

Intensive fishing leads to smaller fish

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(PhysOrg.com) -- Intensive fishery activities in the North Sea have resulted in evolutionary changes in fish. Fish remain smaller, grow slower and mature sexually earlier. This is postulated by Fabian Mollet, fishery researcher at Imares, The Netherlands, who will graduate on 7 May with these findings.

Mollet simulated fishery activities and their effects on the Dutch sole and plaice populations with complex models which he has developed. He studied how fishery affects the growth and the age at which the animals are sexually active. 'Fish mortality caused by efficient fishery is very high', Mollet says. 'A fish needs a lot of luck to survive the first five years of its life; this chance is only about eight percent.'

Due to strict fishing regulations based on size, it is a disadvantage for a fish to be big; big fish are being caught quickly. It is better to stay small and be able to procreate at a younger age. 'Intensive fishing has resulted in smaller fish which are sexually mature earlier,' says Mollet: For smaller fish to be able to produce enough [eggs](#), the animals also devote a lot of energy to their [offspring](#), which causes them to grow slower themselves. These [genetic changes](#) take place very fast, and can be completed within a few decades.

According to Mollet, the current fishery policy - which stipulates that fish be selected based on size - nurtures the evolution of less marketable smaller fish. As a result, this reduces the maximum size of the permitted catch so that the [fish populations](#) would not be endangered through overfishing. It is a lose-lose situation. However, there is hope for the

declining fish populations. According to Mollet, fishery-induced evolution can be halted. 'It is even possible at this moment to turn this fishery-induced evolution around', the PhD student thinks. 'Fishermen would then have to spare the big fish and go after medium-sized fish more . This letting go of big [fish](#) could cause the catch to be smaller in the short run, but if this is not done, future gains would become less anyway because of negative evolutionary effects.'

Provided by Wageningen University

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