



agriculture, forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

FISHERIES/2012/FEB/SWG-PEL/11

Further information provided by the Small Pelagic Scientific Working Group in respect of the IFFO FISHERY ASSESSMENT REPORT of anchovy and redeye round herring.

Janet C. Coetzee and Doug S. Butterworth

Correspondence email: JanetC@daff.gov.za

ANCHOVY

Peer Review Evaluation:

“The South African management regime from the evidence assessed is robust and provides a solid framework for the management for the pelagic species within this fishery. The scientific evaluations of this stock and associated by catch stock are on-going and are used when management decisions on the total allowable catch (TAC) are made. The evidence of compliance to the set TAC to this scientific advice were positive and in compliance to the precautionary approach adopted within these pelagic fisheries. However, information on the fishing gear interaction with TEP species and what is recorded by the fishers was not available. The level of management enforcement was adequate but its effectiveness could also not be determined.”

Assessment determination

Approve, subject to more information being provided on the treatment and avoidance of TEP species bycatch by the fishery, and the effectiveness of enforcement agencies.

Specific questions raised by the assessor:

1. *What measures are in place to minimise TEP species bycatch? What reporting is required when bycatch of TEP species occurs?*

SPSWG response:

No catch of any “threatened, endangered or protected” species occurs. Penguins (or other seabirds), turtles, dolphins etc., are not caught and or injured in this fishery. Occasionally a seal dies (from entanglement in the net – but they are not considered TEP species, and the number of such deaths is very low compared to a population whose size is several hundred thousand animals). All bycatch is declared upon landing on the landing sheets. Targeting of any line-fish, squid, sharks, etc is not permitted and such catches are forfeited during offloading.

Category D3 (*Management measures should ensure that fishing gear and fishing practices do not have a significant impact on non-target species and the physical environment*) achieved medium compliance

and includes reference to biological aspects of the interaction between the anchovy fishery and the African Penguin (i.e., food requirements)

SPSWG response:

The Small Pelagic Scientific Working Group (SPSWG) is concerned about the population status of African Penguins and is committed to working with bird biologists and other specialists to ensure that the best available information is included in models being developed to describe and predict population trends. They also remain committed to investigating and quantifying impacts of the pelagic purse-seine fishery on penguins through the application of such models. Equally important, though, is the obligation to ensure that the best available science is applied before taking management decisions. A summary of ongoing penguin-pelagic fish related work being conducted under the auspices of the SPSWG is given below

- a) Investigation through multi-species models of whether a reduction in overall pelagic catches would result in improved penguin colony population growth rates
 - i). An initial analysis conducted in 2008 indicated that very large reductions in pelagic catches would achieve only slight improvements in penguin population growth rates, following which the decision was made not to amend the current approach to setting TACs for sardine and anchovy, which is in any case very conservative.
 - ii). The formula used to set these TACs comes under review in 2012. Associated with that further work on these penguin-fishery models has been continuing (see MARAM IWS/DEC11/P/PENG/P1), and updates will be taken into account in the evaluation process leading to formula revision later in 2012.
- b) Investigation of the possible impact of fishing near to penguin breeding colonies on reproductive success has followed a number of lines:
 - i). GLM analyses of impacts of fishing on demographic parameters monitored for penguins at Robben and Dassen Islands: these provide estimates of these impacts which have poor precision, but nevertheless broadly these estimates do not support the hypothesis that suspending fishing near Robben or Dassen Islands would enhance penguin reproductive success there (EAFWG/OCT2007/STG/04).
 - i). A model of the impact of fishing on anchovy recruits that are the primary food source for penguins breeding on Dassen and Robben Islands during the winter months. This showed that the fish densities present had been reduced only slightly from those which would have been present in the absence of fishing, and that the extent of reduction was less over the 2000+ period when penguins declined but anchovy recruitment was generally appreciably higher than in the 1990s when penguin numbers at these colonies increased (MCM/2010/SWG-PEL/Island Closure Task Team/20).
 - ii). A feasibility study involving closures around some islands to ascertain the information necessary to plan a possible extensive experiment along these lines was initiated in 2008. The intent of this study is to provide the information necessary to

undertake power analyses of the capability of such an experiment to be able to detect the impact of fishing on reproductive success (i.e. is it possible through experiments to improve existing results under i)?) This feasibility study was extended for another four years (MCM/2010/SWG-PEL/59).

- iii). One element of ii) has been monitoring foraging trip distance and duration during breeding periods. An analysis claiming that results from the Bird Island and St Croix colonies demonstrate positive results for penguins of fishing closures has been advanced but remains strongly contested.

2. How many fishery control vessels patrol the fishery? How frequently are vessels boarded by fishery control officers?

SPSWG response:

We understand that this aspect was clarified in a meeting with the Chief Directorate: Monitoring, Control and surveillance and is therefore not addressed here.

REDEYE ROUND HERRING

Peer review evaluation:

“The South African management regime from the evidence assessed is robust and provides a solid framework for the management for the pelagic species within this fishery. The scientific evaluations of this stock and associated by catch stock are on-going and are used when management decisions on this stock. The evidence of compliance to the set TAC to this scientific advice were positive and in compliance to the precautionary approach adopted within these pelagic fisheries . However, the Peer reviewer does agree with the assessment determination as stated in this report and the conditions for approval that have been cited.”

Assessment determination

The South African redeye round herring fishery is widely considered to be underdeveloped, and exists primarily as a subsidiary of the larger anchovy and sardine fisheries. While a precautionary catch limit is set for redeye, the majority of management measures and restrictions affecting the stock are applied at the ‘small pelagic fishery’ level and focussed more specifically on anchovy and sardine.

In the opinion of the assessment team, the research available suggests that the current levels of fishing are sustainable, and self-limiting due to the higher commercial value of sardine and anchovy (redeye has never formed more than 30% of the total small pelagic annual catch, and landings have never exceeded the highly precautionary upper catch limit).

The management of the similar, but fully-developed, sardine and anchovy fisheries provides an indication of the management regime which could be expected to be put in place as the redeye fishery develops. For this reason, the assessment team recommends the approval of this fishery, based on the condition that future surveillance audits should ensure that any development of the targeted fishery is accompanied by a development of the species-specific stock assessment and management process. Initial moves towards such development have already been begun (e.g. Moor & Butterworth, 2010).

In addition to these concerns, more information is required on the treatment and avoidance of TEP species bycatch by the fishery, and the effectiveness of enforcement agencies. This can be obtained during on-site assessment.

Specific questions raised by the assessor:

1. *What measures are in place to minimise TEP species bycatch? What reporting is required when bycatch of TEP species occurs?*
2. *How many fishery control vessels patrol the fishery? How frequently are vessels boarded by fishery control officers?*

SPSWG response:

Answers to these are the same as for anchovy and not repeated here.

In terms of the condition as set out above in the assessment determination that " future surveillance audits should ensure that any development of the targeted fishery is accompanied by a development of the species-specific stock assessment and management process"

SPSWG response:

The Small Pelagic Scientific Working Group (SPSWG) is committed to conducting a species-specific stock assessment for redeye. Initial attempts made in 2010 (mentioned above) will be expanded on in 2012/2013 as soon as the current revision of the anchovy-sardine OMP is concluded. In light of the outcome of the redeye assessment, the current precautionary upper catch limit (PUCL) of 100 000t will be evaluated in terms of similar resource risk criteria (as currently done for anchovy). Furthermore, the SPSWG has committed to more urgent action (such as immediate review of the PUCL) in the event that the survey biomass estimate of the redeye population falls below a level of 750 000t. Such a measure will ensure that catches of redeye will not exceed 13% of the exploitable biomass under the current management strategy [note that over recent years this percentage has hardly reached 5% (see updated time-series of biomass/catches/and exploitation level; Figs 1-3 below) , which certainly constitutes no threat to the resource, and that regular monitoring of catch and biomass levels would anyway lead to discussion in and possible reaction by the SPSWG if larger percentages started occurring regularly in

conjunction with a declining trend in survey estimates of abundance]. Whereas the department does support expansion of this fishery over the longer term, such expansion will also have to be managed according a pre-agreed OMP procedure, similar to that applied for managing the anchovy and sardine resources and that minimises risk to the resource. Additionally, the Ecosystems Approach to Fisheries Scientific Working Group (EAFSWG) will be expected to advise on the impact of increased catches of redeye on the rest of the ecosystem – as they currently also do for anchovy and sardine.

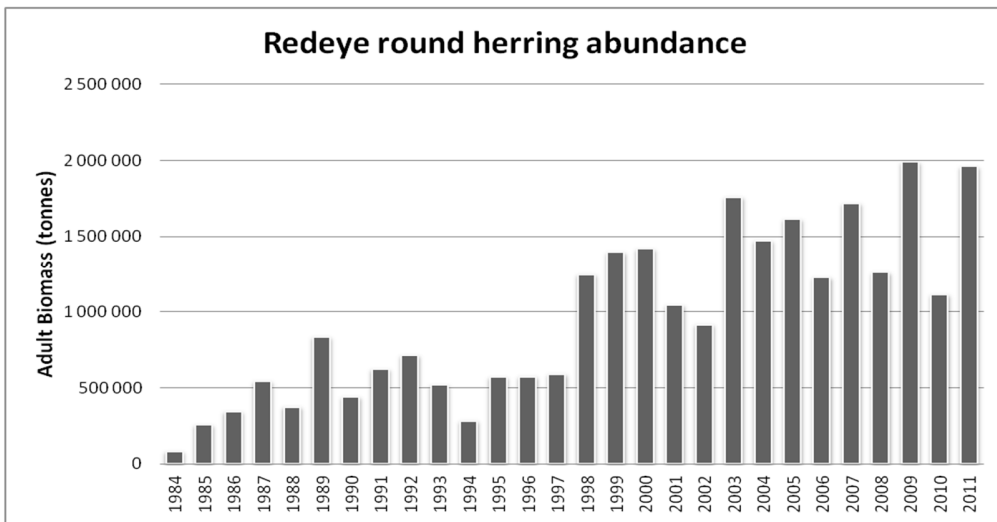


Figure 1. Acoustic survey biomass of redeye round herring measured in November

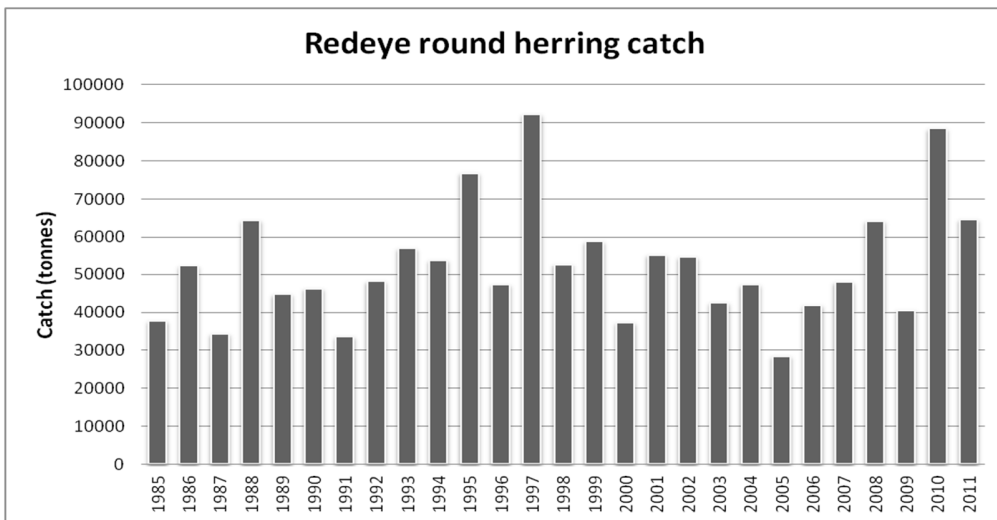


Figure 2. Catch of redeye round herring by the pelagic purse-seine fishery since 1985

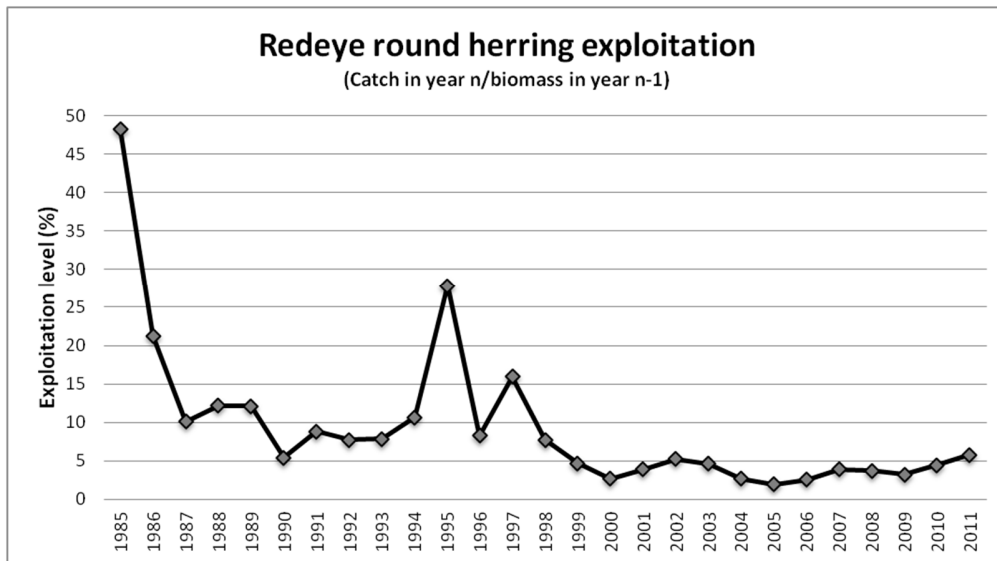


Figure 3. Catch of redeye round herring in any given year expressed as a percentage of the biomass measured in the previous November since 1985.