

#### 9.4.1\* EU request to ICES on evaluation of the Trans-border management plan for European eel in the Polish–Russian zone of the Pregola drainage basin and Vistula Lagoon

##### Advice summary

ICES advises that the approach applied in the Trans-border management plan for European eel in the Polish–Russian zone of the Pregola drainage basin and Vistula Lagoon (TEMPP) is consistent with the Regulation (EC 1100/2007). However, ICES has identified a number of data deficiencies that make it impossible to evaluate the ability of the TEMPP to achieve the objectives of the Regulation in the proposed time schedule. The request from the Commission includes 18 questions. The responses to these questions are elaborated below.

##### Request

###### BACKGROUND INFORMATION

*In line with article 6(2) of Council Regulation 1100/2007, Poland has submitted to the Commission an Eel management plan prepared together with Russia for the Polish-Russian zone of the Pregola drainage basin and Vistula lagoon ("the plan"). This plan can only be approved by the Commission after technical and scientific evaluation attesting that it is able to achieve the requirements and objectives of the Eel regulation. We request ICES to proceed with this evaluation, on the basis of the questions set out in the following terms of reference, and any other question that ICES considers relevant with regard to Regulation 1100/2007.*

###### TERMS OF REFERENCE

###### I. Methodology

*1/ Is the definition of the eel management unit in this plan appropriate in light of these ToR? Do the basins concerned constitute natural habitat for European eel? Have the objectives of the water framework directive (Directive 2000/60/EC) been taken into account when defining the eel management unit?*

*2/ Are the methods used by Poland and Russia to estimate biomass, fishing and other anthropogenic mortality reliable and compatible/consistent with the requirements of Regulation 1100/2007?*

*3/ Are the methods used by Poland and Russia to estimate the target level of escapement reliable and compatible/consistent with the requirements of Regulation 1100/2007 and, in particular, in line with one of the three ways provided for in article 2(5)?*

*4/ Are the methods used by Poland and Russia to estimate potential silver eel escapement reliable and compatible/ consistent with the requirements of Regulation 1100/2007?*

###### II. Description and analysis of the present situation

*5/ ICES should provide its assessment of the description and analysis of the present situation of the eel population in the territory concerned and comment on its reliability and completeness.*

*6/ ICES should provide its assessment of the mapping of the (fisheries and non-fisheries related) anthropogenic and non-anthropogenic mortality factors and comment on its reliability and completeness.*

---

\* Version 2; Section number corrected

7/ ICES should provide its assessment of the methodology to estimate the number of recreational fishermen and their catches and comment on its reliability and representativeness.

### III. Estimated efficiency of individual management measures

#### *Restocking*

08/ What is the expected contribution of the restocking measures towards the escapement target?

09/ Are the areas and times selected for restocking appropriate, i.e. could the restocked eels complete their inland lifecycle and begin their spawning migration from the restocked area?

10/ Are there adequate measures to ensure the traceability of restocked eels? In particular, are there measures to ensure that restocked eels not merely intended to maintain fisheries?

#### *Other measures*

11/ What is the potential contribution (in terms of silver eel biomass) of each proposed measure towards the achievement of the escapement target.

12/ If possible, please quantify the potential contribution of each proposed measure.

### IV. Overall efficiency

13/ Is the time schedule for the attainment of the target level of escapement set in a way that follows the gradual approach and takes into account an expected recruitment level?

14/ When is the plan expected to achieve the 40% escapement target? Would it be possible to achieve this target earlier?

15/ Will the plan contribute to the achievement of the targets set in the Polish national eel management plan?

### VI. Conclusion

16/ Are there any additional measures not included in the plan that would have contributed to the faster achievement of the 40% escapement target?

17/ Give a qualitative analysis of the possible effectiveness of the plan as a whole for the recovery of the stock of European eel.

18/ Taking into consideration the ICES advice on CITES non-detriment findings as well as past ICES advices on eel restocking, will the transfer of glass eels for restocking operations to Russia, as foreseen in the draft joint management plan by Russia and Poland, be non-detrimental to the status of the stock?

### **Elaboration on the advice**

**Question 1:** Is the definition of the eel management unit in this plan appropriate in light of these ToRs? Do the basins concerned constitute natural habitat for European eel? Have the objectives of the water framework directive (Directive 2000/60/EC) been taken into account when defining the eel management unit?

#### **ICES answer to Question 1**

The definition of the Pregola and its tributaries and the Vistula Lagoon is appropriate in light of these ToRs.

The Eel Management Unit (EMU) is a natural habitat for eel. This is based on the evidence of historical recruitment presented in the Trans-border management plan for the European eel, *Anguilla anguilla* (L.), in the Polish–Russian zone of the Pregola drainage basin and Vistula Lagoon (TEMPP), and on ICES advice to the Commission in 2007 (ICES, 2007).

The objectives of the Water Framework Directive (WFD) have been taken into account. The Pregola drainage basin is defined in the WFD as the main unit for river basin management (EU, 2012).

**Question 2:** *Are the methods used by Poland and Russia to estimate biomass, fishing and other anthropogenic mortality reliable and compatible/consistent with the requirements of Regulation 1100/2007?*

#### **ICES answer to Question 2**

The model used in the TEMPP is well described and ICES considers it to be consistent with the requirements of the EU Regulation No. 1100/2007 (EU, 2007), except for population size being expressed in numbers of individuals instead of biomass. However, the data used in the assessment are not described with sufficient detail or clarity for ICES to be confident of the results. ICES is therefore unable to evaluate whether the methods used are reliable and compatible/consistent with the requirements of the Regulation.

ICES identified several deficiencies in the data, including:

- Commercial catches for inland waters used in the assessment are from only three Polish fishing companies and are assumed to represent all inland waters despite there being other fishing companies in Poland. There is also an absence of information about fisheries in Russia.
- Data on recreational fisheries are estimated as a fixed proportion of the commercial landings, based on one study for 2012. It is unclear whether these results are representative of all recreational fisheries throughout the EMU and for the entire time period used in the assessment.
- It is unclear whether the estimate of illegal fishing catch from inland waters (40 t per year) relates to the TEMPP or the Polish Eel Management Plan (PEMP); the method is not substantiated. Illegal catches do not seem to have been taken into account in the assessment, but this is unclear.
- There are hydropower installations and other barriers to eel migration throughout most of the Polish inland waters, although it is difficult to be certain how much eel habitats are impacted.
- The justification for the estimated mortality of 25% due to hydropower for the entire basin is unclear. There is little information on hydropower in Russian waters, and it is not certain that the information is complete.
- The two countries are not consistent in their use of age determination methods.

**Question 3:** *Are the methods used by Poland and Russia to estimate the target level of escapement reliable and compatible/consistent with the requirements of Regulation 1100/2007 and, in particular, in line with one of the three ways provided for in article 2(5)?*

#### **ICES answer to Question 3**

The target level of escapement is set as 40% of the average escapement in the reference period. As such, ICES considers the method applied to be consistent with the Regulation.

However, ICES is unable to evaluate whether the estimated escapement in the reference period is reliable and compatible/consistent with the requirements of EU Regulation 1100/2007.

**Question 4:** *Are the methods used by Poland and Russia to estimate potential silver eel escapement reliable and compatible/consistent with the requirements of Regulation 1100/2007?*

**ICES answer to Question 4**

The model used in the TEMPP is based on that of Åström and Dekker (2007), used in some other EMPs submitted in 2008–2009. The TEMPP model assumes that natural recruitment is directly related to previous escapement. This is contrary to the dynamics of the whole stock. However, natural recruitment is anticipated to be very small and this anomaly is not expected to have a material impact on the forecasts. ICES therefore considers the method to be consistent with the requirements of EU Regulation 1100/2007.

**Question 5:** *ICES should provide its assessment of the description and analysis of the present situation of the eel population in the territory concerned and comment on its reliability and completeness.*

**ICES answer to Question 5**

The state of the eel population is described in terms of various biological parameters (size, age, gender, maturity status) as observed mostly in commercial catches or as output from the assessment model. Because of the uncertainties in the model input parameters (see answer to Question 2), ICES considers that the output of the assessment model should be treated with caution. Despite these uncertainties, the information presented in the TEMPP indicates that the eel population in the Pregola EMU is severely depleted and almost entirely reliant on restocking.

**Question 6:** *ICES should provide its assessment of the mapping of the (fisheries and non-fisheries related) anthropogenic and non-anthropogenic mortality factors and comment on its reliability and completeness.*

**ICES answer to Question 6**

The mapping of the waters in the Pregola EMU does not seem to be complete, in particular the mapping of the inland waters in the Russian territory appears incomplete. Several tributaries to the north of the main Pregola River are apparent on Google Earth but are not described in the TEMPP.

All potential anthropogenic and non-anthropogenic mortality factors have been identified in the TEMPP, but their locations have not all been mapped. Although the Polish ports in the Vistula Lagoon are mapped, the specific locations of fisheries are not shown on the maps. There is no information on the locations of inland fisheries in the Russian zone. The locations of hydropower facilities in the Polish Lyna and Węgorza tributary basins are shown, but not any others in waters downstream in the Russian territory.

**Question 7:** *ICES should provide its assessment of the methodology to estimate the number of recreational fishermen and their catches and comment on its reliability and representativeness.*

**ICES answer to Question 7**

There is no estimate of the number of recreational fishermen. The catches of recreational fishermen in inland waters of the Polish territory are estimated as a fixed proportion of the commercial landings, i.e. commercial landings  $\times$  0.27. This proportion is based on a single study conducted in 2012, the results of which were not available during the review. The justification for extrapolating the results of the study to all areas and years is not provided. Therefore, ICES cannot be confident of the reliability of this method, nor of its representativeness. No information is presented for the Russian territory.

**Question 8:** *What is the expected contribution of the restocking measures towards the escapement target?*

**ICES answer to Question 8**

The population is almost entirely reliant on restocking. This means that restocking is essential for achieving the escapement target. The level of restocking needed to achieve the escapement target depends on the level of total mortality (natural + anthropogenic). The forecast model explores the effect of changes in restocking, reducing fishing mortality, and reducing mortality at hydropower facilities.

In its 2015 advice on European eel (ICES, 2015a) ICES noted that there is evidence that translocated and stocked eel can contribute to yellow and silver eel production in recipient waters, but evidence of contribution to actual spawning is limited by the general lack of knowledge of the spawning of any eel.

**Question 9:** *Are the areas and times selected for restocking appropriate, i.e. could the restocked eels complete their inland lifecycle and begin their spawning migration from the restocked area?*

**ICES answer to Question 9**

The TEMPP does not describe the areas of restocking, and the timing is only inferred from the mention of September/October being the optimum period to restock fry. Therefore it is not possible to answer this question from the information available.

Restocked eels could complete their inland lifecycle and begin their spawning migration, but successful migration depends on the mortality within the restocked area.

**Question 10:** *Are there adequate measures to ensure the traceability of restocked eels? In particular, are there measures to ensure that restocked eels not merely intended to maintain fisheries?*

**ICES answer to Question 10**

The report describes no measures to ensure the traceability of restocked eels.

The plan includes a number of measures to reduce fishing mortality and thereby ensure that restocking contributes to escapement. However, ICES is not in a position to evaluate the effects of these measures.

**Question 11:** *What is the potential contribution (in terms of silver eel biomass) of each proposed measure towards the achievement of the escapement target.*

**ICES answer to Question 11**

The population is almost entirely reliant on restocking. This means that restocking is essential to achieve the escapement target; the level of restocking required depends on the level of total mortality (natural + anthropogenic). The forecast model explores the effect of changes in restocking, reducing fishing mortality, and reducing mortality at hydropower facilities. The TEMPP lists ten measures to be implemented to achieve the target. Except for the restocking measures, there is no information on the likely impact of these measures. Therefore, ICES is not in a position to evaluate the resulting contributions of these measures to achieving the escapement target.

**Question 12:** *If possible, please quantify the potential contribution of each proposed measure.*

**ICES answer to Question 12**

The potential contribution of the restocking measures has been assessed in the TEMPP. There is no information on the potential contribution of the other measures. Therefore, ICES is not in a position to quantify the resulting contributions of these measures to achieving the escapement target.

**Question 13:** *Is the time schedule for the attainment of the target level of escapement set in a way that follows the gradual approach and takes into account an expected recruitment level?*

**ICES answer to Question 13**

The time schedule for management scenarios follows a gradual approach, suggesting achievement in 25+ years, depending on the level of each management action. This approach does take natural recruitment into account. ICES is not in a position to evaluate whether this time schedule is realistic.

**Question 14:** *When is the plan expected to achieve the 40% escapement target? Would it be possible to achieve this target earlier?*

**ICES answer to Question 14**

The forecast simulations suggest that if the proposed measures result in a reduction in anthropogenic mortality as anticipated, the target would be achieved in about 25 years. ICES is not in a position to evaluate whether this is reliable and realistic.

It would be possible to achieve the target faster by further reducing anthropogenic and natural mortality and/or further increasing restocking.

**Question 15:** *Will the plan contribute to the achievement of the targets set in the Polish national eel management plan?*

**ICES answer to Question 15**

ICES notes that the national Polish Eel Management Plan (PEMP) also includes the Polish part of the Vistula Lagoon. There therefore seems to be an overlap in the EMUs in the TEMPP and PEMP plans. As the measures proposed in the TEMPP are in addition to those already implemented in the PEMP, the TEMPP may contribute to achieving the escapement targets of the PEMP.

**Question 16:** *Are there any additional measures not included in the plan that would have contributed to the faster achievement of the 40% escapement target?*

**ICES answer to Question 16**

Any measures that further reduce anthropogenic and natural mortality would contribute to faster achievement of the target.

Any measures resulting in reduced mortality on eel escapement from this EMU that are applied outside of the EMU may contribute through increased natural recruitment, but these are out of the scope of the TEMPP.

**Question 17:** Give a qualitative analysis of the possible effectiveness of the plan as a whole for the recovery of the stock of European eel.

#### ICES answer to Question 17

According to the most recent national estimates reported to the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL) in 2015 (ICES, 2016), the total references biomass (the virgin biomass of silver eel escapement in case of no anthropogenic mortality) for reporting countries (EU Member States) is estimated at 123 484 tonnes. As the 40% target is therefore 49 394 tonnes and the estimate of actual escapement in 2014 was 12 875 tonnes, the shortfall is 36 519 tonnes. The TEMPP, if successful, will produce an additional 58 300 silver eels, which equates to about 29 tonnes, assuming a mean weight of 0.5 kg. This is 0.079% of the required increase in silver eel escapement biomass. There are considerable uncertainties around each of these estimates, but they allow an indication of the relative contribution of the TEMPP to the recovery of the stock.

**Question 18:** Taking into consideration the ICES advice on CITES non-detriment findings as well as past ICES advices on eel restocking, will the transfer of glass eels for restocking operations to Russia, as foreseen in the draft joint management plan by Russia and Poland, be non-detrimental to the status of the stock?

#### ICES answer to Question 18

The European eel stock as a whole does not presently meet the criteria for supporting a non-detrimental finding (NDF) that ICES advised to CITES in 2015 (ICES, 2015b). Furthermore, ICES advised that, in the absence of knowledge, the scale to be used to make an NDF assessment should cover the entire stock of the European eel.

However, given that eels arising from the EU being restocked into the Russian part of this EMU have similar potential to become silver eels, emigrate out of the Baltic and spawn in the same way to those restocked in neighbouring Poland (or Lithuania) upstream of fisheries and hydropower facilities, there is no biological reason to assume that the restocking proposed here would have any different effect on the stock than restocking in Poland that is not prevented by CITES regulation (see answer to Question 8).

The reviewers note that an EU NDF would not be required if all the eel were stocked in Polish waters (inland and lagoon). Those eels would, however, have to emigrate through Russian waters to reach the Baltic and could thus be exploited by Russian fisheries or impacted by other anthropogenic pressures in the Russian zone.

#### Basis of the advice

Following the receipt of the request from the EU Commission, a review group was set up consisting of a panel of three independent eel experts (all members of WGEEL) to undertake this review. The report of the reviewers (Walker *et al.*, 2016) formed the basis for this advice.

#### Sources and references

Åström, A., and Dekker, W. 2007. When eel will recover ? A full life-cycle model stock. ICES Journal of Marine Science, 64(7): 1491–1498. doi: 10.1093/icesjms/fsm122.

EU. 2007. COUNCIL REGULATION (EC) No. 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel. Official Journal of the European Union, L 248/17. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R1100&rid=1>.

EU. 2012. Commission Staff Working Document. Member State: Poland. *Accompanying the document* Report from the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC). River Basin Management Plans. COM(2012) 670 final.

ICES. 2007. EC request on the Draft EU Guidelines for Eel Management Plans (EC regulation n° 1100/2007). *In* Report of the ICES Advisory Committee, 2007. ICES Advice 2007, Book 9, Section 9.3.2.6.

ICES. 2015a. European eel (*Anguilla anguilla*) throughout its natural range. *In* Report of the ICES Advisory Committee, 2015. ICES Advice 2015, Book 9, Section 9.3.10.

ICES. 2015b. EU request on criteria for CITES non-detriment finding for European eel (*Anguilla anguilla*). *In* Report of the ICES Advisory Committee, 2015. ICES Advice 2015, Book 9, Section 9.2.3.2.

ICES. 2016. Report of the Joint EIFAAC/ICES/GFCM Working Group on Eel (WGEEL), 24 November–2 December 2015, Antalya, Turkey. ICES CM 2015/ACOM:18. 130 pp.

Walker, A., Dekker, W., and Poole, R. 2016. Review of the Trans-border management plan for European eel, *Anguilla anguilla*, in the Polish–Russian zone of the Pregola River basin and Vistula Lagoon (TEMPP). ICES CM 2016/ACOM:49. 14 pp.