Why you should know about fish aggregations

There is a global fisheries crisis: today, 76% of fisheries are fully exploited, overexploited or depleted.

Attempts to address the crisis have had mixed results.

However, simple measures – often overlooked or ignored – could have a significant impact on preserving fish stocks, protecting marine biodiversity, and providing food security.

We need to safeguard fish reproduction by protecting the annual gatherings of spawning fish.

These 'aggregations' generate the young fish that sustain their populations and produce the fisheries that we depend on for food and livelihoods.

Management of aggregations increases fish and decreases the risk of fishery collapse.

The vital importance of spawning aggregations

Most major exploited fish aggregate in huge numbers to spawn – for example, cod and seabream, orange roughy and croaker, whiting and plaice, pollock, mullet and herring. More than 100 coral reef fish species spawn in aggregations.

In addition, such fish return to the same areas to breed at the same times each year. Their aggregations often include a significant proportion of all adults in a region – almost all for some species.

Scientists already understand that what is so important to aggregating fish is also their biggest weakness. Aggregations:

- are important for supporting population productivity and marine ecosystems
- contribute substantially to food security, local economies and culture
- are particularly vulnerable to fishing and habitat degradation.

Overfishing of spawning aggregations

Overfishing of spawning aggregations has had devastating effects, wiping out massive numbers of fish at the critical point in their life when they are producing the next generation.

This makes no sense if we want to keep fishing in the long term.

Recent research indicates that:

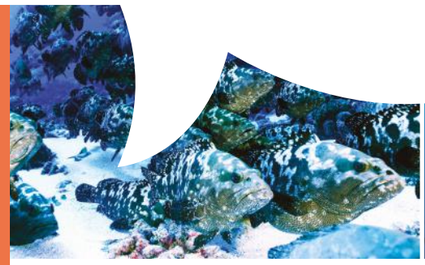
- more than 60% of studied spawning aggregations are decreasing or gone
- almost 10% of fish aggregations have already disappeared
- healthy aggregations support the most productive fisheries.

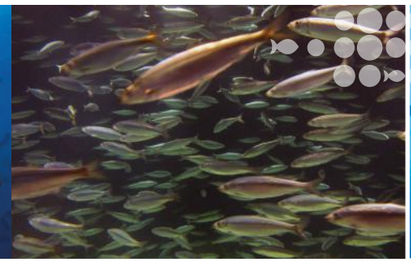
Poor protection leads to dramatic declines in many fish species, damage to ecosystems, loss of fishing livelihoods, and a diminishing precious food resource.

Until now, the importance of spawning aggregations is largely overlooked in fisheries management and conservation.

It is time for change.

SCRFA
SCIENCE AND CONSERVATION OF FISH AGGREGATIONS





Catching two million fish in 25 days: the illusion of plenty

During annual spawning in the Colorado Delta, USA, the global adult population of the Gulf Corvina gathers for one month in an area that is less than 1% of the fish's entire home range. Each year, fishers flock to the delta to grab this bounty, and thousands of tonnes - millions of fish - are caught over just 25 days.

The more fish are caught, the bigger the supply and the lower the prices go, so fishers fish more to make a profit. When the market floods, many tonnes of the precious spawning fish – and their eggs – are dumped in landfills.

Each year the fish stocks become less productive, until one year – though no one knows when that will be – fishers will take a final big catch and the fishery collapses.

While catches continue, there is an illusion of plenty. Once the fishery collapses, recovery is uncertain.

This pattern is being repeated at spawning aggregations around the world.

The scale of the problem

- Of 426 spawning aggregations adequately documented across the world, at least 300 are decreasing or gone.
- Some stocks of cod, orange roughy, yellow croakers, halibut, pollock and herring have been devastated by overexploitation of spawning fish.
- Of the 163 grouper and 134 seabream species in the world, those that aggregate to spawn are the most threatened.
- Overexploitation of spawning aggregations is occurring everywhere: in polar, temperate and tropical oceans; deep and shallow waters; coastal and high seas; and in both small- and industrial-scale fisheries.

The effects of overexploitation

Uncontrolled removal of breeding fish from aggregations each year affects:

- the future of fish populations;
- their ecosystems;
- the fishers who depend on them;
- the world's food security.

Complex ecosystems are being destroyed. Spawning aggregation sites are hotspots of marine productivity, with an abundance of spawning fish and eggs providing food for many other species, yet many are now at risk.

Fishers and others dependent on aggregation catches are losing their livelihoods. Targeting of aggregations, among other pressures, contributed to the northwest Atlantic cod population collapsing in 1992; 40,000 people lost their livelihoods and an ecosystem began to decay. Recovery is still pending.

The supply of fish to humans is being affected: coastal communities are losing valuable sources of food, and dwindling supply of fish drives up prices, prompting more fishing.

The need for action

Aggregations need special attention because as fish numbers decline, biological thresholds make recovery increasingly unlikely. Once gone, history shows that spawning aggregations can never form again.

Avoiding the 'boom-bust' cycles of aggregation-fishing is biologically and economically desirable.

The need for good management

The solution is not difficult, or expensive.

Small investments in management can result in large benefits for maintaining fisheries, biodiversity and communities. The value of a healthy spawning aggregation can be many times greater than the value of an overfished one: because of the value of the fish produced, which sustain the fishery; because these annual events can be easier and cheaper to enforce than year-round fisheries; and because some are attractive to ecotourists.

Research shows that management of aggregations works. However, conservation practices and conventional fishery management tools are failing to safeguard most aggregations.

Governments, agencies, and inter-government and non-governmental organisations need to include aggregations on their marine fish management and conservation agendas as a priority.

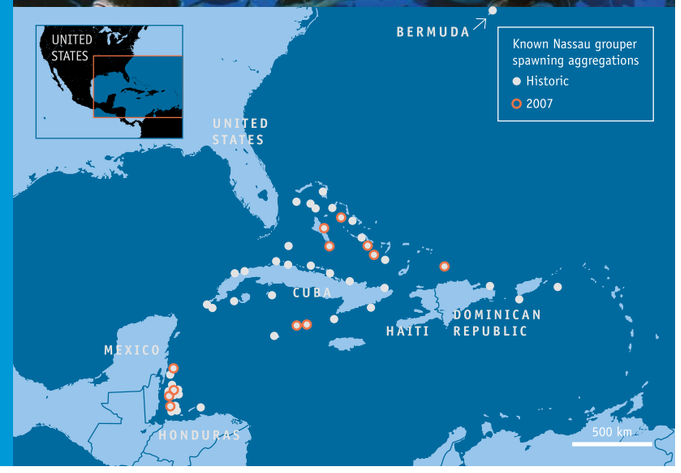
Local and regional solutions are needed to safeguard particular species that aggregate. The way forward is often through simple measures agreed with regulators, fishers and communities, such as seasonal, sales or spatial management.

From 100,000 to zero: gone!

In the 1970s, Cat Cay in the Bahamas had a spectacular annual spawning aggregation of up to 100,000 Nassau grouper. Intensive fishing of this aggregation increased over the years, and now the fish are gone. Likewise, in the Virgin Islands, huge catches from Nassau grouper aggregations flooded the fish markets, resulting in the dumping of many hundreds of kilograms of spawning fish.

These patterns have been repeated across the Caribbean. Two-thirds of all known aggregations have disappeared, and today less than 20 remain, most of them very small.

In 2003 the Nassau grouper was officially listed as Globally Endangered.



Who we are

Science and Conservation of Fish Aggregations (SCRFA) is a non-governmental organisation (NGO) striving to bring about responsible management and better science for fish aggregations. We raise awareness of the vulnerability of fish aggregations, and work towards their conservation and stewardship.

We...

- Establish: use sound science for undertaking and promoting research.
- Educate: develop and disseminate tailored materials to build awareness.
- Enable: facilitate practicable methods for monitoring and managing aggregations.
- Effect change: provide advice and work strategically through partnerships with governments, international forums and NGOs.

SCRFA provides practical options for management and conservation, both locally and internationally.

How you can help

SCRFA needs support for its valuable work protecting fish aggregations.

In particular, we need to fund:

- awareness campaigns with communities, NGOs and governments;
- research into the economic and food security benefits of aggregations;
- research into the biological and economic implications of aggregation losses;
- expansion and enhancement of our global database of aggregating species.

For more information contact:
enquiries@scrfa.org

Living off the interest: Managing aggregations makes good economic sense

If you have a large sum of money, it makes better economic sense to live off the interest than to chip away at the lump sum until it's all gone. In the same way, it is better to preserve fish aggregations so that we can live off the surplus (the new fish produced by spawning fish) rather than end their productivity.

In California, the fishery started targeting spawning aggregations of white seabass. The intensive fishing rapidly reduced stocks and exceeded the ability of the fish to reproduce. The natural capital was expended, and the catch fell to 10% of earlier levels.
In response, the aggregations were managed – to protect the capital. Regulations were passed in 1994, closing fishing from 15 March to 15 June. A comprehensive management plan was put in place.

The result? White seabass landings by the commercial and recreational fisheries have grown steadily since then, and the fishery is now considered stable. Everyone is benefiting from the aggregation's productivity.

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