

FROM: DIRECTOR-GENERAL: MS PAM YAKO

TO: DDG: MCM

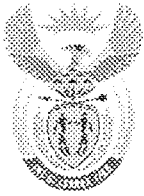
flow Details

COMMENTS: Approved

17658 Horse Mackerel PMCL 2008					
Date	Initiator:	Current Performer:	Due Date:	Done Date	Workflow Status:
Initiated: 05 December 2007 12:22 PM	Beryl Batties	WF: ODG Scan Registry	20 December 2007 01:08 PM		Executing
Initiator Comments:					
Step Details...					
Step Name	Performer	Task Disposition	Due Date	Done Date	Comments
Step 2 - Director	Theressa Akkers	Forward to CD	07 December 2007 12:22 PM	05 December 2007 04:33 PM	
Step 3 - Chief Director	Andre Share	Recommended	07 December 2007 04:33 PM	10 December 2007 02:20 PM	Dear DDG New version has been added. Regards Andre
Step 4 - Deputy Director-General	Monde Mayekiso	Recommended	12 December 2007 02:20 PM	11 December 2007 04:11 PM	
Step 5 - Chief Financial Officer (MCM)	Saliem Mohamed	Funds available	13 December 2007 04:11 PM	13 December 2007 04:52 PM	
Step 6 - Chief Operating Officer	Nosipho Jezile	Recommended	17 December 2007 04:52 PM	14 December 2007 11:36 AM	
Step 7 - Language Practitioner	Betta Coetzee		18 December 2007 11:36 AM	14 December 2007 11:47 AM	
Step 8 - Director-General	Pam Yako	Recommended	18 December 2007 11:47 AM	14 December 2007 11:56 AM	
Step 8D - Print Documents for DG	Betta Coetzee		18 December 2007 11:56 AM	14 December 2007 01:08 PM	
Step 8E - Scan & Attach Signed Submission	WF: ODG Scan Registry		18 December 2007 01:08 PM		
Step 9 - Workflow Complete	WF: D:O&HSFM		20 December 2007 01:08 PM		

MINISTERIE VAN OMGEWINGSAKE EN TOERISME
 PRIVAATSAK X 447
 PRETORIA 0001
 2007 -12- 17
 PRIVATE BAG X 447
 PRETORIA 0001
 MINISTRY OF ENVIRONMENT AFFAIRS AND TOURISM

17658



environment
& tourism

Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA

Reference: V1/20/5/1/2

MINISTER

PRECAUTIONARY MAXIMUM CATCH LIMIT (PMCL) FOR THE 2008 HORSE MACKEREL FISHING SEASON

1. PURPOSE

- 1.1 To request that you determine the Precautionary Maximum Catch Limit (PMCL) for the 2008 Horse Mackerel fishing season in terms of the provisions of Section 14 of the Marine Living Resources Act, 1998 (Act No. 18 of 1998).

2. SUMMARY

- 2.1 For 2008 it is recommended that the Horse Mackerel Precautionary Maximum Catch Limit (PMCL) remains at 44 000 tonnes and that this limit includes 31 500 tonnes allocated to the targeted mid-water trawling fleet and 12 500 set aside as a reserve for incidental by-catch in the demersal trawl fishery. The annual catch of juvenile horse mackerel (5 000 tonnes) in the purse-seine fishery (which is not a component of the PMCL) is not to be exceeded. The fishing season for horse mackerel is from 1 January to 31 December.

3. BACKGROUND

- 3.1 For the 2007 season you determined a PMCL of 44 000 tonnes for the horse mackerel fishery (Annexure A).
- 3.2 The Department considered the recommendations from the Chief Directorate: Research, Antarctica and Islands of the Branch: Marine and Coastal Management (as per Annexure B) and wishes to advise as follows:

- Adult horse mackerel are taken as a by-catch by the demersal trawl fleet, and as a targeted catch by the mid-water trawl fleet, mainly on the South Coast. In addition, the pelagic purse-seine fleet on the West Coast takes juvenile horse mackerel as a by-catch.
- Horse mackerel is a low-priced commodity with low profit margins. The mid-water trawl fishery requires large powerful vessels and there is currently only scope for two (2) such dedicated vessels in the fishery.
- The Department is in the process of implementing a capacity management regime for hake that also takes account of the vessel capacity required to catch both hake and horse mackerel on dual-purpose bottom and midwater-trawl vessels that have hake and horse mackerel allocations. Further work is needed for the capacity management regime of the dedicated midwater trawler. It is envisaged that the capacity management of the dedicated midwater trawler would be implemented by early 2008.
- The PMCL was increased to 44 000 tonnes in 2002, with the intention of maintaining it at that level until 2005 unless a negative impact to the higher catches were detected. In 2002, the landed catch was well below the catch level due to problems experienced with the main fishing vessel. The annual landed catch from 2003 – 2005 was in the region of 30 000 t. It is estimated that this catch levels would be maintained for 2007.
- Improved direct survey indices of abundance are needed to enhance the resource assessments.

4. OTHER BRANCHES/CHIEF DIRECTORATES CONSULTED

- 4.1 The Chief Directorates Marine Resource Management and Research, Antarctica and Islands have been consulted.

5. IMPLICATIONS

Personnel	:	Limited
Financial	:	None
Communication	:	Limited

6. RECOMMENDATION

It is recommended that:

6.1 a global Precautionary Maximum Catch Limit (PMCL) of 44 000 tonnes of horse mackerel is determined for the 2008 season and it be apportioned and allocated as follows:

Commercial Fishing	:	31 500 tonnes (directed mid-water fishery) 12 500 tonnes (incidental bycatch in the demersal trawl fishery)
Recreational Fishing	:	Nil allocation
Subsistence fishing	:	Nil allocation
Foreign Fishing	:	Nil allocation

6.2 the annual catch of juvenile horse mackerel in the purse-seine fishery (not part of the Precautionary Maximum Catch Limit) does not exceed 5 000 tonnes.

DIRECTOR-GENERAL

DATE:


RECOMMENDATION IN PARAGRAPH 6.1 APPROVED/~~NOT APPROVED~~

RECOMMENDATION IN PARAGRAPH 6.2 APPROVED/~~NOT APPROVED~~

MINISTER 

DATE:

Countersign on 14/01/08.


MINISTER APPROVED
TELEPHONICALLY ON
19 DECEMBER 2007

11609

ANNEXURE A



environment & tourism

Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA

Reference: V1/20/5/1/2

MINISTER

PRECAUTIONARY MAXIMUM CATCH LIMIT (PMCL) FOR THE 2007 HORSE MACKEREL SEASON

1. PURPOSE

- 1.1 To request that you determine the Precautionary Maximum Catch Limit (PMCL) for the 2007 Horse Mackerel season in terms of the provisions of Section 14 of the Marine Living Resources Act, 1998 (Act No. 18 of 1998).

2. SUMMARY

For 2007 it is recommended that the Horse Mackerel Precautionary Maximum Catch Limit (PMCL) remains at 44 000 tonnes and that this limit includes 31 500 tonnes allocated to the targeted mid-water trawling fleet and 12 500 set aside as a reserve for incidental bycatch in the demersal trawl fishery. The annual catch of juvenile horse mackerel (5 000 tonnes) in the purse-seine fishery (which is not a component of the PMCL) is not to be exceeded. The fishing season for horse mackerel is from 1 January to 31 December.

3. BACKGROUND AND DISCUSSION

For the 2006 season you determined a PMCL of 44 000 tonnes for the horse mackerel fishery (Annexure A).

The Department considered the recommendations from the Chief Directorate: Research, Antarctica and Islands of the Branch: Marine and Coastal Management (as per Annexure B) and wishes to advise as follows:

- Adult horse mackerel are taken as a bycatch by the demersal trawl fleet and as a targeted catch by the mid-water trawl fleet, mainly on the South Coast. In addition the pelagic purse-seine fleet on the West Coast takes juvenile horse mackerel as a bycatch.
- Horse mackerel is a low-priced commodity with low profit margins. The mid-water trawl fishery requires large powerful vessels and there is currently only scope for two such dedicated vessels in the fishery.
- The PMCL was increased to 44 000 tonnes in 2002, with the intention of maintaining it at that level until 2005 unless a negative impact to the higher catches were detected. In 2002, the landed catch was well below the catch level due to problems experienced with the main fishing vessel. The annual landed catch in 2003 and 2004 was in the region of 30 000 t.
- Improved direct survey indices of abundance are needed to enhance the resource assessments.

4. IMPLICATIONS

Personnel	:	Limited
Financial	:	None
Communication	:	Limited

5. RECOMMENDATION

It is recommended that:

5.1 a global Precautionary Maximum Catch Limit (PMCL) of 44 000 tonnes of horse mackerel is determined for the 2007 season and it be apportioned and allocated as follows:

Commercial Fishing	:	31 500 tonnes (directed mid-water fishery) 12 500 tonnes (incidental bycatch in the demersal trawl fishery)
Recreational Fishing	:	Nil allocation
Subsistence fishing	:	Nil allocation
Foreign Fishing	:	Nil allocation

5.2 the annual catch of juvenile horse mackerel in the purse-seine fishery (not part of the Precautionary Maximum Catch Limit (PMCL) do not exceed 5 000 tonnes.

Recommended by DG on EDMS 21/12/2006.

DIRECTOR-GENERAL

DATE:

~~RECOMMENDATION IN PARAGRAPH 5.1 APPROVED/NOT APPROVED~~

~~RECOMMENDATION IN PARAGRAPH 5.2 APPROVED/NOT APPROVED~~

*Minister approved telephonically 22/12/2006 @ 18h00.
Will countersign on return to office.*

MINISTER

DATE:


22/12/2006

Countersign on 15/1/07




 RECOMMENDATION ON THE *PMCL* FOR CAPE HORSE MACKEREL FOR THE YEAR 2008

Summary

It is recommended that:

- The *PMCL* for horse mackerel for 2008 **remain at 44 000 t**. This limit is to include 31 500 t allocated to rights holders for targeted midwater trawling, and 12 500 t set aside as a reserve to cover incidental bycatch in the demersal trawl fishery.
- The annual catch of juvenile horse mackerel in the purse-seine fishery should not exceed 5 000 t (note that this is not a component of the *PMCL*). Pending further analyses, reasonable flexibility should be exercised regarding this limit during years when the high incidence of mixed-species shoals makes it very difficult for the pelagic fleet to avoid juvenile horse mackerel. The pelagic industry should implement management procedures to prevent targeting, and to limit bycatch, of juvenile horse mackerel.
- A portion of the hake *TAC* must be set aside as a reserve to account for hake bycatch in the horse mackerel-directed midwater trawl fishery. This reserve should be about 2% of the horse mackerel allocation for directed midwater trawl.

Background

Adult horse mackerel are taken as a bycatch by the demersal trawl fleet, and as a targeted catch by the mid-water trawl fleet, mainly on the South Coast. In addition the pelagic purse-seine fleet on the West Coast takes juvenile horse mackerel as a bycatch.

Trawl catches occur primarily on the South Coast and commenced in the mid-1960s, peaking in 1977 (at 93 000 t). Following the declaration of the exclusive economic zone (EEZ) in 1977, catches levelled off at between 25 000 and 40 000 t. When foreign fleets were finally phased out in 1991, annual catches (now by South African vessels only) declined to between 20 000 and 30 000 t. While demersal trawl catches have remained low in recent years, the re-establishment of a mid-water fishery for horse mackerel in 1997 has resulted in an increase in the annual catch (Fig. 1).

The purse-seine catches peaked in the early 1950s (at 118 000 t), declined to 80 000 t in the late 1950s, 40 000 t in the mid-1960s and finally levelled off at approximately 3 000 t between the early 1970s and late 1980s. The large surface schools of adult horse mackerel that were targeted by the early purse-seine fleet have disappeared from the South African West Coast. In the 1990s, purse-seine catches again showed an increasing trend, reaching 26 000 t in 1998. Although this catch level appears low compared to that of the 1950s and 1960s, recent purse-seine catches are of juvenile fish. Consequently, the number of fish per ton caught by purse-seine in 1998 is much greater than was the case during the 1950s. The increasing pelagic catches prompted modelling of the likely effects of large catches of pelagic juvenile horse mackerel on the trawl fishery for adults, resulting in the introduction of an upper limit for purse-seine catches. Since 1999 the annual purse-seine catch has averaged 3 400 t.

RECOMMENDATION ON THE *PMCL* FOR CAPE HORSE MACKEREL FOR THE YEAR 2008

Assessment

A surplus production model using the Japanese catch-per-unit-effort (*CPUE*) time series combined with survey biomass and egg abundance indices was used as the basis to set a total allowable catch (*TAC*) for the fishery in 1990 and 1991. With the phasing out of the foreign fleets in 1991, the Japanese *CPUE* time-series was terminated so that this assessment method could no longer be applied, and a *PMCL* of 40 000 t was set for 1992 (Fig 1).

A yield-per-recruit type modelling approach which determined the proportion (λ) of the pre-exploitation biomass that could be harvested in order to produce a maximum sustainable yield, developed in 1992 was used as the basis to set *PMCLs* for 1993 to 1997. However these catch limits were not reached. This model was refined in 1997 and used to set *PMCLs* (which were more conservative) for 1998 to 2000.

During 1999, an age-structured production model was developed for horse mackerel, based on total annual landings of both trawl and pelagic fisheries. The results suggested that there is a pronounced yield-per-recruit effect, i.e. the horse mackerel stock is very sensitive to purse-seine catches with even a small pelagic catch having a substantial negative effect on the level of demersal catch that can be sustained. Based on this model, in 2001 a *PMCL* of 34 000 t was set for the trawl fishery. In addition it was recommended that the bycatch of juvenile horse mackerel in the pelagic fishery should not exceed 5 000 t.

The models developed for the horse mackerel resource have, of necessity, been conservative because of the lack of information content in the available data. In response to increased demand for access to the resource, the age-structured model was updated in 2001 and used to project expected resource response to different management options. These showed that, under reasonable assumptions of steepness (*h*) and catchability (*q*) parameters, the *PMCL* could be increased from 34 000 to 44 000 t per annum for the next four years without appreciable risk. Consequently the *PMCL* was increased to 44 000t in 2002, with the intention of maintaining it at that level until 2005 unless a negative impact to the higher catches were detected. In 2002, the landed catch was well below the catch level due to problems experienced with the main fishing vessel. The annual landed catch in since 2003 has been in the region of 30 000 t.

This year a routine update of the existing assessment model was carried out, taking account of updated catch data (Fig. 1) and further demersal trawl survey swept-area estimates of biomass (Fig. 2). The results and projections under current catch levels were very similar to those obtained previously, upon which past recommendations have been based. Thus no negative impacts from recent levels of catch have been detected, so that maintenance of the current levels of catch limitation is considered appropriate.

Future Work

Improved direct survey indices of abundance (using either hydro-acoustic or bottom trawl or a combination thereof) are needed to enhance the resource assessments. To this end, MCM completed a project in October 2004 to improve the estimates of horse mackerel target strength. In addition, a joint MCM/Industry project was planned for October 2004 to test the feasibility of utilising a commercial vessel for undertaking acoustic surveys in conjunction with normal commercial fishing operations in order to obtain relative estimates of abundance. However due to financial constraints caused by the strengthening Rand, dropping market prices and increasing fuel prices the Industry withdrew. Further work planned for 2005 was also cancelled. A 10-day hydro-acoustic survey of horse mackerel was completed in October 2006 directly after the bottom trawl survey of demersal resources on the South Coast. The hydro-acoustic estimates of horse mackerel biomass were substantially lower than the bottom trawl estimates and the assessment model predictions; the latter result is most likely a consequence of the fact that horse mackerel close to the seabed

RECOMMENDATION ON THE *PMCL* FOR CAPE HORSE MACKEREL FOR THE YEAR 2008

are not acoustically detectable. A further hydro-acoustic survey of horse mackerel was planned for October 2007, but this survey was cancelled due to budget constraints.

Revision of the horse mackerel model was planned for 2007, but this work has now been deferred to 2008. Both hydro-acoustic and demersal surveys have proved to be problematic due to the semi-pelagic behaviour of horse mackerel. Horse mackerel in the water column are not available to the demersal trawl, while as indicated above horse mackerel close to the seabed are not detectable by hydro-acoustic methods. However, preliminary analyses of hydro-acoustic data collected during surveys of the small pelagic resources suggest that it may be possible to develop a biomass index for juvenile horse mackerel on both the west and south coasts. This index could be used in the horse mackerel assessment and for annual adjustments of the quantum which the pelagic fishery is requested not to exceed.

Associated issues

Horse mackerel are a low priced commodity with low profit margins. The midwater trawl fishery requires large powerful vessels capable of towing relatively fast and of processing large volumes of catch. Consequently there is scope for only two such dedicated vessels in the fishery.

It is not economically viable for smaller vessels to undertake purely horse mackerel directed fishing campaigns. However, right holders who hold both hake and horse mackerel allocations can profitably use smaller vessels provided that they are permitted to carry both bottom and midwater trawl gears allowing them to switch to midwater horse mackerel targeted fishing when horse mackerel concentrations are located during hake directed fishing. Vessels carrying both bottom and midwater gear should not be granted access to the hake and horse mackerel bycatch reserves, but should declare all hake and horse mackerel against their allocations of these species.

Horse mackerel often occur close to the seabed. At such times large incidental by-catches of horse mackerel are taken during hake-directed bottom trawl operations. Consequently there is a need for a substantial horse mackerel reserve to cover these periodic incidental catches. However, it is not expected that this reserve would be fully utilised every year.

Recommendations

It is recommended that:

- The *PMCL* for horse mackerel for 2008 remain at 44 000 t. This limit is to include 31 500 t allocated to rights holders for targeted trawling, and 12 500 t set aside as a reserve to cover incidental bycatch in the demersal trawl fishery.
- The annual catch of juvenile horse mackerel in the purse-seine fishery should not exceed 5 000 t (note that this is not a component of the *PMCL*). Pending further analyses, reasonable flexibility should be exercised regarding this limit during years when the high incidence of mixed-species shoals makes it very difficult for the pelagic fleet to avoid juvenile horse mackerel. The pelagic industry should implement management procedures to prevent targeting, and to limit bycatch of juvenile horse mackerel.



C.J Augustyn

Chief Director: Research, Antarctica and Islands

Date: 15/11/2007

RECOMMENDATION ON THE *PMCL* FOR CAPE HORSE MACKEREL FOR THE YEAR 2008

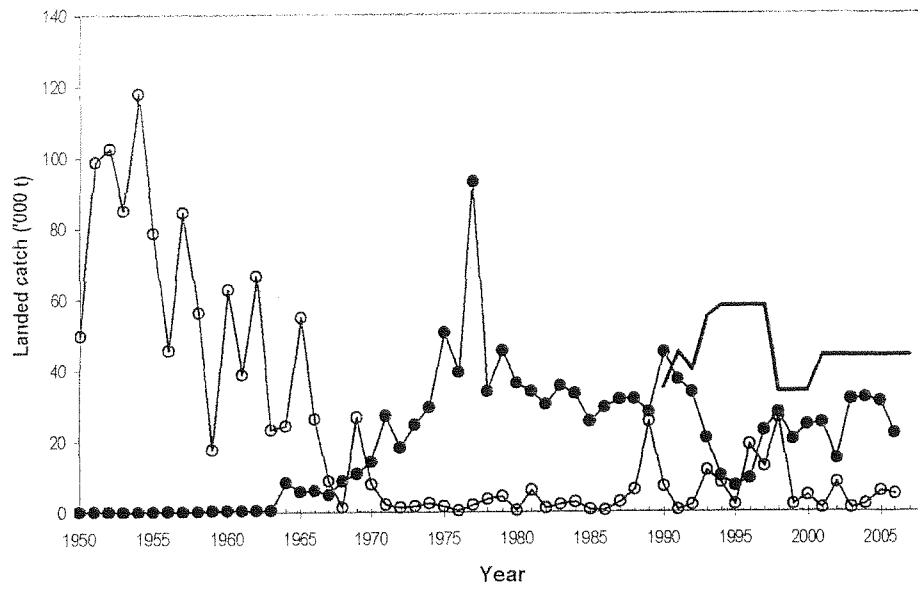


Figure 1: Annual horse mackerel catches by the purse-seine (open circles) and trawl (solid circles) fisheries. The heavy line indicates the TAC/PMCL set for the trawl fishery since 1991. Note that "Trawl" includes both bottom and midwater.

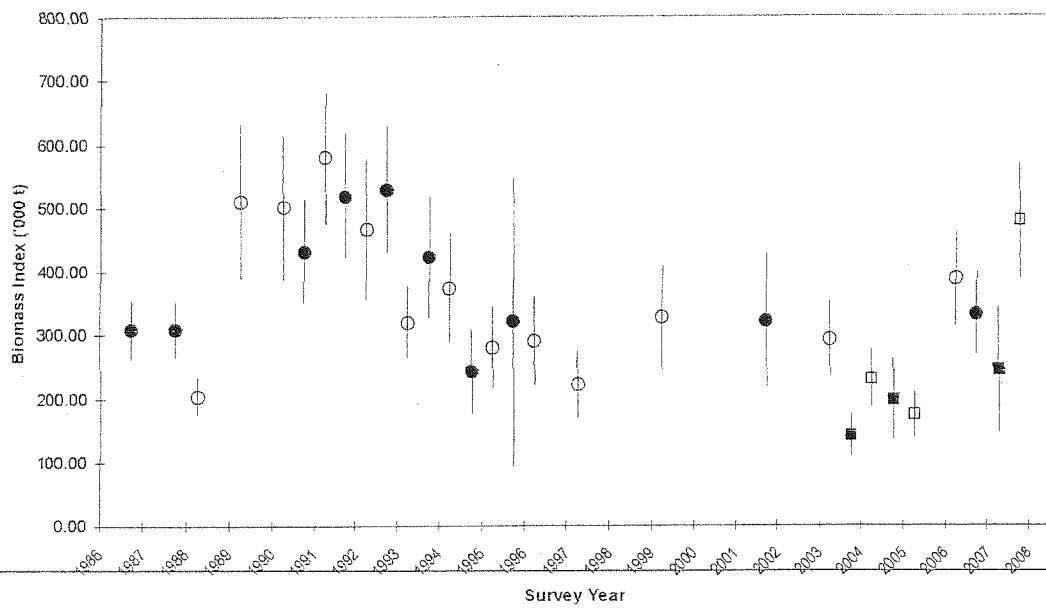


Figure 2: Spring (solid symbol) and autumn (open symbol) survey biomass indices and 95% confidence intervals for the horse mackerel resource on the southeast coast of South Africa. Note: The trawl gear was changed in July 2003 and time series using the old trawl gear (circles) is not directly comparable to that using the new gear (squares), see text for further details.