

9.3.2.6 EC request on the Draft EU Guidelines for Eel Management Plans (EC regulation n° 1100/2007)

Summary of ICES Comments

1. ICES welcomes the adoption of the regulation and the associated guidance document as a significant step toward the recovery of the eel population.
2. ICES supports the approach taken in the EU regulation to develop management plans based on Eel River Basin Districts. The eel stock is scattered over a multitude of inland and coastal waters, waters with different characteristics. Anthropogenic impacts, such as barriers of migration pathways (including intakes and turbines), pollution, habitat loss, etc. differ among River Basin Districts (RBD) and could affect the eel stock negatively as much as current fishing.
3. Due to the large uncertainties in eel management and biology (one single stock, spawning only once in their lifetime), ICES has proposed an escapement target of 50% which is higher than the target in the management plan.
4. Continuation of eel restocking programs has been proposed within the management plan as having comparable benefits as reductions in exploitation. Stocking programs should simulate natural processes as closely as possible, as this is most likely to lead to high success rates measured in biomass or numbers of silver eel escaping to the sea. In order to limit the risks associated with restocking and to optimise the benefits as an aid to stock recovery, there is a clear need for guidelines for stocking practises of European eel.
5. The EU regulation foresees an evaluation of its effects by 2012. The status of the stock is not expected to change in the short term and there is no need for an annual evaluation of the state of eel in European waters before 2012 although monitoring of recruitment and catch should of course be continued and improved. Methods must be developed for evaluation the status of the stock and these should be progressed between now and 2012.

Summary of the EU Recovery Plan

The EU Regulation establishes a framework for the protection and sustainable use of the European Eel stock through the implementation of Eel Management Plans. The objective of each Eel Management Plan shall be to reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40% of the biomass of silver eel relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock.

EU Member States shall identify and define the individual river basins that constitute natural habitats for the European eel (eel river basins). For each eel river basin, Member States shall prepare an Eel Management Plan. The objective of each Eel Management Plan shall be to reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40 % of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock. An eel management plan may contain measures to reduce commercial and recreational fishing, measures to make rivers passable and to improve rivers habitats, restocking measures, transportation of silver eel to waters from which they can escape freely to the sea, to combat predators, temporary switching-off of hydro-electric power turbines, and measures related to aquaculture. By 31 July 2013, 60% of eels less than 12 cm in length caught annually should be reserved for restocking. Catches of eels in Community waters seaward of the boundary of eel river basins should be reduced gradually by reducing fishing effort or catches by at least 50 % based on the average fishing effort or catches in the years 2004 to 2006.

Member states should communicate Eel Management Plans for each eel river basin plan(s) by 31 December 2008, to be implemented by 1 July 2009.

In 2007 the European eel was listed under CITES Appendix II. This listing implies that international trade in European eel requires special permission and is complementary to conservation actions developed in the management plans.

About restocking

Continuation of eel restocking programs has been proposed within the management plan as having comparable benefits as reductions in exploitation. Stocking programs should have regard to the need to simulate natural processes as far as possible, as this is most likely to lead to high success rates measured in biomass or numbers of silver eel escaping to the sea.

Some countries have practiced restocking of eel for decades (Tables 9.4.9.2 and 9.4.9.3, Figure 9.4.9.4); this has generally been to maintain fisheries rather than to improve the stock or recruitment. Since artificial reproduction is currently not possible for eel, all aquaculture and restocking programmes are based on wild glass eels.

The EU regulation lists stocking as one option to achieve stock recovery and has been elevated to an implicitly compulsory action warranting a full section in the EMP. This is not consistent with ICES advice (1999, 2001, 2005): Stocking is an artificial measure, carrying unknown risks and benefits, while reduction of mortality reduces anthropogenic impacts and is therefore risk-averse. There is no firm evidence that restocking can improve the SSB and recruitment mortality of restocked eels may significantly reduce any benefits. In response to a question from EU on Restocking of European Eel, ICES comments in 2005

*“Conventional re-stocking rates have been in the order of 100 300 glass eels per ha annually (0.03 0.1 kg/ha). The surface area of available habitats in Europe is estimated at 5 10*106 ha. Accordingly, the amount of glass eel required for restocking would be in the range of 150 1000 tonnes. The current glass eel catches are believed to be about 100 tonnes. Hence, it is unlikely that sufficient glass eel can be captured in areas of abundance and used for restocking.*

Even restocking in the order indicated above is highly unlikely to achieve the 40% objective in all European river basins in the medium term, i.e. at least one eel generation time (5-15 years) is required before recovery may be seen.

There is some concern over the risk of moving fish between rivers, e.g. with respect to disease and to potential loss of genetic diversity. It is not clear how severe these risks are for eel in particular, but given the very severe recruitment failure, the risk is probably lower than the potential benefit.”

Trans-location and restocking of eel may involve a risk of decreased genetic variability. ICES recommends that glass eels, elvers and other life history stages should not be trans-located between river basins for restocking purposes. Movement and restocking could disrupt the migration behaviour and could lead to spreading of diseases and parasites. Productivity and survival of restocked individuals are sensitive to changes in habitats.

In order to limit the risks associated with restocking and to optimise the benefits, there is a clear need for guidelines for stocking practices of European eel as an aid to stock recovery. Such guidelines should address questions such as: what are suitable habitats for stocking, eel health issues, fishing and transport methods, timing and frequency of stocking, etc.

Reducing Predation

The EU regulation lists reducing predation as a possible management option that could be employed to reach escapement targets. A number of piscivorous predators are known to consume eels, including birds (Great cormorant, herons, egrets, etc.) and mammals (otter, mink, seals, etc.). However, predation on eel at a national –international scale is not well documented, and robust estimates of annual eel consumption by predators are not available. Furthermore many of these predators of eels are protected under EU legislation (Birds Directive, Bonn Convention, etc.) and mitigation measures against predation are difficult to design and to implement.

Time for Recovery

An analysis of the stock dynamics under different management regimes indicates that the recovery time for eel could be at least 20 years or much more, depending on the implemented fisheries restrictions. Different models provide different time for recovery, but in all cases the expected recovery time is long. The status of the stock is therefore not expected to change in the short term and there is no need for an annual evaluation of the state of eel in European waters before the foreseen evaluation in 2012, although monitoring of recruitment and catch should of course be continued and improved. Methods must be developed for evaluation the status of the stock and these should be progressed between now and 2012.

Other comments

The implementation of the Eel Management Plans will improve and extend the information on stock and fisheries. By mid-2012, Member States will report on protective measures implemented in their territories, and the effects of such measures on the stock. International post-evaluation requires that data, gathered within this framework of national/regional management plans, are made available to ICES. The establishment of an international database, and the development of international post-evaluation procedures for measuring the impact on the stock will be required.

Comments on the Draft EU Guidelines for Eel Management Plans

In association with the recovery plan on eel (EC regulation n° 1100/2007) the Commission has prepared a guidance document and has asked ICES for assistance to assure that the guidance document on eel management will help EU member states to prepare Eel Management Plans (EMPs) that adequately address the obligations set out in the EU regulation especially in regards to measures that involve scientific input.

General Comments

ICES stresses the seriousness of the state of the stock and urge that the measures to achieve significant reductions in mortality should be implemented as soon as possible. Any delay in reducing mortality may lead to an extremely long time scale for recovery or a collapse of the stock if that hasn't already occurred. Sources of mortality are varied, including hydropower stations, predation, recreational fisheries, professional fisheries, diseases, contaminations. Some of them are not presently quantifiable, but some others like fisheries or predation by cormorants can be estimated with some degree of certainty.

The implementation of the eel management plans, foreseen in 2009, is expected to improve and extend the information on stock and fisheries. Improved reliability and better spatial coverage, will however also break several currently available time series and correction procedures will need to be considered, both by the Member States and ICES. By mid-2012, Member States will report on protective measures implemented in their territories, and their effects on the stock, for which methodology is currently limited. Furthermore, effects on the stock in a 3 years time could be difficult to measure. International post-evaluation requires that data, gathered within this framework of national/regional management plans, become accessible to ICES. The establishment of an international database, and the development of international post-evaluation procedures for measuring the impact on the stock will be required.

There is concern that stocking is now an implicitly compulsory action warranting a full section in the EMP against precautionary scientific advice (ICES, 1999, 2001). The regulation and guidelines tend to put stocking on a level with mortality reduction in that it is anticipated to have the same effect. The former is an artificial measure, carrying unknown risks and benefits, while the latter reduces anthropogenic impacts, and is therefore risk-averse by nature. ICES (1999) advised:

"The eel stock is outside safe biological limits and the current fishery is not sustainable. (...) Actions that would lead to a recovery of the recruitment are needed. The possible actions are 1) restricting the fishery and/or 2) stocking of glass eel. "

ICES (2001) clarified the 1999 advice:

"ICES recommends that an international rebuilding plan is developed for the whole stock. Such a rebuilding plan should include measures to reduce exploitation of all life stages and restore habitats. Until such a plan is agreed upon and implemented, ICES recommends that exploitation be reduced to the lowest possible level. (...) Whether re-stocking contributes to spawner escapement is questionable. Restocking might, however, contribute to the fisheries and might be considered a compensatory measure for the decline in the catches."

There are a number of significant gaps in knowledge regarding best practice for stocking for enhancement purposes. How does the EU envisage co-ordinating between the fisheries for small eels (<12 cm) , the component for stocking and the component for export/consumption? Stocking programmes should have regard to the need to simulate natural processes as far as is possible, as this is most likely to lead to high success rates measured in biomass or numbers of silver eel escaping to the sea.

Section 5 of the Draft Guidelines places considerable onus on member states to provide good transparent information to other member states to achieve these points. As with the movement and sale of small eels, an EU wide system of tracking would make this process more transparent and easier to evaluate. This should be a system common with the monitoring of the "60% for stocking" and also with the requirements for compliance with CITES.

An assessment of the current state of the stock, including an assessment of the impact of anthropogenic mortalities and eel quality issues (contaminants and parasites), is urgently needed. In most river basins, this assessment will not be achievable from available data, while for some rivers, adequate data sets exist. It is therefore proposed, to initiate concerted research as soon as possible, to compile data sets, to develop regression models of the relation between the impacts and widely available data, in order to inter/extrapolate to the data poor situations. Time will need to be built into the early years of the EMPs to facilitate this, while still implementing urgent management actions to protect the remaining stocks.

ICES suggests that it is appropriate to allow such a timescale (3yrs) at the start of an EMP to allow for determination of existing stocks (further developing the initial estimates provided in the EMP), concurrent with the immediate measures for reduction in mortality, and a longer term timescale for the achievement of the target. The short time scale for stock

assessments is required to allow for development of methodologies, cross-calibration, mobilization of resources etc. A similar period of intercalibration was built into the Water Framework Directive (WFD).

There is no guideline given for the time allowed to achieve the escapement targets in the "long-term" – STECF advised 3 eel generations (although eel generations differ with location across Europe an average of 18 years per generation has been used previously (Dekker, 2000)), or a fixed time period could be suggested (i.e. 2 x 12 years + one local generation) – this should be indicated in the guidelines to reduce ambiguity.

The first post-evaluation of the EU Regulation is required by the 30th June 2012. Timely development of assessment procedures is required, geared to the data becoming available, while indicating the progress towards recovery of the stock. These methods are not currently available.

Coordination of target fulfillment between eel management units ("eel river basins") and fisheries in Community waters is needed and this should be linked to Sec 14 in the Regulation reducing the effort and catches in seaward Community waters by 50%. The situation in the Baltic Sea may serve as an example, where a fulfilled escapement target for an eel management unit in the inner Baltic Sea may be undermined by a subsequent fishery on the silver eel's route towards their spawning grounds. So, a hypothetical case might arise where the management of the eel river basin succeed in achieving 40 % of pristine escapement, e.g. by restricting hydropower mortality and inland fisheries and stocking glass eels, but then a large proportion of these silver eels get caught in the silver eel fishery in Community waters in the same country, or in another country, on their way out to sea. It is currently not clear how this type of situation should be handled, from the biological point of view, the fishery outside the eel river basin should also be considered when estimating spawner escapement from the eel river basin.

References

- Dekker, W. 2000. A Procrustean assessment of the European eel stock. ICES Journal of Marine Science, 57: 938-947.
- ICES 1999 International Council for the Exploration of the Sea. ICES cooperative research report N° 229, Report of the ICES Advisory Committee on Fisheries Management, 1998: 393-405.
- ICES 2001. ICES cooperative research report N° 246, Report of the ICES Advisory Committee on Fishery Management, 2001: 819-828.
- WGEEL, 2007. Draft report of the joint EIFAC/ICES Working Group on Eel, Bordeaux, 2007 – submitted to ACFM.

Specific Comments to the EU Document – Draft Guidelines for EMPs - Standard Format for EMP's

1. Description of Eel Habitats (Management Units)

- 1.1. List of eel management units: Provide a list of the management units, such as local authorities or water management districts, which will be responsible for the drafting and implementation of EMP's.

Comment: This section should provide an inventory of individual catchments within the Management Unit. This section should also provide scientific justification for requesting exemptions for river basins from requiring EMPs.

- 1.2. Maps: Provide maps clearly depicting the geographical extent of the eel management unit(s).

Comment: Provide maps detailing the major breakdowns in eel habitat types, i.e. lake, river, coastal, lagoons, which should also be quantified. Much of this may already be accessible through the WFD.

Member states should indicate whether coastal and transitional waters will be managed within the EMU, or whether the Intro Para 14 and Art 8 of the Regulation applying 50% reduction in fisheries will be applied.

- 1.3. State whether the management plan pertains to a river basin situated entirely within the territory of one Member State, is shared between two or more Member States, or is shared between one or more Member States and a third country. In cases where cooperation between two or more Member States or between Member States and third countries has been inadequate provide a full explanation, indicating why it was necessary for the Member State(s) to provide an EMP covering only the part of a shared river basin falling within their national territory. Preparation of trans-boundary EMP's shall be done with maximum regard to Article 3 of Directive 2000/60/EC¹.

¹ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, Article 3: Coordination of administrative arrangements within river basin districts.

2. Methods of determining escapement

- 2.1. Provide a description and an analysis of the present situation of the eel population/stock in each eel river basin situated partly or entirely on your territory, and relate it in Section 2.4 to the target level of escapement.
- 2.2. Provide a quantification of the fishing pressure.

Comment: This is vague. Is what we require: Number of vessels, fishermen, effort (i.e. net nights), catch (kgs)? For each life stage (i.e. glass eel, yellow or silver eel) an estimate of fishing mortality (F) should be calculated [Would it be possible in near future? How to calculate F if we do not have an assessment of the stock and also no idea about natural mortalities ?].

This section should report on commercial and recreational fisheries separately.

This section should also report on the quantity of eels <12 cm removed and translocated to another catchment/EMU for the purpose of stocking.

2.6 Could go in here - Provide a description of the method(s) used to determine the actual escapement

- 2.3 Provide a detailed description of the condition of the eel habitat, listing sources of mortality (other than fisheries), migration obstacles and sources of pollution that might affect the eel stock.

Comment: These sources of mortality should also be quantified? Without quantifying it will be impossible to evaluate management measures.

Eel quality parameters (contaminants/pathogens/parasites) should be noted in the EMPs, particularly where maximum benefit is to be derived from stocking towards effective spawner escapement. Reference should be made to monitoring undertaken in the Water Framework Directive.

- 2.4 Provide an estimate of the maximum (historical) downstream escapement potential, at a defined reference point, of silver eel, in the absence of anthropogenic mortalities and relate it to the actual (current) level of escapement (Should come after 2.5)
- 2.5 Indicate which of the three methods of determining silver eel escapement outlined in Article 2(5), or combination thereof, will be employed. Provide the same information in case any other method(s) is/are used.

Comment: 2.7 should come here

- 2.6 Provide a description of the method(s) used to determine the actual escapement.
- 2.7 Provide a description of the model(s) used to estimate potential escapement and an evaluation of the model(s). Indicate the expected precision and accuracy of the model(s).

Comment: This will be difficult given the paucity of data with which to calibrate precision and accuracy of the models.

3. Measures Taken

Comment: There is some ambiguity between Sec 3.1 & 3.2. Sec 3.1 asks for all measures to reach the 40%, while Sec 3.2 asks for immediate measures outside the fishery, implying that no immediate measures need apply to fisheries. The WG suggests a new Sec. 3.2 describing immediate measures applying to fisheries and a new Sec 3.3 (the old 3.2) describing immediate measures other than fisheries

- 3.1. Provide a description of all the measures to be taken to reach, monitor and verify the 40% escapement objective.

Comment: We presume that "all measures" refer not only to fisheries but include all management options – this should be explicit.

- 3.2. Provide a description of the immediate measures that will be implemented to reduce the mortality caused on eel by factors outside the fishery, including hydroelectric turbines, pumps and predators, unless this is not necessary to obtain the escapement objective, as described in Article 2(10) of the Regulation.

Comment: This is meaningless unless 2.3 is quantitative. 3.2 should probably come before 3.1 What about immediate measures for the fisheries within an eel river basin and in adjacent Community waters?

Where are the immediate fisheries measures to be described?

- 3.3. Provide a time schedule (see covering notes – EU should provide guidance on the time schedule) for the attainment of the target level of escapement, including measures that will be applied as of the first year of application of the EMP.

Comment: In order to construct a realistic time schedule, assumptions on the expected response in recruitment are required, since many areas will not be able to attain the escapement target only using the present stock (including stocked glass eels), but will have to rely on a future increase in recruitment. But the expected recruitment response not only depends on what one member states does, but depends on the management in the whole distribution area of the eel. This also implies coordination between the measures in the eel river basins and the Community waters, but such coordination is not mentioned.

- 3.4. Provide a description of the control and enforcement measures which will apply in waters other than Community waters, in accordance to Article 9 (Art. 10?) of the Regulation.

4. Restocking

Comment: Concern that stocking has been elevated from being one possible management option to a full Section on its own.

*Suggestion: To be more clear in Chapter 4, the material could be separated under two subheadings, guidance for the river basin **fishing for small eel**, separate from river basins **receiving small eels for stocking***

Stocking of Small Eel

- 4.1. Provide a detailed description of any restocking program, including:

- 4.1.1. A clear identification of the geographical areas in which restocking is to be carried out,

Comment: [add] and why such areas have been chosen for stocking and a full description of these areas: i.e. is there a fishery and how many fishermen ..., how many dams, hydroelectric turbines and pumps downstream until the sea, water quality and contaminant pressure and presence of Anguillicola or viruses such as EVEX. See Ch 7 & Fig. 7.6 and 7.7 in the WGEEL 2006 report for stocking strategy and risk evaluation. Is restocking in support of fisheries at all acceptable?

- 4.1.2. A quantification of the surface area which is to be restocked and,

- 4.1.3. An estimate of the amount of eel less than 20cm long, needed for restocking, according to Article 6(4).

Comment: To achieve what?: it is important to give guidance as to what level of stocking is acceptable for the support of fisheries and what is required for boosting spawner escapement: how do we quantify the relative proportions?

- 4.2. Give a quantitative estimate of the contribution of the restocking program toward the achievement of the 40% escapement target. Describe the monitoring and calculations made to arrive at this quantitative estimate. See 4.1.3.

Comment: 4.4 should move to here.

Capture of Small Eel

- 4.3. State the percentage of caught eel, less than 12cm, to be used for restocking during the first year of application of the Eel Management Plan. Describe the system which is to be set up to ensure that this figure reaches 60% by 2013.

Comment. Describe how the proportion to be sold/used for stocking and the proportion to be sold/exported for consumption relate to Eel management Plans in the catchment where the fishing takes place.

- 4.4. State quantity of eels <20cm needed for restocking that ultimately increases escapement of silver eel to the sea.

Comment: Same as for 4.1.3 & 4.2. What is the purpose of restocking?. 2006 advice stated there weren't enough glass eel for restocking all waters to ensure compliance with the target (MOVE 4.4 up after 4.2)

- 4.5. Describe the price monitoring and reporting system via which prices of eel less than 12cm long will be reported annually to the Commission. This system must be in place by 1 July 2008.

Comment: At local, national or EC level?.

5. Other information

- 5.1. Describe the sampling system for catches and effort concerning all life stages of eel. This system should be in place by 1 July 2009.

Comment: This will be needed although it will be difficult. The proposed pilot project in support of the DCR (STECF Dec 2005) would be useful to inform this.

- 5.2. Describe the measures that will be taken to:

- 5.2.1. Identify the origin and control traceability of all live eels imported or exported from your territory,

Comment: Needs to be done, will CITES help? Is there a template or guidelines for this? Surely a European tracking system is required rather than different types and levels of system within each MS.?

- 5.2.2. Determine whether eel harvested and exported outside the Community area was caught in a manner consistent with Community conservation measures,

Comment: If a RBD ??/member state is compliant with EMPs then this is covered. However, will one member state be able to evaluate the compliance of another MS before each movement of eel – at what level or timescale should this determination take place and what is the mechanism envisaged to facilitate this.

- 5.2.3. Determine whether the eel harvested in the waters of any relevant regional fisheries organization and imported into your territory was caught in a manner consistent with the rules agreed in the regional fisheries organization in question.

Comment: How to do this? CITES? Similar comments to 5.2.1 & 5.2.2.