciate the resource and want to ensure that fish will be around for them and future generations to use. But, demonstrating the value of fish to those who have no direct contact with them can be daunting, especially when negotiating tradeoffs for water security, agriculture, power generation, and other sectoral

interests. As a whole, we, as professionals can be better communicators. We need to be cognizant that others may not share our passion for fish and we must provide them with a clear rationale of why fish and their habitats should be important to them: Food, Finances, Fun, and Function. Our future and that of fishes depend on us to do just that – make fish meaningful and important to all!

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### Fast Stats

#### Food

- 3.0 billion people (>40% of global population) depend directly on fish as an important source of protein.

#### Finances

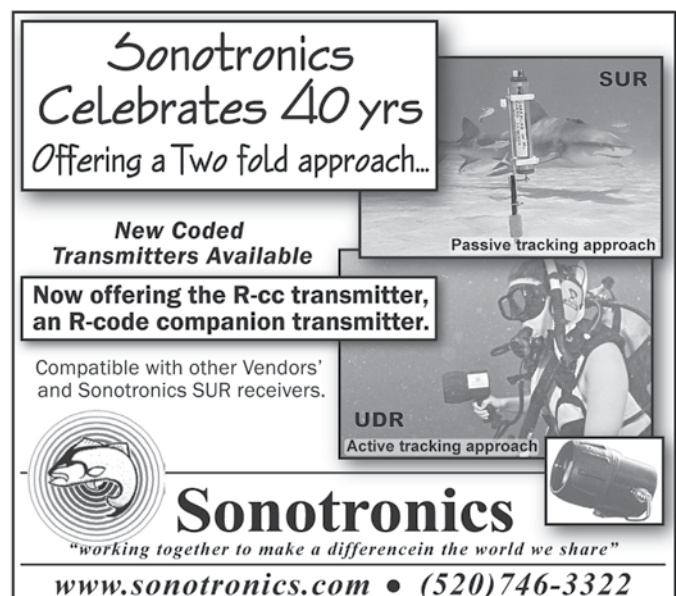
- 540 million people (8% of global population) depend upon fishery industries for livelihood and income.

#### Fun

- Anglers in the United States spend over \$40 billion in support of fishing activities annually.

#### Function

- Fishes comprise more than half of all vertebrate species and occupy all major aquatic habitats.



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