

NEW AND EXPLORATORY FISHERIES

New Fisheries in 1997/98

9.1 There were seven conservation measures relating to new fisheries in force during the 1997/98 season, but fishing was conducted under the terms of only three of these measures. Summary information on the seven new fisheries during 1997/98 is contained in CCAMLR-XVII/BG/4 Rev. 1. Data received by the Secretariat in relation to these fisheries were summarised in Annex 5, Table 2.

9.2 Throughout this section, a split-year is the statistical reporting period which runs from 1 July in one year through to 30 June in the following year. Fishing seasons do not necessarily align with split-years, although catch data are frequently summarised by split-year. For new and exploratory fisheries, the seasons are explicitly set out in individual conservation measures.

New Fisheries for *Dissostichus* spp. in Subareas 48.1, 48.2 and 88.3

9.3 Chile conducted a prospecting longline cruise to determine the feasibility of new fisheries in these areas. The cruise was conducted during February and March 1998; results from the cruise were reported in SC-CAMLR-XVII/BG/7 Rev. 1. It was concluded that new fisheries in Subareas 48.1, 48.2 and 88.3 would not be feasible, and commercial-scale fishing operations were not conducted in these three subareas.

New Fisheries for *Dissostichus* spp. in Subareas 48.6 and 88.2 and Divisions 58.4.3 and 58.4.4

9.4 New fisheries for *Dissostichus* spp. for 1997/98 had been notified by South Africa in Subarea 48.6 and Divisions 58.4.3 and 58.4.4, by Norway in Subarea 48.6, by Ukraine in Division 58.4.4 and by New Zealand in Subarea 88.2. None of these new fisheries took place.

Exploratory Fisheries in 1997/98

9.5 Five conservation measures relating to exploratory fisheries were in force during 1997/98; fishing was conducted under the terms of four of these measures. Summary information on all five exploratory fisheries is contained in CCAMLR-XVII/BG/4 Rev. 1.

Exploratory Longline Fisheries for *D. eleginoides* in Subareas 58.6 and 58.7 outside EEZs

9.6 The exploratory fisheries for *D. eleginoides* notified by Ukraine and Russia in Subareas 58.6 and 58.7 outside EEZs during 1997/98 did not take place.

9.7 South African vessels did, however, conduct exploratory fishing operations for *D. eleginoides* in Subareas 58.6 and 58.7 outside the EEZs during 1997/98. One vessel fished in each subarea and the total catch in these areas was about 1 tonne.

Exploratory Longline Fisheries for
Dissostichus spp. in Subarea 88.1

9.8 In Subarea 88.1, one vessel from New Zealand conducted exploratory fishing operations from 21 February to 25 March 1998. All fishing was conducted south of 65°S. Fishing was carried out over 30 fine-scale rectangles and a total of 41 tonnes was taken. *D. eleginoides* was recorded much further south than previously reported with a 7.5-kg fish caught at 73°S. *D. mawsoni* was present throughout the region, extending as far north as 65°S. *Dissostichus* spp. were present in 97% of the fine-scale rectangles, indicating these species are present over wide areas of Subarea 88.1.

Exploratory Trawl Fishery for
Dissostichus spp. in Division 58.4.3

9.9 Australia notified the Commission of its intent to conduct an exploratory trawl fishery in Division 58.4.3 during 1997/98. No fishing did, however, take place.

Exploratory Jig Fishery for *M. hyadesi* in Subarea 48.3

9.10 Although the UK and the Republic of Korea notified the Commission of their intentions to conduct an exploratory squid fishery in Subarea 48.3, no vessels fished under the terms of Conservation Measure 145/XVI after 8 November 1997.

New Fisheries Notified for 1998/99

9.11 New fisheries notifications for 1998/99 were summarised in Annex 5, Table 16. All new fisheries notifications were for subareas and divisions that had been new fisheries in 1997/98 but where no fishing had occurred. The checklist approach, developed at the previous meeting of WG-FSA, was used again to aid its discussions of new fisheries notifications for 1998/99.

New Longline Fisheries for *Dissostichus* spp.
in Subarea 48.6 and Division 58.4.4 (South Africa)

9.12 South Africa submitted a notification (CCAMLR-XVII/10) for new fisheries for *Dissostichus* spp. in Subarea 48.6 and Division 58.4.4.

9.13 The notification was essentially a restatement of the intentions that South Africa made at the last meeting of the Commission. The South African notification addresses all the requirements of Conservation Measure 31/X and the points in SC-CAMLR-XV, paragraph 8.17. The South African notification was the only notification received for a new fishery in Subarea 48.6. France, Spain and Uruguay have also submitted notifications for new fisheries in Division 58.4.4.

9.14 The South African notification contained a description of a 'sliding scale' for biological sampling. According to the notification, biological sampling will be dependent on catch levels. The Scientific Committee considered that such an approach might be useful for providing guidance to observers and agreed that, if such a sampling scheme is conducted, South African scientists should advise on the advantages and disadvantages of such a scheme.

New Longline Fisheries for *D. eleginoides*
in Division 58.4.4 (Spain and Uruguay)

9.15 Spain submitted a notification (CCAMLR-XVII/12) for an exploratory fishery for *D. eleginoides* in Division 58.4.4. It was noted that although the Spanish notification was titled ‘Notification of Spain’s intention to initiate an exploratory fishery,’ the notification should actually be for a new fishery under the definition in Conservation Measure 31/X. As such it was agreed to evaluate the notification as one for a new fishery. The Spanish notification addresses all the requirements of Conservation Measure 31/X and the points in SC-CAMLR-XV, paragraph 8.17.

9.16 It was noted that the notification by Spain did not include any information on position verification. It was confirmed by Mr L. López Abellán (Spain) that the vessels would be equipped with VMS, and unfortunately this information had been omitted from the notification.

9.17 Uruguay also submitted a notification (CCAMLR-XVII/19) for a new fishery for *D. eleginoides* in Division 58.4.4. The Uruguayan notification addresses all the requirements of Conservation Measure 31/X and the points in SC-CAMLR-XV, paragraph 8.17.

9.18 The Scientific Committee noted that some notifications were submitted after the deadlines set out in Conservation Measure 31/X, paragraph 2, but that these were still evaluated. It was further noted that the purpose of these deadlines was to have enough time at hand for the review process. Regarding this aspect the Scientific Committee seeks the guidance of the Commission as to how late submissions of fishery notifications should be handled in the future.

New Trawl and Longline Fisheries for *D. eleginoides*
in Subareas 58.6 and 58.7 outside EEZs and
Divisions 58.4.3 and 58.4.4 (France)

9.19 France submitted a notification (CCAMLR-XVII/9 Rev. 1) for new fisheries for *D. eleginoides* in Subareas 58.6 and 58.7 and Divisions 58.4.3, 58.4.4, 58.5.1 and 58.5.2 (outside EEZs). The notification was for both longline and trawl fisheries. Prof. Duhamel clarified that the notification no longer applied for Divisions 58.5.1 and 58.5.2. As such, the Scientific Committee only considered the notification in respect of Subareas 58.6 and 58.7 and Divisions 58.4.3 and 58.4.4 (outside EEZs). The French notification addresses all the requirements of Conservation Measure 31/X and the points in SC-CAMLR-XV, paragraph 8.17.

9.20 The French notification overlaps many other notifications. South Africa, Spain and Uruguay also submitted notifications for new fisheries in Division 58.4.4. South Africa submitted notifications for exploratory fisheries in Subareas 58.6 and 58.7 (outside EEZs) and Australia submitted a notification for an exploratory fishery in Division 58.4.3. The Scientific Committee viewed the overlap between the French notification and the notifications by other Members with some concern because there could be trawl fisheries and longline fisheries simultaneously operating in the same area.

9.21 Currently, separate assessments are conducted for longline and trawl fisheries by WG-FSA. It is expected that WG-FSA will be able to provide mixed-fishery assessments next year. To conduct such assessments using the GYM, it would be necessary to have an estimate of the proportion of the total fishing effort (or catch) that would be expended (or caught) by each gear type. The Scientific Committee noted that such an estimation might require an allocation of total effort between longline and trawl fisheries. In this regard, the Scientific Committee agreed that the Commission needs to provide advice on issues of allocation between competing gear types operating in the same area.

9.22 In resolving the problem the Scientific Committee noted that it was unable to provide yield estimates for a mixed fishery at this stage. A series of assessments were, however, given for either a longline or a trawl fishery in these areas. This was done under the assumption that only one of these gear types would be used and in this respect the assessments should be considered as very separate entities and not additive. The Scientific Committee considered that the maximum catch for a statistical area should be no more than the yield estimated for longlining, as this is greater than the yield for trawling in this case. Also, the catch for the trawl component of the mixed fishery should be no greater than the yield estimated for the trawl fishery. The Scientific Committee agreed that the yield for the respective gear types should be discounted in some way when the other gear type is also being used in the same management area but could not determine a suitable scientific method for achieving this at this meeting.

9.23 Again, in relation to the French notification, the Scientific Committee noted the advice of WG-FSA (Annex 5, paragraph 4.33) that new trawl fisheries are not required to distribute fishing effort over a wide area and that 100-tonne catch limits for fine-scale rectangles should be applied to new trawl fisheries, as they are for new longline fisheries.

9.24 While the general principle of distributing effort in new fisheries should be retained in order that localised depletions do not occur, the Scientific Committee agreed that this restriction may have different ramifications for the operation of trawl fisheries. The Scientific Committee agreed that the recommendation of WG-FSA be carried forward to the Commission, but requested that WG-FSA review at its next meeting the spatial extent of local populations. Such a review should be aimed at providing advice as to how catch and effort should be distributed in fine-scale rectangles in order that the depletion of local stocks is unlikely to occur as a result of new or exploratory fisheries.

9.25 It was noted that France's notification was that fishing operations would be conducted during the whole 1998/99 season. The implications of a year-long fishery on incidental mortality of seabirds are discussed in Annex 5, paragraph 7.116. Prof. Duhamel clarified that France would follow the Commission's direction with respect to the length of the fishing season, but noted that a year-long fishery would make it easier to monitor unregulated fishing in the Convention Area. If there is substantial unregulated fishing during a closed season, incidental mortality to seabirds could be increased. Prof. Duhamel also noted his concern that fishing only in winter would cause all catches to be taken during the *D. eleginoides* spawning season.

9.26 The Scientific Committee also noted that the French notification stated that an observer working under CCAMLR's International Scheme of Scientific Observation would 'possibly' be on board each vessel participating in the new fisheries. Prof. Duhamel clarified that a CCAMLR observer would definitely be on board each vessel participating in the new fisheries. There will also be a French observer on board each vessel.

Exploratory Fisheries Notified for 1998/99

9.27 Exploratory fisheries notifications for 1998/99 are listed in Annex 5, Table 16. All three notifications for exploratory fisheries in 1998/99 were for fisheries that were also in the exploratory stage during 1997/98. None of the fisheries that were considered to be new fisheries at the last meeting of the Commission have been notified as exploratory for the coming season.

9.28 In the preamble to Conservation Measure 65/XII, the Commission had agreed that exploratory fishing should not be allowed to expand faster than the acquisition of information necessary to ensure that the fishery can and will be conducted in accordance with the principles set forth in Article II. A vital element in ensuring this is the ability of the Scientific Committee to conduct stock assessments. For *Dissostichus* spp., the GYM assessment method currently

used by WG-FSA requires estimates of recruitment. For longline fisheries for *Dissostichus* spp., the Scientific Committee has in the past been unable to assess the status of the stocks using data from longline fishing only. The Scientific Committee agreed that conducting research surveys was an essential element of the precautionary development of exploratory fisheries. The Scientific Committee therefore recommended that research surveys to estimate biomass be included at the very early stages of the development of new and exploratory fisheries for *Dissostichus* spp. In this context, the Scientific Committee welcomed the inclusion of plans for the early conduct of research surveys in the notification by Australia.

Exploratory Longline Fisheries for *Dissostichus* spp.
in Subareas 58.6 and 58.7 (South Africa)

9.29 South Africa submitted a notification (CCAMLR-XVII/14) for exploratory fisheries for *Dissostichus* spp. in Subareas 58.6 and 58.7 (outside EEZs). The South African notification for exploratory fisheries in Subareas 58.6 and 58.7 (outside EEZs) coincides with notifications by France for new longline and trawl fisheries in these subareas.

Exploratory Trawl Fisheries for *Dissostichus* spp.
in Divisions 58.4.1 and 58.4.3 (Australia)

9.30 Australia submitted a notification (CCAMLR-XVII/11) for exploratory trawl fisheries for *Dissostichus* spp. in Divisions 58.4.1 and 58.4.3. The Australian notification for an exploratory trawl fishery in Division 58.4.1 does not overlap with notifications from other Members. The notification for an exploratory trawl fishery in Division 58.4.3 coincides with a notification by France for a longline fishery in this division.

9.31 The Scientific Committee noted that the Australian notification is essentially the same as the notification made at the last meeting of the Commission and applies only to Elan and BANZARE Banks. It was felt that it should be brought to the attention of the Commission that during 1997/98 exploratory trawling on these banks was supposed to be conducted under the terms of Conservation Measure 144/XVI. Conservation Measure 144/XVI was clearly intended to permit exploratory fishing over the entirety of both banks, but a large portion of BANZARE Bank is included in Division 58.4.1 and this division was closed to directed fishing for *Dissostichus* spp. under the terms of Conservation Measure 120/XVI. Thus, the Australian notification is a resubmission that includes notification of intention to fish in a small portion of Division 58.4.1 (that portion covering BANZARE Bank).

Exploratory Longline Fishery for *Dissostichus* spp.
in Subarea 88.1 (New Zealand)

9.32 New Zealand submitted a notification (CCAMLR-XVII/13 Rev. 1) for an exploratory fishery for *Dissostichus* spp. in Subarea 88.1. New Zealand's notification lays out a scheme for determining catch limits in fine-scale rectangles based on decision rules related to initial catch rates. Under the scheme, catch limits for fine-scale rectangles are increased when initial catch rates are high. The Scientific Committee noted that similar schemes for determining catch limits in fine-scale rectangles had previously been suggested by South Africa (CCAMLR-XVI/8 Rev. 1) and New Zealand (CCAMLR-XVI/17). The Scientific Committee agreed that, in principle, there might be some merit in setting catch limits for fine-scale rectangles based on decision rules related to initial catch rates. However, the Scientific Committee had some difficulty with the scheme outlined in New Zealand's notification. The Scientific Committee recognised that the decision rules outlined in New Zealand's notification are based on

information about *D. eleginoides* catch rates from the Falkland/Malvinas Islands. This could be problematic because the decision rules in Subarea 88.1 should also be based on information about catch rates of *D. mawsoni*. The Scientific Committee determined that a detailed analysis of catch rates of *D. mawsoni* could not be undertaken at this meeting. In this regard, the Scientific Committee reiterated its decision last year that it could consider the adaptive approach further if a paper considering further development of it was submitted for the Scientific Committee's consideration at its next meeting (SC-CAMLR-XVI, Annex 5, paragraph 4.81).

9.33 Dr K. Sullivan (New Zealand) undertook to have the necessary analyses completed for consideration at next year's WG-FSA and Scientific Committee meetings.

9.34 Due to the exploratory nature of the fishery in Subarea 88.1 a significant by-catch of *M. carinatus* (9.48 tonnes; 17% of the total catch; 23% of the *Dissostichus* spp. catch) was caught. In this regard, the New Zealand notification proposed a 200-tonne by-catch limit for *Macrourus* spp. in Subarea 88.1. The Scientific Committee could not determine whether a by-catch limit of 200 tonnes would be appropriate for *Macrourus* spp. as there is almost no information on these fish (see also paragraphs 5.115 and 5.116).

9.35 New Zealand's notification indicated that the 1997/98 fishing season in Subarea 88.1 was severely restricted by the presence of ice, both icebergs and sea-ice. The 1997/98 fishing season in Subarea 88.1 began in the late austral summer, and, due to the rapid growth northwards of the ice shelf in mid-March, there was only a four-week period that could be fished within the Ross Sea. In this regard, the New Zealand notification proposed that the 1998/99 fishing season start on 15 December 1998. The Scientific Committee considered this proposal in relation to its impacts on incidental mortality of seabirds (paragraphs 4.66 to 4.70).

9.36 The Scientific Committee noted that notifications for new and exploratory fisheries were submitted in a standardised format making analyses easier than in previous years. The Scientific Committee further recommended that this standardised approach be followed for future notifications.

Calculation of Precautionary Catch Levels

9.37 Precautionary catch limits for new and exploratory fisheries were calculated by WG-FSA by extrapolation using parameters from the assessments of estimated yields for *D. eleginoides* in Subarea 48.3 for longlining and Division 58.5.2 for trawling. The Working Group calculated precautionary catch limits for new and exploratory fisheries with the GYM. The calculations involved five main components.

- (i) Estimates of mean recruitment in each area under consideration were obtained by proportional adjustments for fishable seabed areas. For longline fisheries the adjustments used the relative areas of seabed between 600 and 1 800 m. For trawl fisheries, the depth range used was 500 to 1 500 m.
- (ii) Other biological and fishery parameters were set equal to the values most appropriate for the area under consideration. For most areas, this meant using parameters from assessments for Subarea 48.3 for longline fisheries, or those for Division 58.5.2 for trawl fisheries.
- (iii) The recent catch history for each area under consideration was updated to include the most recent information on regulated and unregulated catches.
- (iv) The GYM was run for each area under consideration to determine potential long-term annual yield.

- (v) A discounting of these yields was considered in order to account for the uncertainty of extrapolating parameters for *D. eleginoides* to previously unfished or lightly fished areas.

9.38 WG-FSA had considerable discussion about which seabed area values would be most appropriate for calculating the precautionary catch limits. This discussion is summarised in Annex 5, paragraphs 3.151 to 3.154 and paragraphs 4.62 to 4.64. The Scientific Committee endorsed the use of seabed areas to estimate adjusted mean recruitments as provided in Annex 5, Table 15. The Scientific Committee also endorsed the plans of WG-FSA to undertake further work on stock boundaries.

9.39 The Scientific Committee endorsed the methods for estimating yield used by WG-FSA (Annex 5, paragraphs 4.57 to 4.72). It noted the oversight in the parameters for recruitment in Subarea 48.3 (paragraph 5.47) and agreed to rerun the GYM calculations for new and exploratory longline fisheries that were based on these parameters. These results are presented in Table 7.

9.40 The Scientific Committee reiterated a statement made by WG-FSA expressing concern that the available knowledge about *D. mawsoni* was much less than that for *D. eleginoides*. This implied that precautionary catch levels calculated would be more uncertain for *D. mawsoni* than for *D. eleginoides*. In these circumstances, it may be appropriate for a greater discount factor for uncertainty to be applied for *D. mawsoni*. The discount factor used for *D. eleginoides* was 0.45, matching the factor used by the Commission for calculating precautionary catch limits during the last two years. The discount factor used for *D. mawsoni* was 0.30.

9.41 The Scientific Committee emphasised that there is no scientific basis for selecting a particular value for any discount factor.

9.42 The precautionary yields, according to these discounted factors, are presented in Table 8. The Scientific Committee reiterated last year's account of the intrinsic uncertainties involved in the calculation of precautionary yields and noted that the results in Tables 7 and 8 must be interpreted with considerable caution. These intrinsic uncertainties were:

- (i) the values calculated for precautionary catch limits should not be taken to imply that such quantities of fish would actually be available for capture;
- (ii) the calculation procedure relies explicitly on extrapolation from assessments of existing fisheries to new and exploratory fisheries in previously unfished or lightly fished areas. In particular, it makes the assumption that the recruitment rate per unit area of fishable seabed is the same across all areas;
- (iii) there is greater uncertainty associated with the calculations for *D. mawsoni*, and the discount factors used are arbitrary; and
- (iv) the estimates of unreported catches are uncertain.

9.43 Despite these uncertainties, the Scientific Committee agreed that the methods used to calculate precautionary catch limits were the best available given existing information.

Management Advice

9.44 The Scientific Committee recommended that the precautionary yield estimates given in Table 7 for *D. eleginoides* and *D. mawsoni* be used when calculating catch limits for the new and exploratory fisheries operating during 1998/99 but that these should be discounted to allow for uncertainties in these input parameters, such as in Table 8.

9.45 The Scientific Committee agreed that mixed fisheries require careful consideration because estimated yields for single trawl and longline fisheries cannot be added together to derive a total yield of *D. eleginoides* from a management area. If in the course of a season only one method of fishing is undertaken, then the yield assessed for that method of fishing can be applied. However, a mixture of trawl and longline fishing presents a special problem because these methods fish different parts of the stock. This means that the total catch from a mixed fishery should be less than the highest yield, which in this case is the longline yield. The Scientific Committee recognised that in a mixed fishery the yield for the trawl fishery should be discounted by some proportion if a longline fishery is present and that the yield for the longline fishery should be discounted by some proportion if a trawl fishery is present. An example could be that the catch limit for trawling be set as the proportion of total effort (or some other allocation) given to trawling multiplied by the estimate of yield for trawling. Similarly, the catch limit for longlining could be the proportion of total effort (or some other allocation) given to longlining multiplied by the estimate of yield for longlining.

9.46 The Scientific Committee agreed that advice could not be given this year on how to apportion catches in a mixed fishery other than that discussed above. The Scientific Committee recommended that notifications of new or exploratory fisheries should include the minimum viable catch and, where possible, which management units/areas the fishery will be located in. This information can then be used by WG-FSA to advise on long-term annual yields for each method in a mixed fishery. The Scientific Committee requested guidance from the Commission on how yields should be divided between different types of fisheries.

9.47 The Scientific Committee agreed with the view put forward by WG-FSA that new trawl fisheries should be required to distribute fishing effort over a wide area and that 100-tonne catch limits for fine-scale rectangles should also apply to new trawl fisheries. These limitations already apply to longline fisheries. This will be reviewed by WG-FSA next year.

9.48 The Scientific Committee recommended that research surveys to estimate biomass be included at the very early stages of the development of new and exploratory fisheries for *Dissostichus* spp. In this regard, the Scientific Committee noted that in the past it has been unable to assess the status of *Dissostichus* spp. stocks using data from longline fishing only.

9.49 The Scientific Committee noted the recommendation of WG-FSA to retain the two main principles for by-catch species (Annex 5, paragraph 4.202). It was further agreed that there should be by-catch limitations on exploratory longline fisheries that are similar to those currently in force for exploratory trawl fisheries. The principle of by-catch limitations should be to require that longliners move to other fishing locations when there is a relatively high by-catch on any one haul. By-catch limitations should be operationally flexible and simple to understand. The Scientific Committee agreed that the scheme set out in paragraph 5.115 would be a reasonable way to proceed.

9.50 Management advice stemming from consideration of seabird by-catches in new and exploratory fisheries is given in paragraphs 4.60 to 4.70.