

## CONSIDERATION OF CONSERVATION MEASURES

### Review of Existing Measures

76. The Commission agreed that Conservation Measures 2/III, 3/IV, 4/V, 5/V, 6/V and 7/V should remain in force as they stand. Conservation Measures 11/VII and 12/VII expired on 20 November 1989 and at the end of the 1988/89 season, respectively. As there was no consensus on the retention of Conservation Measure 1/111, it is no longer in force. Certain of these Conservation Measures were discussed further in the light of advice from the Scientific Committee.

77. The general fisheries management strategy of the Commission (CCAMLR-VI, paragraphs 59 to 65, 80 to 83; CCAMLR-VII, paragraphs 87, 88 and 90), has attempted to restore depleted populations and to limit fishing mortality to low levels of  $F$ , preferably  $F_{0.1}$ , by means of some combination of TACs and protection for small fish. The protection for small fish would be achieved by some combination of:

- (a) establishing a minimum mesh size that will allow small fish to escape capture;
- (b) prohibiting fishing in certain areas where small fish are most likely to be caught; and
- (c) prohibiting fishing during certain periods of time when small fish are most likely to be caught.

78. The situation of a species which while being protected to permit restoration, forms a by-catch in a directed fishery for another species, has been an additional and particular, source of concern.

79. The Commission had requested specific advice from the Scientific Committee on the topics set out in CCAMLR-VI, paragraph 84; CCAMLR-VII, paragraphs 113 to 116 and 188.

80. The Commission noted that the Scientific Committee had, through its WG-FSA, provided detailed advice in respect of:

- (a) mesh size to effect specific potential levels of protection for juvenile fish;
- (b) closed seasons;

- (c) explicit comments in respect of Commission questions directed at the *C. gunnari*, *N. gibberifrons* and *N. rossii* fisheries;
- (d) TACs based especially on the  $F_{0.1}$  level of fishing mortality, but including advice in situations where this approach was judged inappropriate;
- (e) general management advice on a wide variety of stocks and areas.

81. In respect of mesh selection, the Scientific Committee recommended (SC-CAMLR-VIII, paragraph 3.18) that the Commission consider introducing the following minimum mesh sizes for the commercial fisheries in Statistical Area 48:

- (a) Subarea 48.3
  - (i) Fishery targeted at *C. gunnari*  
80 mm, to protect immature fish, or  
90 mm to protect first spawners, or  
100 mm, to give an age at first capture of 4 years;
  - (ii) Fishery targeted at *Patagonotothen brevicauda guntheri*  
50 m, to protect immature fish;
  - (iii) Mixed fishery (not targeted at *C. gunnari* or *P.b. guntheri*)  
120 mm extended to include *N. gibberifrons*, *Chaenocephalus aceratus* and *P. georgianus* (in addition to *N. rossii* and *Dissostichus eleginoides*, which have had such a mesh regulation since 1984 – Conservation Measure 2/III), to ensure better protection of immature fish;
- (b) Subareas 48.1 and 48.2  
110 mm, to ensure protection of first spawners of *C. gunnari* and immature *N. gibberifrons*.

In addition, the Scientific Committee recommended inclusion of a provision prohibiting use of chafers and specifying that codends should be of diamond-shaped mesh with twine no thicker than 4.5 mm.

82. The Commission noted that it should have reached the point when the mesh size regulation, adopted in 1984, might be reviewed after five years of operation, on the basis of completed selectivity experiments. The Soviet Union indicated that it was unable to agree to new mesh size

requirements additional to those which already existed in Conservation Measure 2/III. Therefore, no consensus could be reached on the implementation of the Scientific Committee's recommendations. The other Members of the Commission regretted this decision. It was further noted that lack of consensus and failure to act on the advice of the Scientific Committee does not encourage Members to undertake further costly experiments on mesh selectivity. However, there are still a number of questions to be solved including especially the construction of codends and their rigging etc. and escapement and survival rates of fish.

83. It was agreed that Conservation Measure 2/III should remain in force.

84. In respect of closed seasons to protect young fish and spawning grounds/aggregations, the Scientific Committee endorsed (SC-CAMLR-VIII, paragraph 3.66) the recommendation of the WG-FSA (SC-CAMLR-VIII, Annex 6, paragraph 198) that a closed season should operate from 1 March to the end of the Commission meeting.

85. The Commission noted this advice and that the original questions (CCAMLR-VII, paragraph 116) had been addressed to the *C. gunnari* fishery. It was noted the desire of several Members of the Commission that the 1989/90 fishery should not start until 15 January 1990. Accordingly, the Commission agreed, without prejudice to future decisions about closed seasons, to close the *C. gunnari* fishery in Subarea 48.3 from 20 November 1989 to 15 January 1990 and from 1 April to 4 November 1990.

86. In respect of the Commission's questions concerning *N. gibberifrons* and *N. rossii* (CCAMLR-VII, paragraph 114 (ii)), the Commission noted that the Scientific Committee had advised that:

- (a) The calculation of  $F_{\max}$  is dependent on a particular equilibrium assumption of constant recruitment and hence is violated when recruitment declines. The priority for these stocks should be to facilitate recovery to a level where recruitment improves.
- (b) Although juvenile *N. rossii* may be experiencing increased predation from Antarctic fur seals, *A. gazella*, low recruitment associated with low spawning stock size is the most likely cause of the currently low recruitment.
- (c) Use of semipelagic or midwater trawls would reduce by-catch of *N. gibberifrons* and *N. rossii*. However, the use of midwater trawls might also result in increased targeting of the youngest age classes of *C. gunnari*.

- (d) Persistent catch levels as high as four times TAC calculated from  $F_{\max}$  will drive *N. gibberifrons* stocks to extinction.

87. In respect of the Commission's request (CCAMLR-VII, paragraph 114 (i)) for advice on the likely trajectories of *C. gunnari* catch, total biomass and spawning biomass and the effects of different patterns of fishing mortality, a summary of the conclusions of (and discussions about) the analyses addressing these questions is presented in paragraphs 67 to 71 of the WG-FSA Report (SC-CAMLR-VIII, Annex 6). The general conclusion (SC-CAMLR-VIII, Annex 6, paragraph 72) is that the two studies, although based on different approaches, provide essentially similar advice with regard to the South Georgia *C. gunnari* fishery: That is, a pause of one to two years to let the spawning stock recover and thereafter a conservative fishing mortality rate not higher than  $F_{0.1}$ .

88. The Commission's discussion of the management advice provided by the Scientific Committee focussed on Statistical Area 48 generally and Subarea 48.3 in particular.

89. The Commission noted the difficulties the Scientific Committee had in providing agreed management advice recommending specific TACs and/or other measures to limit fishing mortality and protect juvenile fish. It recognised that this was because of:

- (a) difficulties in reconciling the results of different approaches (e.g. UK/Polish surveys and USSR VPA analysis of *C. gunnari* in Subarea 48.3);
- (b) lack of data to investigate the causes of historical fluctuations and apparent trends in catches (e.g. *C. gunnari* and *N. gibberifrons* in Subareas 48.1 and 48.2 and to a lesser extent *C. gunnari* in Subarea 48.3); and
- (c) lack of current data on existing directed fisheries (e.g. *Electrona carlsbergi* and *D. eleginoides* in Subarea 48.3).

90. Concerning the state of fisheries in Statistical Area 48 as described in the WG-FSA and the Scientific Committee Reports, the view of most Members was that all available evidence indicated that restoration of significantly depleted stocks would best be achieved by a complete closure of all three subareas, and especially Subarea 48.3, to finfishing.

91. The Soviet Union expressed the opinion that an approach which examined individual stocks is adequate to ensure the conservation of fish resources.

92. Members reviewed the advice of the Scientific Committee on a stock by stock basis.

*Champscephalus gunnari* in Subarea 48.3

93. The Commission examined the two assessments of the *C. gunnari* stock considered by the Scientific Committee and noted the large discrepancy between them. The Commission further noted that if the higher biomass estimate is in error, then a TAC set on this basis will lead to a substantial depletion of the stock. However, if the lower biomass estimate is in error, then a TAC set on this basis will simply result in more, larger fish being available to the fishery the following year.

94. The Commission agreed a TAC for *C. gunnari* in Subarea 48.3 of 8 000 tonnes, being a TAC based on the lower biomass of  $F_{0.1}$  plus an addition to allow for the area not covered in the survey which provided that biomass estimate.

*Notothenia gibberifrons* in Subarea 48.3

95. Taking account of the Scientific Committee's recommendation, the Commission agreed there would be no directed fishery for *N. gibberifrons* in Subarea 48.3 and by-catch would be restricted to not more than 300 tonnes.

96. It noted with concern, however, that in 1988/89 the by-catch of *N. gibberifrons* associated with a catch of *C. gunnari* of 21 359 tonnes in Subarea 48.3 was 838 tonnes. Such a catch was nearly twice the level at  $F_{0.1}$ .

*Chaenocephalus aceratus* and *Pseudochaenichthys georgianus* in Subarea 48.3

97. The Commission noted the endorsement by the Scientific Committee (SC-CAMLR-VIII, Annex 6, paragraph 109) that no directed catches be taken and the by-catch reduced to a minimum to allow recoveries of these stocks.

*Notothenia squamifrons* in Subarea 48.3

98. The Commission noted with concern the Scientific Committee's comments about the absence of information from which to calculate a TAC or estimate a potential yield. It agreed that there should be no directed fishery for this species in the 1989/90 season.

99. In accordance with paragraphs 93 to 95 above, Conservation Measures 13/VIII, 14/VIII and 15/VIII were adopted.

*Electrona carlsbergi* in Subarea 48.3

100. The Commission noted with concern the 25-fold increase in catches between 1987 and 1989 and the absence of data made available on which to base stock assessment and management advice.

*Patagonotothen brevicauda guntheri* Subarea 48.3

101. The Commission noted with concern the Scientific Committee's comments concerning the lack of adequate data for accurately assessing current stock size and the consequent difficulty in making specific management recommendations.

102. The Commission recollected that last year, in the absence of specific recommendations, it had decided to limit the catch of *P.b. guntheri* to a level between the catches of the previous two years. This year, in view of the fact that adequate management data was still unavailable, it was decided to set the catch limit at a slightly lower level; a TAC of 12 000 tonnes was agreed.

103. Conservation Measure 16/VIII was adopted.

*Dissostichus eleginoides* in Subarea 48.3

104. The Commission echoed the Scientific Committee's concern at the rapid rise in catch levels concurrent with the commencement of a longline fishery and the very limited data available for any estimation of stock size.

105. The Commission noted the advice of the Scientific Committee that a biomass figure of 40 000 tonnes, some five times the stock estimate obtained by the FRG survey in 1984/85 using a bottom trawl, provided a useful basis for setting a TAC. Applying a standard method to this figure gives a TAC of 1 200 tonnes.

106. Most Members of the Commission were of the view that this advice represents the best scientific evidence available, and hence should be useful to set a TAC. The USSR stated that the longline fishery takes senescent fish. Consequently, they did not agree that setting any TAC for the longline fishery was justified. They stated that they would not increase the number of vessels taking part in the fishery by more than one or two above the six vessels used in the 1988/89 season.

107. The Commission reiterated its concern at the commencement of an unregulated fishery of a type known elsewhere in the World to cause substantial incidental mortality of seabirds (see paragraph 24 above).

108. As a result of this discussion, the Commission adopted Resolution 5/VIII.

109. The Commission agreed that past catch and effort data shall be submitted as a matter of urgency, using the format agreed by the Scientific Committee. Future catch and effort data shall be collected and submitted. The USSR also undertook to provide full biological data from the longline catches including age compositions, length compositions, age/length keys, age-maturity stage data and age-fecundity data.

*Chamsocephalus gunnari* and *Notothenia gibberifrons*  
in Subareas 48.1 and 48.2

110. The Commission noted with concern that due to lack of data the Scientific Committee had been unable to recommend TACs for either species in either area.

111. In considering the data presented in the WG-FSA Report (SC-CAMLR-VIII, Annex 6, paragraph 129), for Subarea 48.2, many Members expressed the view that declines in catches of *C. gunnari* from 139 000 and 21 000 tonnes in the first two years of the fishery to an annual average of less than 3 000 tonnes over the last decade reflected a substantial decline in stock and merited protective management action.

112. The Soviet Union expressed the view that because of this species' sporadic occurrence in the area, no catch limit was required.

113. A similar divergence of views prevailed in respect of Subarea 48.1.

114. It was agreed, however, that stocks of *N. gibberifrons* in Subareas 48.1 and 48.2 were at a level where protective measures were necessary. The Commission agreed to adopt a resolution urging all parties to refrain from directed fishing on *N. gibberifrons* in Subareas 48.1 and 48.2 and to ensure that by-catch of *N. gibberifrons* in directed fishing for other species be avoided.

115. Resolution 6/VIII was adopted.

#### General Considerations

116. A central consideration in setting the TACs for Subarea 48.3, particularly in view of the low catch figures involved, was a concern to limit as far as possible by-catches of already depleted species. To this end the Commission agreed to adopt a Catch Reporting System for catches and by-catches in Subarea 48.3 based on five-day reporting periods.

117. Conservation Measure 17/VIII was adopted.

118. Throughout this review, great difficulty was experienced in reconciling two opposing views. The first, held by most Members, was that in the absence of more detailed historical and current biological data, which should have been available from the fishery, thus allowing the WG-FSA to make stock assessments and provide management advice, it was prudent to set conservative TACs and provide as much protection as possible for juvenile fish.

119. The other view, held by the Soviet Union, was that in the absence of more detailed historical and current biological data from fishing vessels, management procedures should not be enacted.

120. The Commission noted that this contradiction, which formed a fundamental obstruction to its management responsibilities, seemed likely to persist either until all available historical and current data were provided or it was accepted that, in the absence of data which can only be provided by fishing nations, precautionary measures become essential.

121. The Commission welcomed the offer of the USSR to organise an international collaborative survey in the 1989/90 season in Subarea 48.3. In this regard, attention was drawn to plans for a UK/Polish survey in the same region in January 1990. Details of these two surveys would be discussed by principal scientists and the Convenor of the WG-FSA and the proposed survey plans sent to the Secretariat in advance of the commencement of the surveys.



122. In connection with the avoidance of by-catch, the Commission recalled the advice of the Scientific Committee that the use of semipelagic or midwater trawls for *C. gunnari* would reduce the by-catch of *N. rossii* and *N. gibberifrons* (SC-CAMLR-VIII, Annex 6, paragraph 193). It also noted the additional statements concerning whether or not this change in gear and fishing practice might target young age classes of *C. gunnari* (SC-CAMLR-VIII, Annex 6, paragraph 193 and SC-CAMLR-VIII, paragraph 3.67). The Commission agreed to prohibit the use of bottom trawls in Subarea 48.3.

123. Some Members expressed the view that developing fisheries should be subject to some form of regulation and that to meet the objectives of CCAMLR, fishery development should not proceed faster than development of the data base necessary to assess the effects of harvesting on target, dependent, and associated species. The Commission therefore requested that the Scientific Committee provide advice on:

- (a) the types of information needed to characterise and estimate the potential yield of unexploited and under-exploited fishery resources;
- (b) the types of information needed to determine an initial threshold level above which catches should not be allowed to increase without programs in place to assess the effects of the catches, including by-catch, on target, dependent and associated species;
- (c) how the needed baseline information can best be obtained;
- (d) how the developing fishery might best be regulated in order to identify and efficiently achieve, but not exceed the maximum catch levels consistent with Article II of the Convention.
- (e) how the identified information needs might best be met; and
- (f) how long it might take to acquire the required knowledge.

#### CONSERVATION MEASURE 13/VIII

Limitation of the Total Catch of *Champscephalus gunnari* in Statistical Subarea 48.3 in the 1989/90 Season

124. The Commission, in accordance with Conservation Measure 7/V, hereby adopts the following Conservation Measure in accordance with Article IX of the Convention:

1. The total catch of *Champscephalus gunnari* in the 1989/90 season shall not exceed 8 000 tonnes in Statistical Subarea 48.3.
2. The by-catch of any of the following species: *Notothenia rossii*, *Notothenia gibberifrons*, *Chaenocephalus aceratus* and *Pseudochaenichthys georgianus* in Statistical Subarea 48.3 shall not exceed 300 tonnes.
3. The fishery in Statistical Subarea 48.3 shall close if the by-catch of any of the species named in paragraph 2 above reaches 300 tonnes or if the total catch of *Champscephalus gunnari* reaches 8 000 tonnes, whichever comes first.
4. If, in the course of the directed fishery for *Champscephalus gunnari*, the by-catch of any one haul of any of the species named in paragraph 2 above exceeds 5%, the fishing vessel shall move to another fishing ground within the subarea.
5. The use of bottom trawls in the directed fishery for *Champscephalus gunnari* in Statistical Subarea 48.3 is prohibited.
6. For the purpose of implementing paragraphs 1, 2 and 3 of this Conservation Measure, the Catch Reporting System set out in Conservation Measure 17/VIII shall apply in the 1989/90 season.

#### CONSERVATION MEASURE 14/VIII

Prohibition of Directed Fishery on *Notothenia gibberifrons*, *Chaenocephalus aceratus*, *Pseudochaenichthys georgianus* and *Notothenia squamifrons* in Statistical Subarea 48.3 in the 1989/90 Season

125. The Commission, in accordance with Conservation Measure 7/V, hereby adopts the following Conservation Measure in accordance with Article IX of the Convention:

Directed fishing on *Notothenia gibberifrons*, *Chaenocephalus aceratus*, *Pseudochaenichthys georgianus* and *Notothenia squamifrons* in Statistical Subarea 48.3 is prohibited in the 1989/90 season.

CONSERVATION MEASURE 15/VIII  
Closed Seasons in the 1989/90 Season in  
Statistical Subarea 48.3

126. The Commission, in accordance with Conservation Measure 7/V, hereby adopts the following Conservation Measure in accordance with Article IX of the Convention:

Directed fishing on *Champocephalus gunnari* between 20 November 1989 and 15 January 1990 and between 1 April and 4 November 1990 is prohibited. During those periods *Champocephalus gunnari*, *Notothenia rossii*, *Notothenia gibberifrons*, *Chaenocephalus aceratus*, *Pseudochaenichthys georgianus* and *Notothenia squamifrons* shall not be taken in Statistical Subarea 48.3 except for scientific research purposes.

CONSERVATION MEASURE 16/VIII  
Catch Limit on *Patagonotothen breviceuda guntheri*  
in Statistical Subarea 48.3 for the 1989/90 Season

127. The Commission, in accordance with Conservation Measure 7/V, hereby adopts the following Conservation Measure in accordance with Article IX of the Convention:

The catch of *Patagonotothen breviceuda guntheri* in Statistical Subarea 48.3 in the 1989/90 season shall be limited to 12 000 tonnes. For the purpose of implementing this Conservation Measure the Catch Reporting System set out in Conservation Measure 17/VIII shall apply in the 1989/90 season.

CONSERVATION MEASURE 17/VIII  
Catch Reporting System in Statistical Subarea 48.3 in  
the 1989/90 Season

128. The Commission, in accordance with Conservation Measure 7/V, hereby adopts the following Conservation Measure in accordance with Article IX of the Convention:

1. For the purposes of this Catch Reporting System the calendar month shall be divided into six reporting periods, viz: day 1 to day 5, day 6 to day 10, day 11 to day 15, day 16 to day 20, day 25 and day 26 to the last day of the month. These reporting periods A, B, C, D, E and F.

2. At the end of each reporting period, each Contracting Party shall obtain from each of its vessels its total catch for that period and shall, by cable or telex, transmit the aggregated catch for its vessels so as to reach the Executive Secretary not later than the end of the next reporting period.
3. Such reports shall specify the month and reporting period (A, B, C, D, E or F) to which each report refers.
4. Immediately after the deadline has passed for receipt of the reports for each period, the Executive Secretary shall notify all Contracting Parties of the total catch taken during the reporting period, the total aggregate catch for the season to that date, together with an estimate of the date upon which the total allowable catch is likely to be reached for that season. Each estimate shall be based on a projection forward of the average daily catch rate (calculated as the total catch by all contracting parties divided by the number of days in the period) for the most recent period based on the reports received for the period in question, to the point at which the total allowable catch will have been taken.
5. When the Executive Secretary has received reports which show that 90% of the total allowable catch has been taken, the Executive Secretary shall make a final estimate of the date upon which the total allowable catch will be reached. The fishery shall close at the end of the last day of the reporting period within which that date falls.

#### RESOLUTION 5/VIII

##### Protection of Seabirds from Incidental Mortality Arising from Longline Fishing

129. The Commission took note of the recent introduction of longline fishing in the CCAMLR Convention Area. It expressed its concern that fishing with this technique could cause substantial incidental mortality of seabirds.

130. In this connection the Commission:

- (a) takes note of the intention of the Soviet Union not increase, by more than one or two vessels, the number of its vessels engaged in longline fishing on *Dissostichus eleginoides* in Subarea 48.3 in the 1989/90 season;

- (b) recalls that techniques have been developed and are being used on a trial basis in other longline fisheries, such as in the tuna longline fishery in the South West Pacific, to minimise incidental mortality of seabirds; and
- (c) urges all parties to the Convention conducting longline fishing in the CCAMLR Convention Area to investigate and introduce as soon as possible methods to minimise incidental mortality to seabirds arising from the use of longline fishing techniques.

#### RESOLUTION 6/VIII

Protection of *Notothenia gibberifrons* in the Peninsula Area (Statistical Subarea 48.1) and Around South Orkneys (Statistical Subarea 48.2)

131. The Commission recognised that it was important that fishing mortality in *Notothenia gibberifrons* should, as a precautionary measure, be minimised. To this end the Commission requests all parties to the Convention to keep the catch of *Notothenia gibberifrons* in the Peninsula Area (Statistical Subarea 48.1), and around South Orkneys (Statistical Subarea 48.2), in the season 1989/90 to the lowest possible level.

132. To this end the Commission requests all parties to the Convention in the 1989/90 season:

- (a) to refrain from directed fishing for *Notothenia gibberifrons*; and
- (b) to ensure that by-catch of *Notothenia gibberifrons* in directed fishing for other species be avoided.

133. At the conclusion of the Commission's consideration of this agenda item, the Convener of the WG-FSA, Dr K.-H. Kock, FRG, was given the opportunity to make a statement. A copy of his statement is included in this report as Annex F.