

# A New Way of Designing Fisheries Management to Support SDG 14: Life Below Water

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## Abstract

Despite scientific data indicating that around 90% of global fisheries is over-exploited, fully-exploited or depleted, fisheries management policies are still based on maximum sustainable yield and catch per unit effort principles. If we continue these business-as-usual policies, global fish populations will continue to deteriorate. A new way of designing fisheries conservation policies is urgently needed. We propose adopting an animal welfare-based approach (WBA) to setting capture fisheries policies. This approach considers the welfare of the aquatic animals as the main denominator when setting fisheries controls.

Despite scientific data indicating that around 90% of global fisheries is over-exploited, fully-exploited or depleted, fisheries management policies are still based on maximum sustainable yield and catch per unit effort principles. In terms of individual animals, this amounts to 2 to 3 *trillion* aquatic animals that are caught in the wild and slaughtered for food each year (Fishcount UK, 2019), which is 35 times higher than all farmed land animals combined. Yet, wild-caught fish remains the last major food-producing sector that does not take animal welfare into consideration. Further, wild-caught fish are counted in tonnage rather than individual animals, including by the Food and Agriculture Organization of the United Nations, which is in stark contrast to other food-producing sectors. We need a much-needed shift in how we view aquatic animals, not merely as 'seafood' but as individual animals. An animal welfare-based approach (WBA) will promote the development of 'welfare-minded' fishing gear, soak times and retrieval rates, scale up humane stunning and slaughter onboard, and limit the capture of non-target species – all of which are keys to better ensuring the long-term viability of fish populations and supporting SDG14: Life Below Water.

## Current Fishing Practices

For mostly economic reasons, current fishing practices are centered around maximizing the efficiency ('catch per unit effort'; CPUE) of commercial fishing operations and achieving the highest possible annual catch that can be sustained over time under maximum sustainable yield principles. The top 25 producing countries accounted for about 80% of the total capture fisheries production, led by China (FAO, 2022). These operations have continued to contribute to the decline of global fish populations while inflicting significant stress and suffering upon target and non-target animals. Pain points include exhaustion from trying to evade capture, injury through overcrowding in nets and exposure to rapid changes in body temperature and atmospheric

pressure which in turn lead to thermal shock and barometric trauma (Mood, A. & Brook, P., 2019). Upon landing, they are further exposed to sunlight and air, and are then handled and 'processed' in a cost-efficient manner that pays little heed to the animals' welfare (Hessler, K., Jenkins, R., & Levenda, K., 2017). Further, wild-caught individuals typically suffer a fate of death by asphyxiation (suffocation in air) or are frozen to death in ice water (so-called 'ice slurry'). These inhumane animal welfare practices have been completely overlooked by industry, fisheries management bodies, and governments.

## Rethinking Fisheries Management

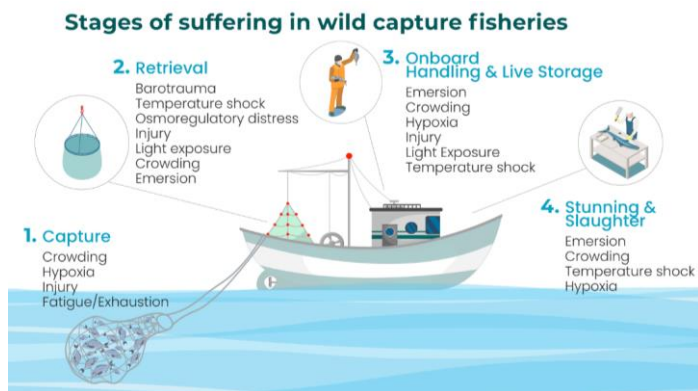
Taking an animal welfare-based approach (WBA) to fisheries management introduces animal welfare as a common denominator to fisheries management policies and gives equal weighting to both the welfare of target animals and the welfare of other animals indirectly affected by fishing activities, such as those caught incidentally (so-called 'bycatch') and those ensnared in abandoned fishing gear (so-called 'ghost fishing'). Under standard fisheries management regimes, such issues are typically disregarded or grouped under 'conservation categories' that are rarely resolved. However, under an animal WBA, the key 'parameter' is welfare. We have both a legal and moral obligation to protect the welfare of wild-caught aquatic animals. By adopting an animal WBA, we can help shift fisheries management towards positive change for both aquatic animals and ecosystems.

## Five Welfare Pillars in Fisheries

Given the high degree of suffering that aquatic animals encounter with all types of fishing gear (Eurogroup for Animals, 2021), we have grouped animal welfare issues by the main phases of the fishing process: 1) Capture

and retrieval; 2) Onboard handling; and 3) Stunning and slaughter. We further examine two additional and highly relevant issues to animal welfare: incidental catch of non-target species and abandoned fishing gear.

**Figure 1.** Stages of suffering in wild capture fisheries



Data source: Adapted from Davis (2002), Broadhurst et al. (2006), Breen and Catchpole (2020).

## Recommendations

We provide brief recommendations for all relevant stakeholders to consider adopting for each phase of the capture process in order to improve animal welfare in capture fisheries.

### 1. Capture and Retrieval

The fishing gear and method selected should be appropriate to the fishing activity. Main recommendations include:

- The duration of capture should be reduced.
- The size of each haul should be decreased.
- Gear that is deployed should be species- and ecosystem-specific.
- The use of live bait should be phased out.
- Fish should be retrieved carefully and ideally pumped into the boat so that they never leave the water.
- Use descending devices for discarded deep-water animals.
- Gaffing is a painful method of landing fish and should be banned.

### 2. Onboard Handling

Onboard handling, which is the time after retrieval and before slaughter, can be highly stressful for the captured animals. Main recommendations include:

- Time spent out of water before slaughter should be minimized.

- The removal of or intentional damage to animal body parts should be prohibited.
- Captured animals should be stored in species-appropriate holding spaces.

### 3. Stunning & Slaughter

The majority of wild-captured aquatic animals die either from suffocation in air (asphyxiation) or are frozen to death in ice water (so-called 'ice slurry'). The rest are either gutted alive or are decapitated while still conscious. Main recommendations include:

- Stun aquatic animals before slaughter.
- The use of salt-baths and asphyxiation in ice slurries should be banned (World Organisation for Animal Health, 2010).
- Invertebrates should not be slaughtered using decapitation.

### 4. Incidental Catch of Non-target Species (Bycatch)

The suffering inflicted on non-target animals is a major issue in capture fisheries. A wide range of animals, many of which are endangered, are often inadvertently caught in fishing gear. Main recommendations include:

- Modify fishing gear to improve selectivity and reduce bycatch at the source.
- Spatial or temporal restrictions in fishing zones where rates of bycatch are high.

### 5. Abandoned Fishing Gear

The impact of abandoned, lost and otherwise discarded fishing gear (so-called 'ghost gear') can lead to significant suffering of aquatic animals as well as the accumulation of marine debris (and thus plastics pollution) (Global Ghost Gear Initiative, 2021). Main recommendations include:

- Fishing vessels should carry the necessary equipment to recover lost fishing gear.
- Prioritize the commercial adoption of durable gear components that incorporate biodegradable elements.
- Implement a reporting system to routinely record gear losses.

## Additional Concerns

Beyond the five key areas of concern for animal welfare in marine capture fisheries outlined above, we have identified seven additional considerations that have the potential to improve the welfare of animals affected by capture fisheries.

1. Economic incentives or removal of harmful subsidies: Financial incentives or subsidies should be provided to good actors in the fishing industry to promote the implementation of welfare-oriented capture and slaughter methods, while harmful subsidies must be removed to deter destructive forms of fishing (e.g. bottom trawling) and other factors that contribute to overfishing.
2. Welfare indicators & adequate training: Training in careful capture, handling and slaughter techniques should be mandatory for all personnel involved in fishing activities.
3. Monitoring, control and surveillance (MCS): Enacting policies to mandate MCS in commercial fisheries to protect both animals and fishers.
4. Overfishing: Overfishing is closely tied to fish suffering and bycatch. Not only does it threaten animals and marine ecosystems but also livelihoods that depend on sustainably-managed fisheries. We recommend applying an animal WBA in the revision of current policies, standards, and guidelines with an eye to reducing overfishing.
5. Human rights: Fishers who are mistreated and subject to inhumane conditions onboard are unlikely to consider animal welfare either. We urge all states to ratify the International Labor Organization (ILO) Convention No. 188 and adopt it in their national legislation (C188 - Work in Fishing Convention, 2007).
6. Transparency and traceability: Retailers should amend their sourcing policies to require, for example, supplier data on animal welfare training for fishers, catch data, and robust electronic monitoring onboard.
7. Artisanal Fisheries: As with commercial fisheries, capture and retrieval methods should not be detrimental to the local ecosystem or fish populations. Also, aquatic animals should be stunned immediately, followed by slaughter as quickly and humanely as possible.

## Conclusion

Animal welfare issues in commercial fisheries are widespread and significant. Careful handling is currently only practiced in high-value fisheries where animals are retrieved individually and where product quality is crucial (e.g. sashimi-grade tuna). However, this approach should be replicated across all fishing gears and methods. We call for the adoption of a welfare-based approach to fisheries management,

including a shift in attitude from considering fishes as objects measured in tonnage to individuals capable of feeling pain. In this regard, we urge decision-makers to implement the recommendations provided in this report. The need for animal welfare considerations in fisheries should also be reflected in legislation.

In addition, we urge for more research and financial support by all relevant stakeholders in this area (e.g. research institutions, fisheries management organisations, seafood businesses, governments). Such research should focus on developing 'welfare-minded' fishing gear, refining current soak times and retrieval rates, scaling up humane stunning and slaughter onboard, and limiting the capture of non-target species. There have been recent technological advances in this field that offer a glimmer of hope, including humane vessel retrofits, the development of machine-learning software that recognizes non-target species during retrieval, and humane stunning technology, which has been adopted by several fishing companies. As solutions can already be found from within the industry, we urge that the necessary international and national standards, legislations and guidelines be updated to legally protect the welfare of wild-caught aquatic animals.

Finally, customers are increasingly conscious of food provenance and sustainability concerns. The same concerns around animal welfare in food sectors such as fisheries will eventually catch up. The adoption of an animal welfare-based approach to fisheries therefore supports multiple objectives: ethical treatment of animals, improved product quality and shelf-life for industry, and long-term sustainability of the marine ecosystem to meet SDG 14: Life Below Water.

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other marine caught species and not accounting for illegal, unreported, and unregulated (IUU) fishing nor bycatch/discards nor recreational and artisanal (small-scale) fishing. Therefore, we have used 2-3 trillion as an estimate for all aquatic animals caught in the wild.)

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