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 Fisheries

Fisheries in Focus: What is the Fisheries Management Index and what does it say about U.S. fisheries?

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The Fisheries Management Index allows for proper, holistic evaluation of a fishery management system for fisheries that fall outside of traditional evaluation methods



To properly evaluate a fishery management system, we need a measure of the management regime as a whole: Enter the Fisheries Management Index (FMI). Shutterstock image.

U.S. marine fisheries annually support more than 1.8 million jobs, generate \$255 billion in sales and contribute \$117 billion to the nation's GDP. Not only are fisheries of enormous socioeconomic and cultural value, the United States does a fantastic job maintaining them. Science and fisheries management are highly prioritized to ensure that marine resources stay healthy for future generations. By weight, more than 99 percent of U.S.-caught commercial seafood comes from a biologically sustainable stock with just 7 percent of fisheries **subject to overfishing** (<https://sustainablefisheries-uw.org/seafood-101/overfished-overfishing-rebuilding-stocks/>).

Effective fishery management gets results, but how do we know what “effective” means? Fishery outcomes matter, but only looking at outcomes takes fisheries out of context and misses the procedural and systemic parts of management. To properly evaluate a fishery management system, we need a measure of the management regime as a whole: Enter the Fisheries Management Index (FMI), a metric based on five dimensions of fisheries management: Stock status, research, management response, enforcement and socioeconomics.

The FMI measure was **introduced in 2016** (<https://sustainablefisheries-uw.org/worldwide-fishery-management/>) and confirmed the United States as having the world's best fishery management system. But there are thousands of U.S. fisheries that are not managed by the federal government that fall outside of traditional fishery management evaluation. How well-managed are those? A **new paper out this week** (<https://onlinelibrary.wiley.com/doi/10.1111/faf.12756>) in *Fish and Fisheries*, by Melnychuk et al. 2023, answered that question by applying the FMI metric in the first-ever nationwide synthesis of non-federally managed fisheries in the United States.

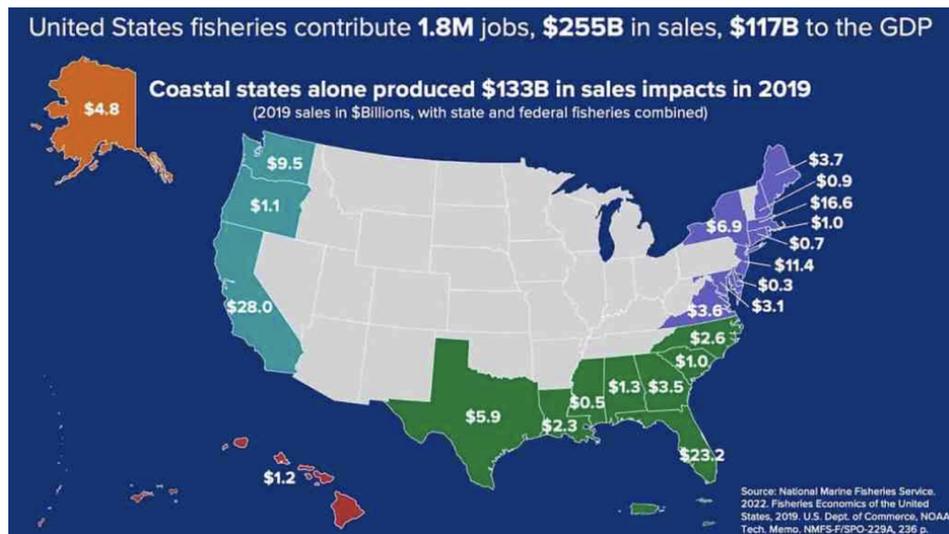


Fig. 1: U.S. fisheries provide important economic benefits in every coastal state.

(<https://events.globalseafood.org/responsible-seafood-summit>).

How are U.S. fisheries managed?

Fisheries management in the United States is implemented primarily under state or federal jurisdictions. Nationwide, there are currently 492 federally managed fisheries, which are tracked by the National Oceanic and Atmospheric Administration (NOAA Fisheries) using the Fish Stock Sustainability Index (**FSSI** (<https://www.fisheries.noaa.gov/national/population-assessments/fish-stock-sustainability>)) across five federal management regions.

The health of these federal fisheries is documented in a detailed **nationwide report** (<https://www.fisheries.noaa.gov/sustainable-fisheries/status-stocks-2022>), summarizing the status and trends of federally managed fisheries each year. However, state and territory fisheries management agencies operate more independently. This means there are no nationwide metrics or syntheses to date that would allow a comprehensive understanding of the status of non-federally managed fisheries, even though these fisheries represent 40 percent of the total commercial value of marine fishery landings in the United States.

The study, produced by the University of Washington and The Nature Conservancy, provides the first-ever nationwide synthesis of the status and management performance of non-federally managed fisheries using the **FMI** (<https://www.pnas.org/doi/full/10.1073/pnas.1609915114>). The study fills a critical knowledge gap regarding the status of U.S. fisheries and the performance of non-federal management systems. It covered 311 of 1,992 identified non-federal fisheries. These 311 fisheries represented 97 percent of commercial volume, 93 percent of commercial value, and 49 percent of recreational landings nationwide.

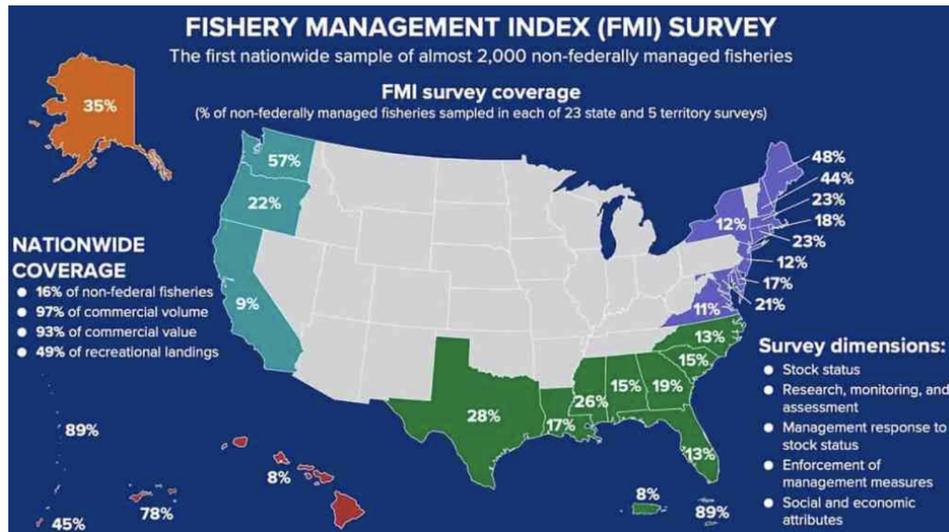


Fig. 2: The Fisheries Management Index (FMI) was applied to non-federally managed fisheries for the first time. It covered 16 percent of non-federally managed fisheries but 97 percent of commercial volume and 49 percent of recreational landings.

Key findings of the Fisheries Management Index:

- In the United States, fisheries management at the state/territory level is funded less than federal fisheries management.
- Nationwide, more than 80 percent of the 1,992 non-federally managed fisheries have an unknown stock status (i.e., no estimate of current stock abundance and fishing pressure relative to target levels) and more than 60 percent (almost 1,200 fisheries) are not actively managed by state or federal agencies.
- Commercially or recreationally important fisheries received more management attention and a greater proportion of these fisheries had recent estimates of stock status.
- Fisheries that were prioritized by state or territory agencies received more management attention and thus tended to have stock abundance and fishing pressure closer to target levels (i.e., are in better condition).
- In more than half the surveys, experts cited data limitations and resource constraints as the biggest barriers to more active and effective management.

“Around the world we see tremendous variability in fisheries management intensity among countries,” observed the study’s lead researcher, Dr. Mike Melnychuk. “This study showed that even within a single country, we still see substantial variability in how fisheries are managed, both among regions and among individual species.”

Fig. 3: Despite the U.S. having the best fishery management in the world, there is still progress to be made.

Future of non-managed U.S. fisheries

While there is no analogous index to the Fish Stock Sustainability Index (FSSI) for state-managed fisheries, the FMI provides a way for state fisheries management performance to be evaluated and tracked nationwide. This can provide state agencies with both a trend and a target not only for stock health, but also for data availability, enforcement and socioeconomic metrics. This would allow state fisheries management performance to be reported in a nationwide context in parallel with NOAA Fisheries' annual "Status of Stocks" reports.

Improving the sustainability of fisheries across the United States is challenging yet solvable. Greater adoption of adaptive, cooperative management and data-limited fisheries management tools can help overcome barriers to more active and effective management. Partnerships with fishing communities and other stakeholders can boost resources and management capabilities, improve data collection and close information gaps to support sustainable fisheries, strong coastal economies and resilient fishing communities into the future. This is especially important given the immediate management challenges that are now posed by accelerating symptoms of climate change. Melnychuk et al. 2023 suggests that fisheries management currently practiced by state agencies can effectively maintain or improve the condition of fisheries if they are prioritized.

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