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## Depleting Fish Stocks

World fish stocks may take far longer to recover from being over fished than previously estimated, according to new research at Dalhousie University in Canada. A study, published in the journal *Nature*, found that popular species like cod and haddock may never recover after years of being heavily fished. Corinne Podger, of BBC Science, reports.

In Europe and North America, fish like cod, sardines, haddock and flounder have been favourites for decades - and many of these species are now regarded as endangered. But some fishing experts believe that populations of these fish vary naturally from year to year, and their ability to rapidly reproduce will enable them to repopulate the oceans and save them from extinction. Dr Jeffrey Hutchings, who led the Dalhousie University research, says his findings suggest this perception is wrong.

*'I suppose it originates from the observation that marine fishes in general tend to produce hundreds of thousands - sometimes millions - of eggs when they reproduce, and this has led to the perception that this incredible proliferation of eggs can result in an extraordinary ability to bounce back from low abundances. Certainly this side of the Atlantic we have this perception that collapsed stocks will recover right away. That appears not to be the case.'*

**'When we see a cod stock collapse, what's our ability to actually stop fishing that fishery?'**

### Too Young To Die\_\_\_\_\_

Dr Hutchings studied 90 fish stocks all over the world - and found that even up to 15 years after heavy over fishing was stopped, many stocks had barely increased in numbers. Some types of fish - including cod - failed to recover at all. Dr Hutchings says there are several reasons why fish populations are so slow to return to their former size. One is that many fish are captured before they're old enough to reproduce.

*'Fishes that reproduce after only two or three years of life tend to have a more rapid recovery rate than those that don't mature until they're seven or eight years of age. The second point has to do with our ability to completely stop fishing affected fish stocks, so when we see say a cod stock collapse, what's our ability to actually stop fishing that fishery?'*

### Ecosystem.

Dr Hutchings research also led to an examination of how massive over fishing can alter the overall balance of the ocean's ecosystem. Plants and animals nearby - which the fish might need for food - can die out as a result of over fishing. When large-scale fishing comes to an end, there may be nothing for the recovering fish population to eat.

There's another factor, too. Some types of fish - like cod and haddock - live far below the ocean surface, and are caught in huge, trawling nets. Dr Hutchings says this method makes it almost impossible to catch other, less endangered species of fish nearby.

*'The difficulty with the fishing method used to catch cod is that it's not species-specific. When you tow a net along the bottom, you will catch anything that is down there. Flatfish, cod, haddock, etcetera - so if you've got a particular cod stock that collapses, you're almost certainly going to collect cod as by-catch if you continue to fish for some of these other species.'*

### **Monitoring**\_\_\_\_\_

The study found that some fish - like herring - do recover quickly from over fishing. They mature and produce large numbers of offspring very rapidly - and because they live in schools, they can be surrounded by nets without snaring other species of fish unnecessarily. But for species like cod and haddock, Dr Hutchings says much tighter monitoring of existing stocks, and of the fishing industry, is needed, to ensure that stocks of these fish don't drop so low that extinction becomes inevitable.