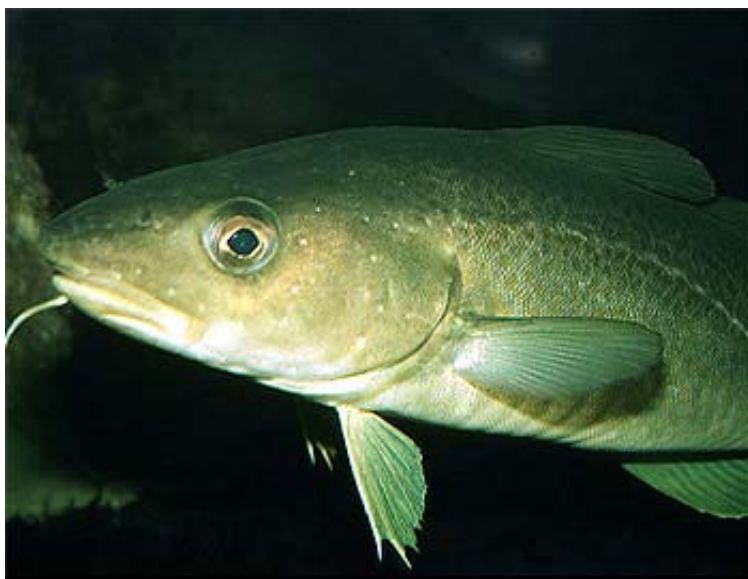




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Not only has fishing reduced Atlantic cod population but also the fish average size.
(Photo: Fishbase)

Sea Around Us Project helps to illustrate cod decline



CANADA

Wednesday, June 08, 2011, 22:20 (GMT + 9)

Post-doctoral research fellow Ashley McCrea Strub and Dr Daniel Pauly of the [Sea Around Us Project](#) have collaborated with artist Maya Lin on her latest project to depict severe declines in species due to human exploitation. Daniel contributed with ideas and information for Atlantic cod (*Gadus morhua*).

The Sea Around Us Project conducted a study to help the team better understand the extent of overfishing and the recent state of Atlantic cod off the eastern coast of Canada and the US as compared to 1850, a time when the species remained the region's most abundant predator.

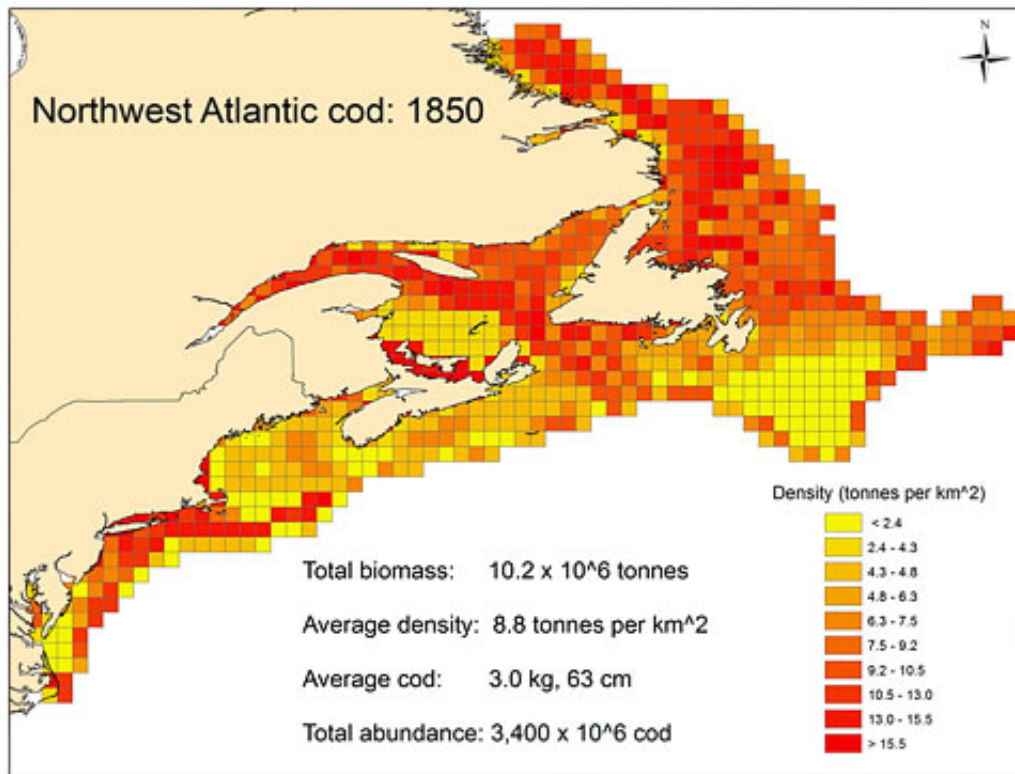
Data was collected concerning the relative abundance of Atlantic cod from the northern coast of Labrador to Cape Hatteras, North Carolina from the global fisheries database developed and kept by the Sea Around Us Project at the Fisheries Centre of the [University of British Columbia \(UBC\)](#).

Information on the size of the Atlantic cod stock around 1850 was taken from an analysis of mid-19th century logbooks maintained by a handline fleet that operated in the Scotian Shelf -- the centre of the range of Northwestern Atlantic cod -- before fishing was industrialised. The researchers assumed this population to be relatively close to its unfished maximum at this time.

Using detailed, spatially specific logs, it was estimated that the historical biomass of cod on the eastern and western Scotian Shelf, in an area of over 160,000 km², was 1.26 million tonnes compared to an average biomass density of cod on the Scotian Shelf of 8 tonnes per km² in 1850.

The results of stock assessments done by the [US National Marine Fisheries Service \(NMFS\)](#) and [Fisheries and Oceans Canada \(DFO\)](#) were collected to estimate recent biomass.

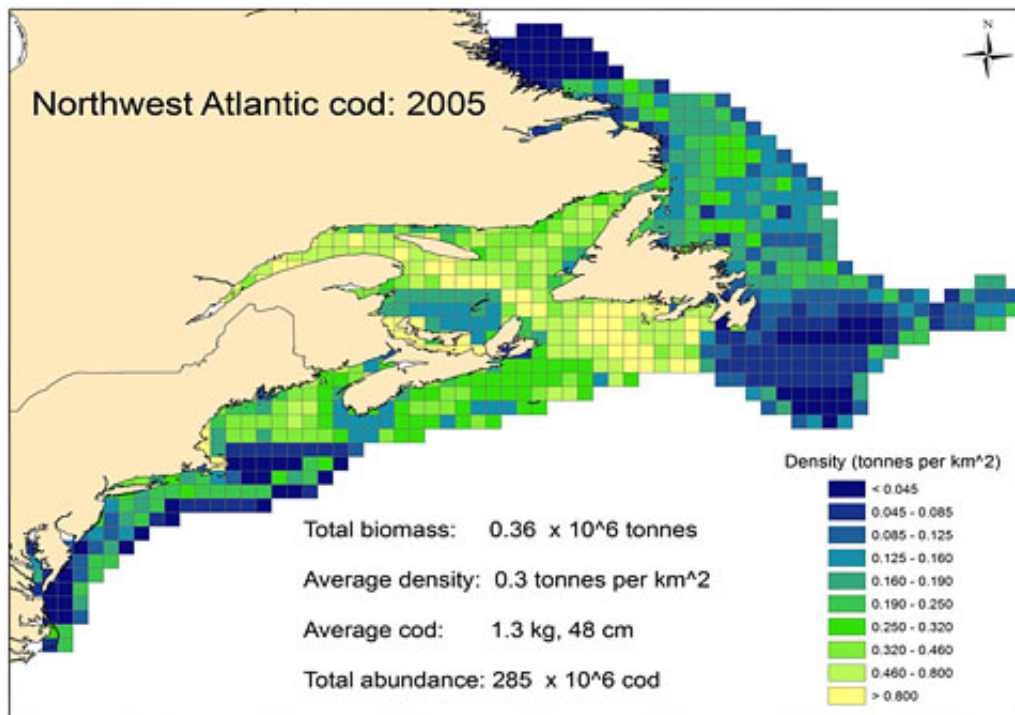
All this allowed the researchers to put together maps of cod biomass density plus the approximation of total biomass for 1850 and 2005.



Map of the spatially variable density of Northwest Atlantic cod biomass estimated for 1850, a time when the stock was assumed to be similar to its unfished, 'pristine' state. The study region extends from the northeastern coast of Labrador southward to Cape Hatteras, North Carolina. (Map: UBC)

In 1850, the total biomass of the Atlantic cod was some 10.2 billion tonnes. By 2005, this biomass was believed to have withered by over 96 per cent to 0.36 x 10⁶ tonnes.

Thus, the average density of cod biomass across the study region fell from 8 tonnes/km² to 0.3 tonnes/km² -- 3.5 per cent of the initial value.



Map of the spatially variable density of Northwest Atlantic cod biomass (including the proportion of the population vulnerable to the fishery) estimated for 2005, following decades of intense fishing pressure. (Map: UBC)

The Sea Around Us Project noted that fishing not only reduces population abundance, fis.com/fis/worldnews/printable.asp?id...

but also slashes the size of an average fish in the population.

For this reason, while in 1850 the average cod more than 3 years in age would have been about 63 cm in length and weighed 3.0 kg, while the average mature adult was 78 cm and weighed nearly 6 kg, by 2005, the size of such a cod had diminished to 58 cm and 1.3 kg, and an average mature cod measured 68 cm and weighed 3.6 kg.

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