



BONUS GOHERR stakeholder workshop 16.-17.2.2016, Copenhagen

Position papers for sessions 1-4, Day 1

Session 1: Implications of dioxins to Baltic herring fishery

Session 2: How serious a risk dioxin in herring is to humans?

Session 3: Long-term prospects of Baltic herring fishing and changes in the global fish market

Session 4: Consumers' fish eating habits

## Session 1: Implications of dioxins to Baltic herring fishery

Baltic herring is one of the main target species in the Baltic Sea. In the 2010s, on average, the Finnish herring fishery has landed about 40% of the total Baltic herring catch. In comparison, the Swedish landings have been around 20%, Estonian 10% and Danish 5% of the total. Central Baltic herring is caught by all four countries, but for Sweden it is the main catch. Most of the Danish catch is Western Baltic herring, whereas the Finns target mainly Bothnian Sea herring and the Estonians Gulf of Riga herring. These stocks are all currently sustainable. Despite this, the Western Baltic herring is the only MSC (Marine Stewardship Council) certified Baltic herring stock.

Apart from Western Baltic herring, dioxin concentration in Baltic herring larger than 17 cm is likely to exceed the maximum level set by the EU regulation. The Baltic Sea countries are not allowed to place herring that exceeds the limit on the EU market. However, Sweden and Finland have been granted a derogation to sell herring that exceeds the defined maximum dioxin level in their territories or to each other. Of the Danish catch, only Western Baltic herring can be sold to human consumption (in the EU). Estonian fishery targets small (<17cm) herring, which does not exceed the maximum dioxin level. The sale restriction does not apply to exports outside the EU.

The Estonian catch goes to human consumption, but the demand for human consumption is low in Finland, Sweden and Denmark. Therefore most of the Baltic herring catch is used for industrial purposes. The Finnish catch goes mainly to fur farms and to fish meal and oil production. The feed used in fur farms is not limited by the regulation, but the one used for fish meal and oil is. The dioxins, however, can be removed from the fish meal and oil during the production process. Most of the Swedish and Danish catches are used for fish meal and oil production.

Major changes have taken place in the export of herring in the past few years. For example, Russia has been one of the biggest buyers of Baltic herring (for human consumption), but the export halted in mid-2014 resulting from the Russian sanctions against the import of fresh EU products. Concurrently, export to Denmark, namely for fish meal and oil production has increased significantly. Export to many countries outside the EU, for example China, has been compromised due to the dioxins in herring. Ukraine has remained an important export market for human consumption.

The aim of this session is to deliberate on issues such as: how would herring fishing industry change if dioxin decreased to a "safe" level? And what might be the most important social, economic and ecological impacts of these changes at the local, national, regional and global levels?

## Session 2: How serious a risk dioxin in herring is to humans?

The sale of Baltic herring is restricted in the EU because dioxin levels in these fish often exceed the agreed risk limit. Dioxins are assumed to have negative impacts on the early development (especially in the initial stages of foetus and during infancy), reproduction and immune functions of humans, but proof of harmful health effects is inconclusive. Furthermore, there is no consensus on how serious the risk of dioxin in herring is to humans. Discussions related to dioxins are often characterized by both exaggerated reactions to and denial of the risks.

In the EU, dioxin risks to human health are managed mainly through market regulation: the EC has set maximum levels for dioxins in food and feed. These levels are based on a defined Tolerable Daily Intake (TDI), that is, a daily amount of dioxin assessed safe for humans. However, the basis of the TDI is uncertain, and so is the conversion of the TDI to an acceptable level of dioxins in food and feed. It has also been argued that criteria for the evaluation of dioxin risks should be wider and include food, health and environmental aspects. This way it would be possible to take both the health benefits and risks of Baltic herring consumption into consideration.

An alternative strategy to manage the dioxin risks is dietary recommendations. Finland and Sweden have an exemption to sell Baltic fish with levels of dioxins that exceed the maximum, given that they monitor dioxin levels and keep consumers informed of the risks. However, the scope and the content of national recommendations vary. In Sweden, risk groups are advised not to eat fatty Baltic fish more often than two or three times a year and other people once a week at the most. In Finland, risk groups are recommended to eat these fish only once or twice a month.

This session focuses on different perceptions on the safety criteria and reasons behind the varying recommendations on Baltic fish intake. What are their pros and cons? How are national derogations justifiable? To what extent can people be let choose what to eat, and what interventions are needed? How should the dioxin risk be managed, and what are the possible implications of different management strategies?

### Session 3: Long-term prospects of Baltic herring fishing and changes in the global fish market

Fish is a vital source of animal protein to humans worldwide. The share of fish in the total animal protein intake is 15 to 20 percent. However, many fisheries around the world are exploited at intensities that have driven fish stocks far below maximum sustainable yield levels. Between 1970 and 2012, the wild fish catch per capita has declined by 32%. The decline has been compensated by the rapidly growing aquaculture sector over the last three decades, which has resulted in a 10% increase in fish supply per capita over the same period. Concurrently, the proportion of the global fish supply directed to human use has increased.

A demand for 'forage' fish (small pelagics like herring and anchoveta) for human consumption is assumed to increase in the future. Further, it is predicted that sustained demand and high prices for fishmeal, combined with reduced raw-material availability and value added fishery products for human consumption, will lead to more residues being used in fishmeal manufacturing. According to FAO, for example, fishmeal made from fish by-products should represent 49 percent of total fishmeal production in 2022.

In the case of Baltic fisheries and herring fishing, an increasing demand for fish (both for human consumption and fish meal/oil), is likely to enhance the profitability of herring fishing sector further. New fish meal production facilities are currently being built and planned, and diversity in demand is thus increasing. While in the Nordic countries the human consumption of Baltic herring has decreased during the last decades, markets in the developing countries would probably be open to more herring for human consumption if the dioxin levels were lower. For example in Asia, the per capita fish consumption has been estimated to grow by 13.7- 24.5 % until 2022. In Europe, the estimated growth rate is 11 - 17%.

In this session the aim is to imagine how herring market/use might change in the future (2040) and what are the most important affecting factors?

#### Session 4: Consumers' fish eating habits

Currently, human consumption of Baltic herring is low in the Baltic Sea region. Selling Baltic herring for human consumption has been restricted within the EU since 2002, because dioxin concentrations in the fish often exceed the allowed levels set by the European Commission for food and feed. Finland and Sweden have an exemption to sell Baltic herring without restrictions, provided that consumers are informed of the possible health risks related to Baltic fish, for example by recommendations for fish consumption. The significance of these recommendations on the decisions to eat or not to eat Baltic herring, in relation to other determinants of consumer behaviour, is not well known.

Human consumption of Baltic herring in Finland has decreased from over one kilo per year per person to only 300 grams during the last 15 years. It has been suggested that this is due to the restrictions and recommendations that have been implemented to reduce the dioxin risks to human health. However, a recent study indicates that this is not the case in Finland. According to the study, Baltic herring is eaten in Finland, mostly by elderly people, because it is a traditional food which tastes good, but its use is limited by poor availability. Further, the study suggested that some people do not like the taste of herring, while some others regard it an interesting food, but difficult to cook.

BONUS GOHERR project examines what factors affect the demand of Baltic herring in Finland, Sweden, Denmark and Estonia, and what is the role of dioxin in herring consumption, currently and in the future. The aim of this session is to discuss the importance of dioxins in Baltic herring as a determinant of food choices. The key questions include: If dioxin concentrations in fish decrease, how would it change the demand of Baltic herring? Would this affect the management of Baltic herring stocks? Would people consume more Baltic herring? Are there other ways to increase the use of Baltic herring for human food?