

Overfishing devastates spawning aggregations

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Globally declining fish populations are a frequently cited ecological and commercial calamity, but relatively little attention has been paid to the specific threats faced by fish that gather and spawn in large groups, says Yvonne Sadovy, writing in an article for *BioScience*. The marine scientist, affiliated with the University of Hong Kong and Science and Conservation of Fish Aggregations (SCRFA), outlines the challenges unique to these populations.

"Many aggregating species face growing threats to their populations from increasing harvest and lack of effective management," she says. Appearing in temporarily high abundances, the [fish](#) are particularly vulnerable to overexploitation as a result of both increased catchability and lethal and nonlethal biological factors. According to Sadovy, aggregations in small-scale fisheries in particular could be dangerously overfished by only a few active boats, but large-scale industrial fisheries are also susceptible.

The author also describes how changing economic conditions could contribute to rapid species declines. Many exploited [fish populations](#) were once safeguarded from collapses by costs of fishing that rose as fish numbers declined. Given the high catchability of aggregate spawners and consumers' growing ability to pay premium prices for desirable species, this safety valve is vanishing. Instead, fishing pressure could be ramped up, leading to a "downward spiral toward extinction." The Chinese bahaba is a clear example.

Insufficient or inappropriate management contributes to the problem, says the author: "Fisheries management was long (and largely still is) based on the concept of 'stocks,' with management units and monitoring typically treating localized demographic effects and local overfishing as unimportant." Such approaches may neglect the complex migratory dynamics and life histories of many individual populations, reports the author. Also, biological factors can increasingly compromise reproduction in aggregations as fish numbers decline.

Sadovy does see an ongoing role for fishing of aggregate-spawning species, which she describes as being of great economic and food security value globally, but this can be continued only "if it is done right" and if management is truly precautionary. In cases where insufficient [management](#) and enforcement are a problem, she proposes that "no fishing of spawning aggregations should occur until appropriate measures are implemented to ensure their sustainable use."

Provided by American Institute of Biological Sciences

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