

# ON ANALYSIS OF COD AND HADDOCK FISHERIES IN THE BARENTS SEA AND ECONOMIC FOUNDATION FOR OPTIMAL CATCH RATES

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Cod and haddock are the principal internationally marketable renewable marine living resources in the North basin. Considering economic and food security aspects, we could classify these stocks as national strategic resources.

Catch rates and types of fishing for these species are generally determined in accordance with Russian-Norwegian intergovernmental agreements as these two nations share principal stocks of cod species in the basin.

We should note that in the past few years our nations have been conducting balanced and rather efficient joint activities aimed at conservation and restoring of fish stocks and prevention of unauthorized overfishing.

Efficiency of these activities is proved by the market reaction: for the first time for years, there has been no seasonal reduction in cod prices at international markets. We could have attributed it to devaluation of principal currencies, however, this factor is obviously not sufficient to explain the price behavior this year.

It is noteworthy that previously the cod price reduction occurred when the bulk of the total cod catches originated from Russian Exclusive Economic Zone with its high rates of the cod overfishing. However, positive measures aimed at stricter control not only over fishing, but also over landings have produced impressive outcomes and improved to some extent the market situation for law-abiding companies.

At international markets, traffic in illegal catches has been almost stopped, while in Russia our efforts have fallen short of ideal. Undoubtedly, we could try to obtain official data, however, there is a high probability that they are

biased. Another proxy could be yielded by marketing analysis of domestic consumption, but in this case market correlation ratio between different basins could be rather ambiguous.

Therefore, the following economic approach to assessment of the basin-wide overfishing would be the most appropriate in our situation.

It is no secret that outside Russian EEZ overfishing is risky activities. Close cooperation of law-abiding companies and Norwegian Coast Guard has been developing for years.

There are also examples of efficient efforts aimed at prevention of errors in fishing and processing at sea. Thus, when a company tried to start production of a high value added product aboard the ship (skinless and boneless fillet for American consumers) using equipment which did not provide the approved technological coefficient, a team of Norwegian inspectors promptly came aboard to identify discrepancy between the actual coefficient and the approved one. The shipowner stopped production and the Norwegian Party was completely satisfied, as the error was prevented and no penalties were imposed. On the other hand, the well-known case of Russian trawler *Elektron* shows how uncomfortable companies which steadily break the fishing rules could feel.

Russian EEZ is the opposite. The national Coast Guard is either poorly financed, or poorly equipped and cannot provide the necessary level of enforcement. It is amazing how suddenly daily catches of fishing vessels increase when an inspecting vessel enters the fishing grounds.

Summarizing the above said, we could conclude that there are positive trends in cooperation and information exchange between Russian and Norwegian bodies concerning prevention of overfishing. These changes encouraged activities of law-abiding companies in Russian EEZ. If previously fishing vessels of such companies preferred not to fish in Russian EEZ, the current situation is quite the opposite: masters feel protection and support of the national Coast Guard and their fishing vessels are engaged in efficient fishing

activities within Russian waters. There are cases when shipowners insist on a stricter control over their fishing vessels in order to prevent violation of the fishing rules; Coast Guard comply with these requests, to the satisfaction of both parties.

Nevertheless, it would be quite reasonable to establish an additional tool to identify overfishing. The mechanism is fairly simple and could be applied by appropriate enforcement bodies to prevent overfishing as well as to identify those who elude tax payments for surplus production.

This identification technique is based on the economic approach, i.e. break-even analysis of fishing activities of any type of fishing vessels.

Thus, assuming that daily operative costs total \$1,500 US, the weighted average revenue are \$2,200 US per one ton of the target species (wet weight) with taxes of \$ 200 US, the breakeven point for such a fishing vessel expressed in the mean daily catch would total 7.5 t daily.

Further, if catches of any vessel are below 7.5 t daily, it implies that the company either accrues losses and is going to lose its financial stability and capability to restore the means of production, or is engaged in illegal fishing.

In case of overfishing we could assume the coefficient of 2 because illegal fish is hardly sold for more than 50% of the market value.

That is if the given vessel captures 6 t of cod daily, it is reasonable to suggest that its minimum overfishing totals 3 t daily.

This method is universal as it could be applied either by the Coast Guard inspectors at sea, or by other monitoring bodies which are authorized to check the fishing vessel logbooks.

Analyzing fishery data for the past years, we could notice a considerable increase in daily catches in Russian EEZ along with decrease in number of vessels operating simultaneously. If we ignore those fishing vessels which were not mentioned in reports (i.e. we assume that enforcement bodies do not allow access to fishery to vessels without quotas or the VMS equipment), our method

reveals that in 2005 and 2006, overfishing did not exceed 120,000 t and 90,000 t, respectively; judging by the current fishery dynamics, overfishing in 2007 will hardly exceed 50,000 t.

On the other hand, environmental and climatic situation in the past years has created objective prerequisites for a considerable growth of these fish stocks. Fishery data showed a significant increase in the size differentiation of cod species, i.e. catches were dominated by mid- and small-sized fish. As a result, this year witnessed closures of larger fishing areas and for longer periods too.

Cod population demonstrates high dynamics of growth. Such dynamics, however, could be threatening, consequently, the most reasonable strategy of the fish stock management would be maintaining or evolutionary change of the dynamic equilibrium via appropriate control over catch rates. According to fishermen, given a considerable decrease in unauthorized overfishing and maintenance of other favorable conditions of the fish stock growth, the next year TAC should be increased at least by 30%.

At the same time, making decisions, Russian and Norwegian authorities should carefully consider consumption factors. Yearly decrease in TACs practiced for the past years has already caused the market overheating and unacceptable cod price advance. As a result, the Western European has virtually decreased his consumption of cod and haddock products three times. These species are actively substituted by less valuable, but cheaper fish products from other basins, especially from Southeast Asia. This process could lead to the cod market collapse and steep fall in prices without any prospects of recovery in the nearest future.

We have already seen a similar history (e.g. crab, shrimp, and Atlantic herring products, etc.).

National cod fishery management drawbacks, *inter alia*, include:

- groundless changes of fishing rules which mean significantly limited opportunities to develop a fishing plan; unjustified decrease

- in allowable bycatch which virtually brings about discards of surplus production (companies bear high costs which turn out to be a dead loss);
- biased minimum daily catches by vessel types which are set in the existing regulatory system of the fishing industry to issue fishing permits; these limits are apparently adopted for benefits of some groups of shipowners (the set values have nothing to do with vessels' histories of fishing);
  - absence of subsidies for domestic producers;
  - a priori accusatory attitude to the fishery participants;
  - unstable policy concerning allocation of shares in the total catch of the fish stock which decreases investments to the fishing industry, etc.

## CONCLUSION

Generally, demersal fisheries in the North basin enjoy satisfactory commercial conditions. They correspond basically to the advanced country level and provide prerequisites to the fishing industry modernization and increase in its competitiveness in the global market. Application of some efforts to advancing the state management mechanism, improvement of efficiency in our struggle against illegal fisheries, regulation of domestic fish market, development of policy to promote the national fishing industry at the international level, etc. would provide conditions for achievement of significant progress in exploitation of the North basin demersal fish species in the nearest future.