National report of the European Community to the SPRFMO Science Working Group on the fisheries in the Pacific in 2008.

Ad Corten

The jack mackerel fishery

1. Description of the fishery

The fishery for jack mackerel by the European Union (EU) started in 2005 by a single vessel working for 3 months in the second half of the year. The next year, the same vessel returned and worked for the whole season (March – October), together with an Irish vessel. Following the positive results of this season, the number of vessels increased to eight in 2007. In 2008, this number was kept unchanged, following an agreement by the SPRFMO in 2007 to freeze fishing effort as of 31 December 2007.

year	Number of EU vessels	EU countries involved and number of vessels
2005	1	Netherlands (1)
2006	2	Netherlands (1), Ireland (1)
2007	8	Germany (3), Lithuania (3), Netherlands (2)
2008	7	Germany (3), Lithuania (2), Netherlands (2)

The vessels involved in this fishery are large pelagic trawlers, preliminarily operating under the flags of Germany, Netherlands, and Lithuania. The vessels use single boat pelagic trawls that are fished mainly during night-time. They operate exclusively in international waters outside the Chilean EEZ. Fishing operations extend in the open Pacific to about 100°W.

The main fishing season is from April to September, as can be seen from the monthly catches in 2008:

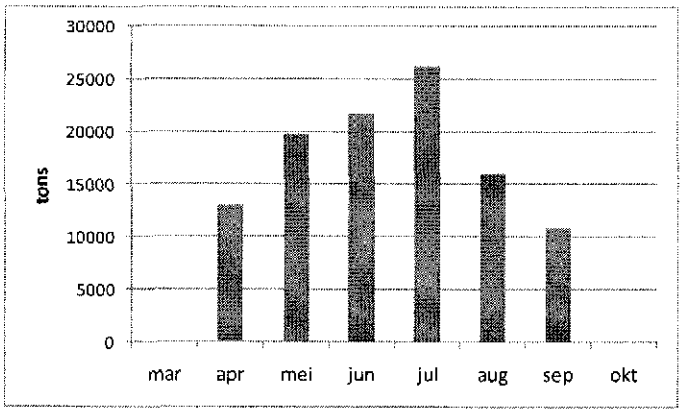

Figure 1. Monthly catches of jack mackerel by the EU fleet in 2008

2. Catch, effort and CPUE summaries

Development of catch and effort in the EU jack mackerel fleet is presented in the text table below.

year	number of fishing days	catch in tons	catch per day in tons
2005	44	6179	140
2006	239	62137	260
2007	401	123523	308
2008	423	106665	252

In general, the fishery in 2008 was less successful than in two preceding years, as can be seen from a comparison of the CPUE (catch per unit of effort; in this case catch per fishing day) for the whole season. In the latter half of the 2008 season, the CPUE dropped sharply (Figure 2), and this was probably the reason why the fishery ended already in September (in 2006 and 2007 the fishery lasted until October).

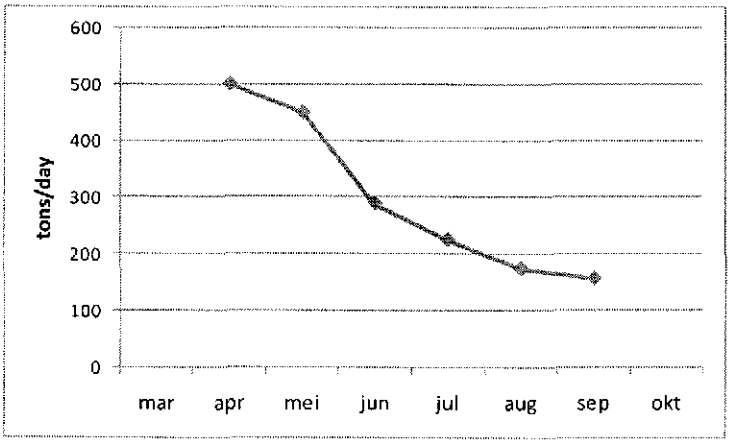

Figure 2. Monthly CPUE of jack mackerel by the EU fleet in 2008

3. Fisheries data collection and research activities

Two independent programmes of data collection were carried out in 2008: (1) the collection of haul-by-haul information from the captains, and (2) an observer programme that was aimed at obtaining detailed biological information on catches and discards. Both programmes were run by the Dutch consultant agency CMR (Corten Marine Research). Funding was provided on a 50/50 basis by the Dutch ship owners association PFA and the Dutch Ministry of Agriculture, Conservation and Food Quality.

The details of these programmes are briefly presented below.

3.1. Collection of haul-by-haul information from the captains

Each trawler was asked to provide detailed information for each individual haul. A simple spreadsheet was used to record the requested information at sea. The information requested in this

spreadsheet corresponded to the data demands of the SPRFMO Data and Information Working Group.

The size of the individual catches was estimated by visual inspection of the amount of fish in the net or in the tanks into which the catch was pumped. Normally, the captains tended to under-estimate the amount of catch at first sight. As a result, the sum of all individual catches provided by the captains was lower than the landing data for the entire trip provide by the ship owner. In order to make the tow-by-tow information check with the landing data, the estimates for individual catches had to be raised by a correction factor.

CMR transferred the data into the standard SPRFMO format and submitted these (through the European Commission) to the SPRFMO interim secretariat.

The haul-by haul information from individual vessels provided a good picture of the geographical distribution of the fishery. Figure 3 compares the distribution of catches during the 2008 fishing season with data for the preceding year. It is seen that the catches in 2008 had a larger north to south distribution than in 2007, but did not extend as far to the west as in 2007.

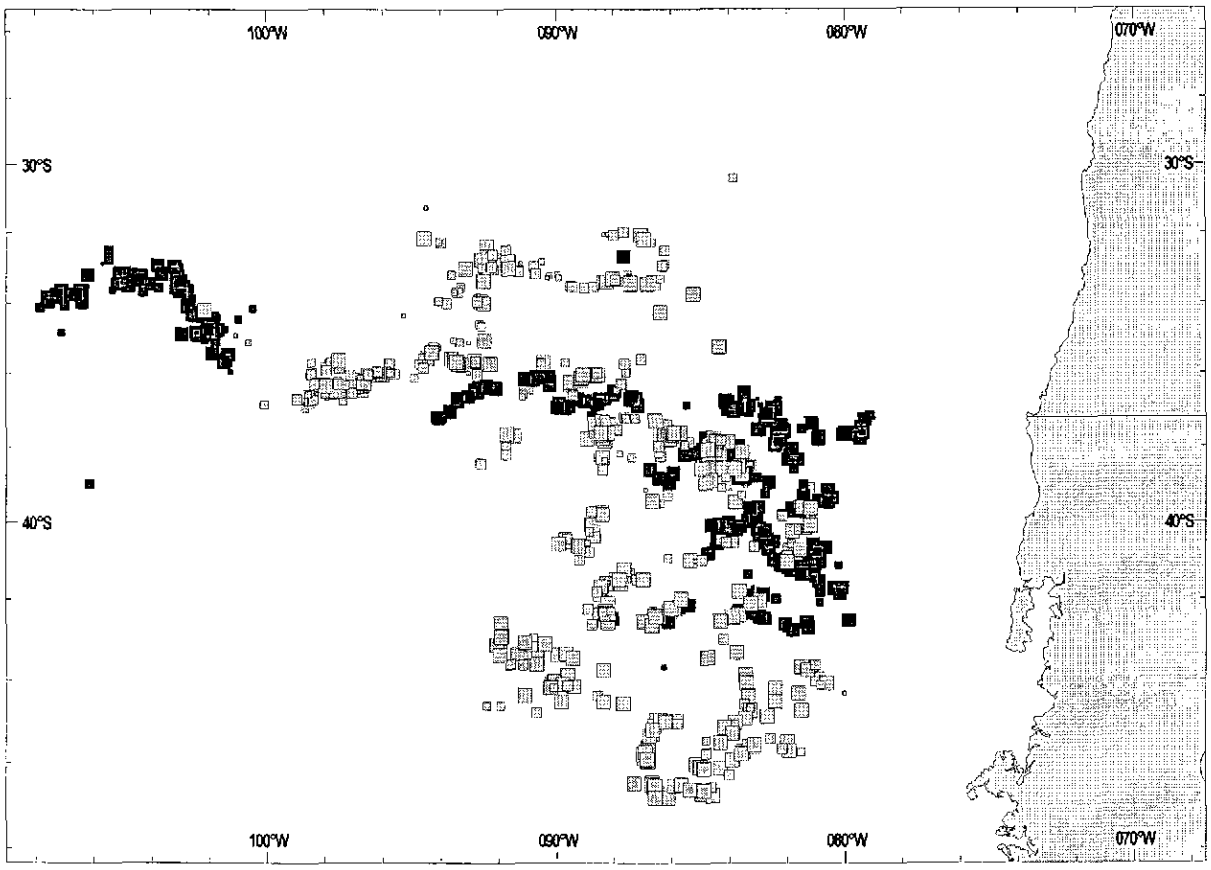

Figure 3. Distribution of jack mackerel catches in 2008 (yellow) compared to 2007 (black). Each square represents a haul, and the size of the square is proportional to the size of the catch. Positions may be inaccurate due to errors in data transmission and analysis.

3.2. Data collection by observers at sea

In accordance with the recommendation of the SPRFMO Data and Information Working Group, this programme attempted to obtain at least 10% coverage of all hauls made by the fleet. For this purpose, two observers each made two trips of 7 weeks each on board different vessels. The temporal coverage in 2008 was as follows:

period	Days of observation	ship
6 apr – 7 mei 2008	17	ROS 785 Helen Mary
20 mei – 22 jun 2008	24	KW 174 Annelies Ilena
18 jun - 1 aug 2008	33	BX 783 Jan Maria
8 aug - 3 okt 2008	42	ROS 171 Maartje Theadora

Observers collected data on species composition of catches, length composition, biological characteristics such as sex and maturity stage, food composition, stomach fullness and fat content. In addition they monitored discards and incidental by-catches of large species.

4. Biological sampling and length/age composition of catches

The scientific collection of length data on jack mackerel on board EU vessels was started only in 2007, so we now have only two years of observations. Figure 4 presents the length distribution for 2007 and 2008 (all measurements in fork length).

A total of 28250 fish was measured in 2008, compared to 11748 in 2007. The increased sampling intensity in 2008 was the result of the fact that 2008 was the first year with full observer coverage during the entire fishing season.

The smaller size categories that dominated the catch in 2007 (30-32 cm fork length) were almost absent in 2008. This must have been related to a weak recruitment in 2008.

The observers collected otoliths throughout the 2008 fishing season, but the reading of these otoliths was postponed until 2009, due to the lack of experience of CMR technicians in age reading of jack mackerel. A training in age reading was organized in Chili in November 2008, and the reading of the 2008 otoliths has been scheduled for 2009. For the time being, Chilean length/age keys will be used to convert the EU length distribution for 2007 and 2008 into age groups.

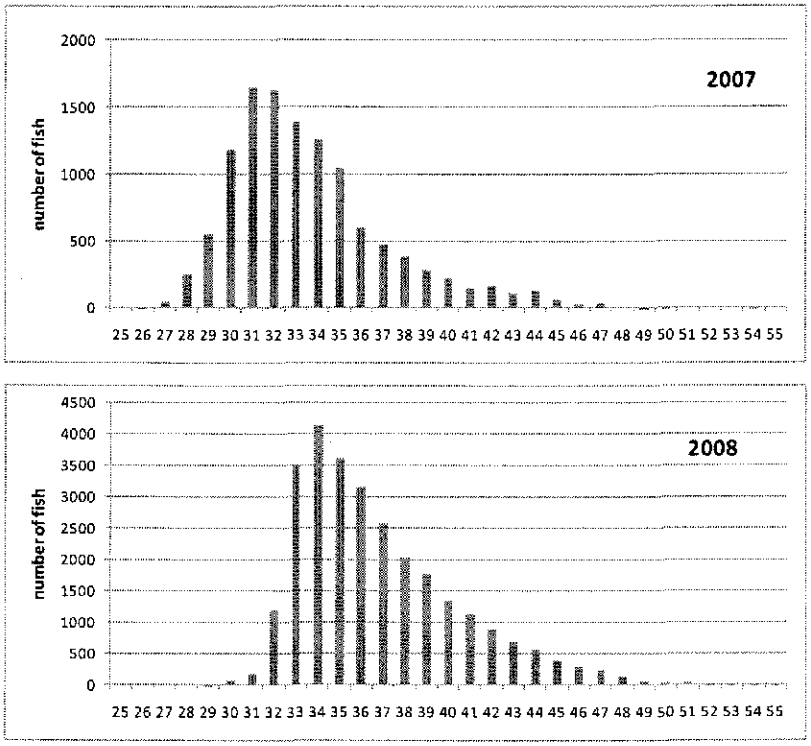

Figure 4. Length distribution of jack mackerel caught by the EU fleet in 2007 and 2008

Data on catch composition showed that 90 – 95% of the catch consisted of jack mackerel (*Trachurus murphyi*). The remaining 5-10% consisted of chub mackerel (*Scomber japonicus*), and to a lesser extent of Southern rays bream (*Brama australis*).

By-catches of swordfish (*Xiphias gladius*) were very limited (6 in total). No marine mammals or turtles were recorded by the observers.