Article 2: A Beginner's Guide to Increasing Fish Numbers

The auction in Peterhead Fish Market has just finished for the day, and The Dolphin Cafe, connected to the marketplace by a long white corridor, is nearly empty after the early-morning rush. A few fishermen pop in for a quick cup of tea, and are quickly gone, heading off to mend their boats and prepare for their next allotted day at sea. In the window hangs a sign: "Constant Faith," it reminds its customers. Faith in this northeast Scottish port is plentiful, from the evidence of churches in the town. Fish, however, are not.

Looking across the North Sea from Peterhead, it's deceptively easy to imagine it as an ecosystem filled with healthy stocks of all marine creatures - from sand eels, schools of herring and mackerel, and prawns crawling in bountiful numbers on the pristine and untouched seabed. But the reality of the underwater world is in fact much starker than that. "If the ocean emptied and we could actually see what overfishing and trawling has done to the environment, there'd be a much bigger uproar," said Neil Golding of the Joint Nature Conservation Committee. "But you can't, and people fool themselves into thinking there are still plentiful amounts of fish."

Statistics from the International Council for the Exploration of the Sea (ICES), the foremost authority on marine stocks, estimates that 80% of EU waters are now subject to heavy levels of unsustainable overfishing. Global warming, which has raised the temperatures of the North Sea by nearly 1 degree Celsius in the last ten years alone, has caused cold-water fish to migrate northward and head to the deep, as many stocks now head downwards to the Norwegian Trench, where waters are cooler. Beam trawlers, still in abundance despite grave environmental warnings about the damage they continue to cause, routinely destroy sections of seabed as they plunge their nets ever deeper to catch demersal ('bottom-dwelling') fish.

Each year, ICES pleads with Regional Advisory Councils and the European Commission to ban fishing altogether, in an effort to save stock populations and prevent ecological collapse. But these warnings are never heeded, and instead yearly quotas are negotiated based on input from the fishing industry and political pressure from nations, like Spain and France, whose fishermen have significant political clout.

Despite these circumstances, there are measures that may go far in preventing fish populations, which have currently fallen to biologically "dangerous" levels, from being completely depleted. They range from the simple (if politically complicated) to biologically risky, but environmental groups, like the Marine Conservation Society, say any of these options is worth a try, if it means saving biodiversity in the North Sea.

One way to do this, says every green group from radical Greenpeace to the more precautionary Marine Resources & Fisheries Consultants, is to outlaw beam trawling altogether. Banning beam trawlers have become the *cause célèbre* of the environmental movement, because this fishing technique is so destructive to bottom-dwelling species such as plaice. Beam trawling's high rates of bycatch - the amount of unwanted fish trapped in the nets which fishermen must discard to avoid being fined for landing stocks beyond their quotas - also make it a target for eco-friendly organisations. There are discussions in Brussels about possibly banning this most destructive form of trawling, but so far, no progress has been made on this front.

Another much-discussed method of increasing fish populations is to create marine reserves, or "no-catch areas," throughout the North Sea. "We'd like RACs [Regional Advisory Councils] to

establish a network of marine reserves," said Graham Thompson from Greenpeace. "There are pilot areas in the North Sea to regenerate those particular areas." Marine reserves have been somewhat successful in boosting fish populations – the cautious return of herring and cod to North Sea waters, after a five-year ban on their catch is evidence for this.

De-facto marine reserves already exist in the North Sea, says Alan Smiley, a retired boat engineer who returns to Peterhead each year from his new home in the Algarves, in Portugal. "You can't fish within 100 miles of an oil pipeline," he said. "A lot of the fish do congregate there, and fishermen who fish on the edges say the take is great." There is also the Scottish Conservation Credit Scheme, which rewards fishermen for reporting locations where there are a high incidence of juvenile cod and refraining from fishing there, said Melissa Pritchard, a Fisheries Policies Officer at the Marine Conservation Society. If fishermen report these findings to the Scottish Fisheries Protection Agency, they will be rewarded with extra fishing days at sea.

Still, Greenpeace is pushing for a more natural and regulated grid of marine reserves in the North Sea. "Greenpeace would like to see 30-40% of the North Sea closed for marine conservation," said Dr. John Pinnegar, a fisheries expert at the Centre for Environment, Fisheries and Aquaculture Science. But RACs do not have it within their remit to impose no-catch areas – they act only as consultative bodies to the European Commission. The decision to implement marine reserves must come from Brussels, where the fishing industry has proved a powerful lobby in heading off what they claim are more limitations on their trade.

A more radical approach may be found in systematically altering the ecosystem to allow cod, still the North Sea's most likely candidate for extinction, to flourish. Two Norwegian fisheries scientists have determined that if the amount of prey is culled or killed off, it has the unexpected result of speeding the recovery of the predator stock. So, in order to bring back the predator cod, Lennart Persson and Andre de Roos suggest that herring and prawn stocks (the cod's prey) be slashed. When there is intense competition for limited amounts of food, predators will mature more quickly and reproduce faster, restoring their numbers to pre-overfishing levels.

"The results obtained in this study should be general to all fish systems," said Dr. Lennart Persson, who led the experiment. "The idea of the approach is going to be used in the next 5 years in a pilot project aimed at restoring the cod population in the Baltic," said Dr. André de Roos, another author of the survey. "The ecosystem in the Baltic sea has over the last 10 years been in a state, which resembles the state of lake Takvatn," in northern Norway, where the experiment was launched. If successful in the Baltic, this method of culling prey to increase predator numbers may be adopted by North Sea.

Implementing a scheme to magically rejuvenate fish levels to sustainable fisheries levels is fraught with difficulties on the political front. The EU and its subsidiary committees are notoriously slow to adapt to changing conditions, and no one holds great hope for them to swiftly adopt of any of these measures. In addition to this, it may take several years for less disruptive measures – like the biological approach encouraged by the Norwegians – to actually be proven to work. For now, the amount of available seafish continues to plummet to precarious levels, while another round of decommissioning boats is anticipated in the coming years. And so, for residents of fishing ports like Peterhead throughout the UK, faith remains the only sure thing.

Word Count: 1200