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Working Document

The French sardine fishery

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1 MATERIAL AND METHOD

1.1. Description of fishery

The French fishery of sardine is divided in two groups defined by gears : purse seine and pelagic trawl operate by pair trawlers. The average length of these vessels is about 18m.

Purse seiners operate often in coastal areas (<10 nautical miles); trawlers may operate until 50 nautical miles offshore but are banned inside the three miles coastal zone.

Pair trawlers, when they are targeting sardine, operate around their home harbour, like purse seiners.

1.2. Sources of data

Since 1999, two database are available. The first one called 'log-books' is made of all the information available in the EU log-books. The second one ('Sales') is a record of all the information from the auctions. This includes all the landings of all species from all vessels (since the sale is recorded). It does not provide any information on effort, gear or area.

Since log-books could not be computed for all vessels and/or all trips, the first database should either be considered as a sample of the total population of vessels/trips, or corrected with information from the second one.

Before 1999, only one database was available which was a merge of the two sources of data. In the earlier years, vessels without log-books were generally merged in a common vessel. This was the case in 1998 for lot of vessels operating in the Bay of Biscay.

This fishery is not so opportunist compared to the anchovy one. Few catches may even be taken by bottom trawlers. The purse seine is the main gear for sardine, but to define a clear target fishing fleet, it is necessary to analyse the catches boat by boat along a year to separate regular to occasional vessels.

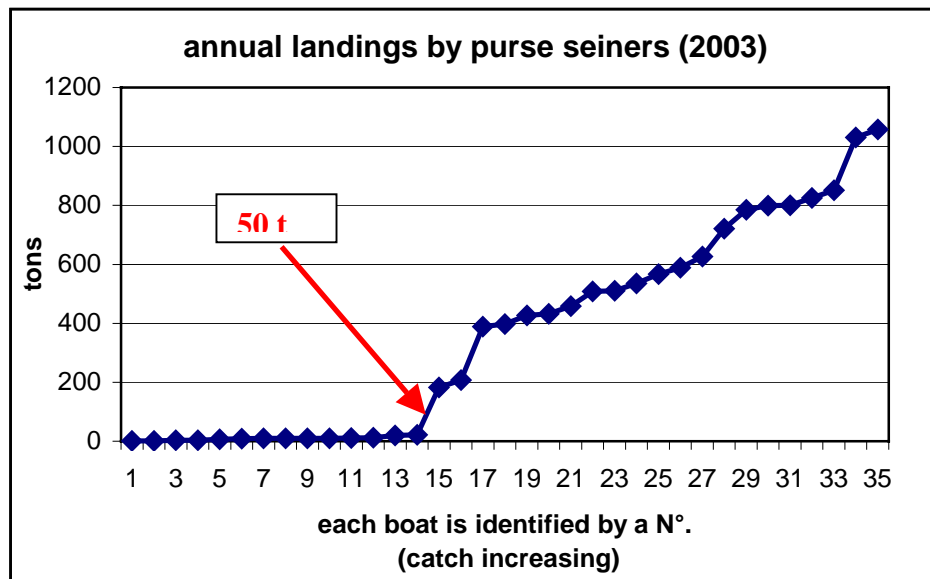


Figure 1

Purse seiners mainly fish around their home harbour. The fleet is divided in two geographical areas :

- The south of the Bay of Biscay (in the Basque country; about 10 vessels), which target anchovy during the second quarter; mackerel and horse mackerel during second semester. They are also using lines during this period for hake and tuna.
- The north of the Bay (south of Brittany; about 23 vessels), which target sardine almost all the year. Their landings represent 90% of sardine from the bay of Biscay.

The threshold showed figure 1 (50 t per year) separates in fact these two zones.

Looking at annual catches year by year (figure 1), a threshold of 50 tons per year has been set to separate target seiners from occasional ones. But two types of purse seiners should be separated : most of them target big sardine (they fish large quantities and have a low price), some of them look for small since they have agreements with cannery factories. In this case, they have a good price for small quantities. The method used by these categories is not the same : most of the vessels looking for large sardine fish by night while the others operate during the day.

2. SARDINE FISHERY

2.1. the fleet of the bay of Biscay

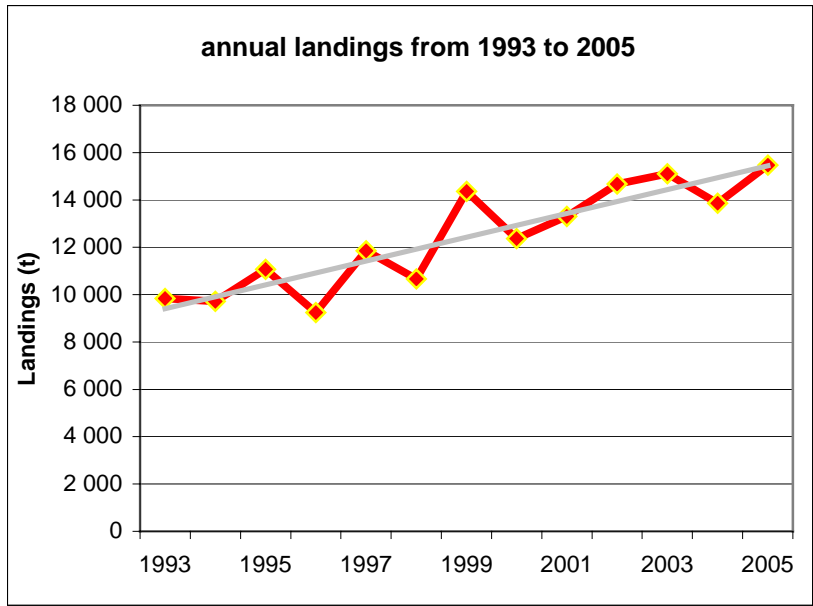


Figure 2

In Figure 2, we can see that annual landings are increasing year by year. It becomes possible by more purse seiners each year compared to the last one, the improvement of acoustic technology, and also because of an excellent quality of fish. More, purse seiners are encouraged by a small gasoil consumption compared to trawlers.

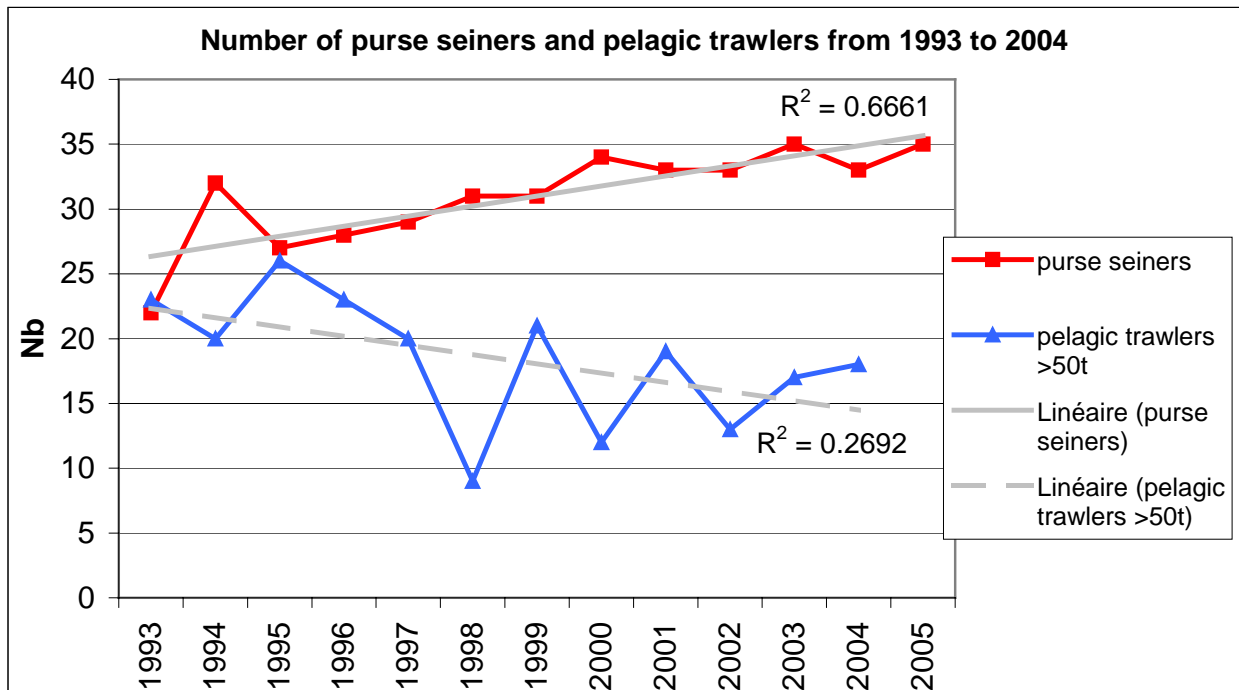


Figure 3

In figure 3, numbers of vessels are gathered. A reliable data base for the whole French fishery on any species is accessible only from 2000. Before, numbers of vessels were only available according to species. Therefore, we can be confident in the number of vessels

targeting sardine on the whole series (1993 to 2005), but a comparison with the total fleet is only accessible since 2000.

Actually, time have missed to calculate the number of pelagic trawlers really targeting sardine. We can imagine that this number is still decreasing, because they have lost the sardine market in aid of purse seiners.

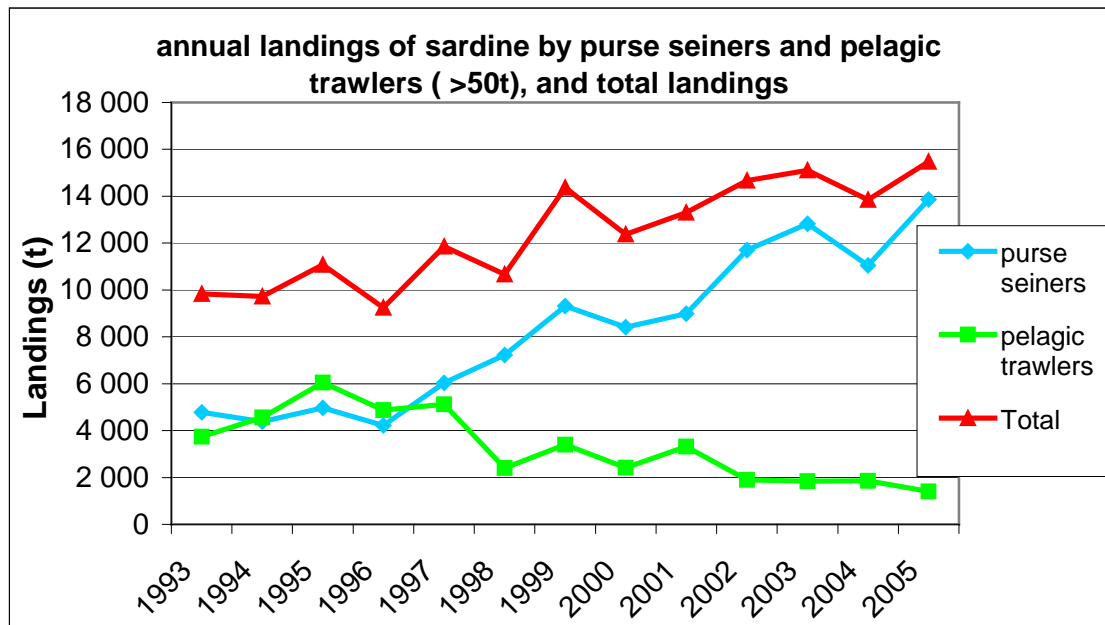


Figure 4

In figure 4, we can see one more time that the contribution of purse seiners is more and more important each year : even if the total landings are increasing, it is only due to the purse seiners because trawlers' catches are decreasing. 2005 shows a near disappearance of catches provided from trawlers (purse seiners represent 98 % of sardine landings in 2005 and 50% in 1996).

2.2. Seasonal distribution

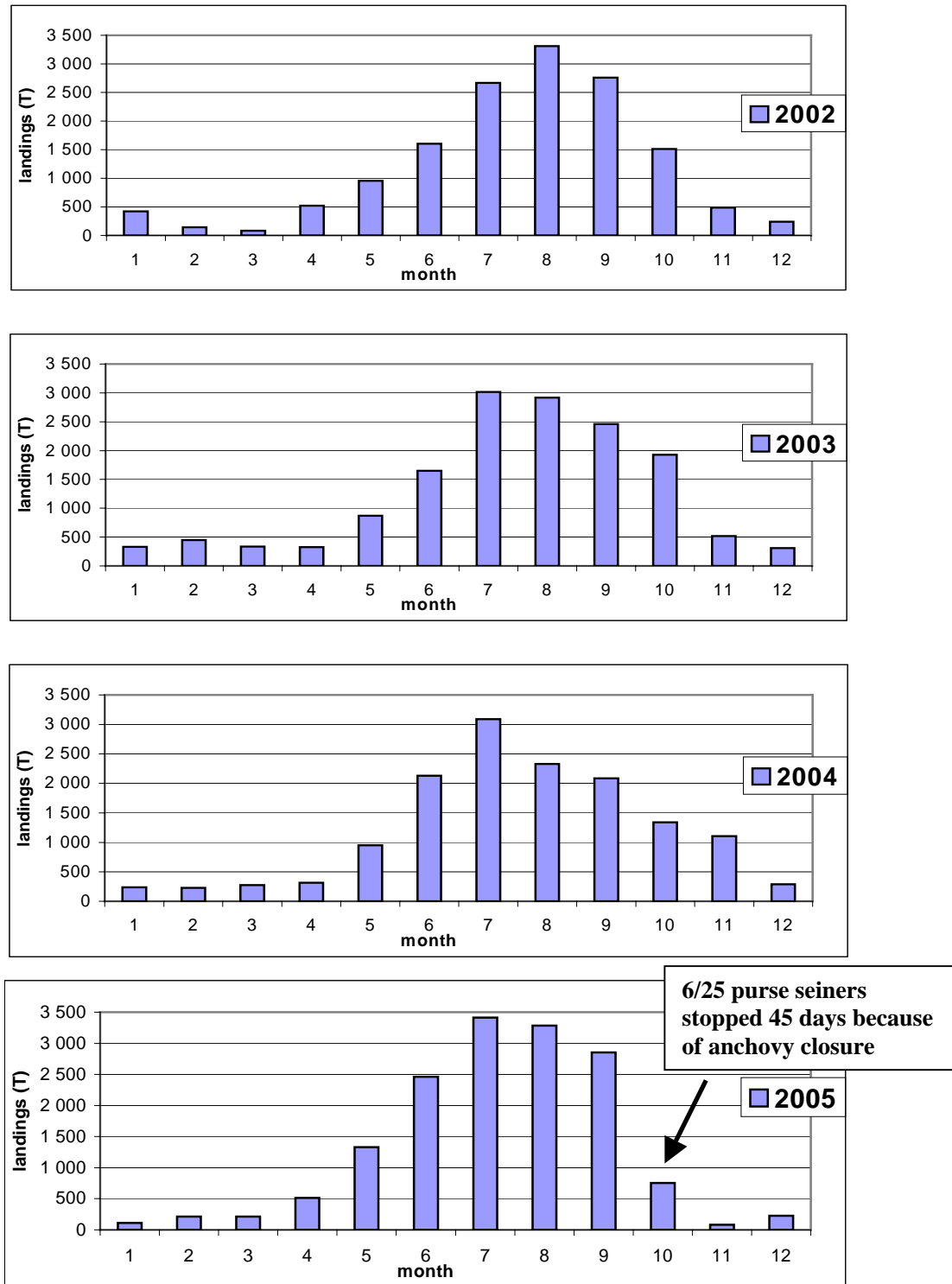


Figure 5

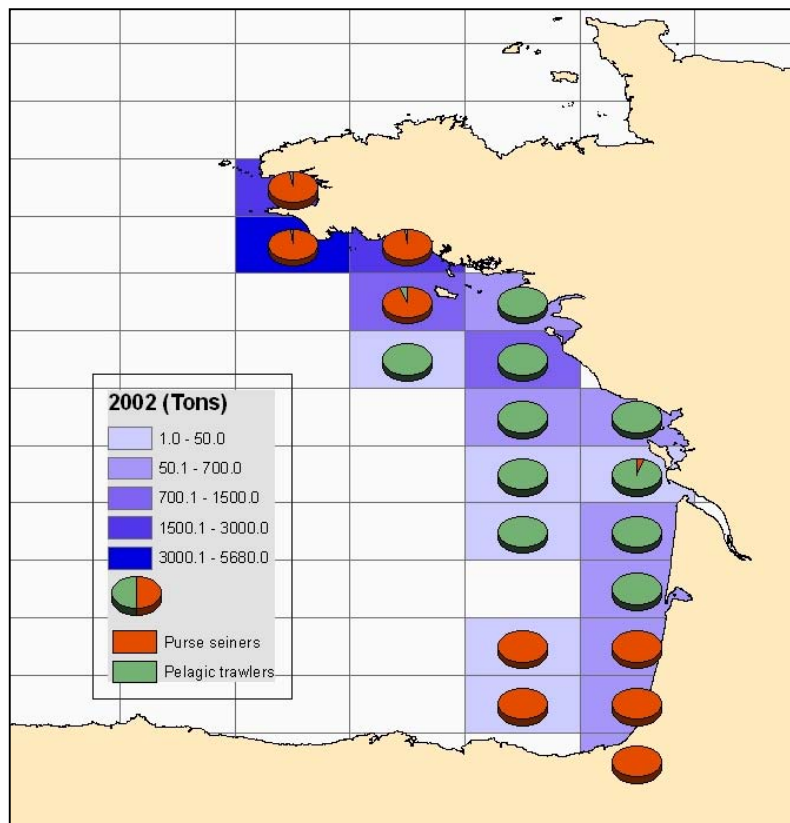
The distribution of landings month by month per year is showed on figure 5. it appears that sardine catches are seasonal, with the highest landings during the summer. We have to precise that the near totality of catches are realised in the south-west of Brittany. It is

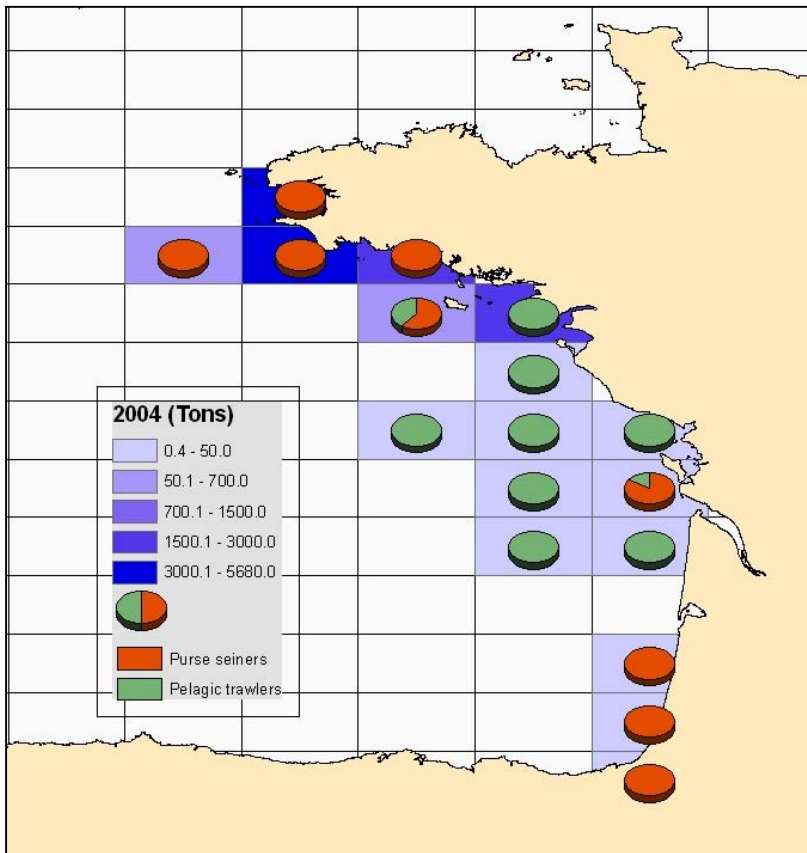
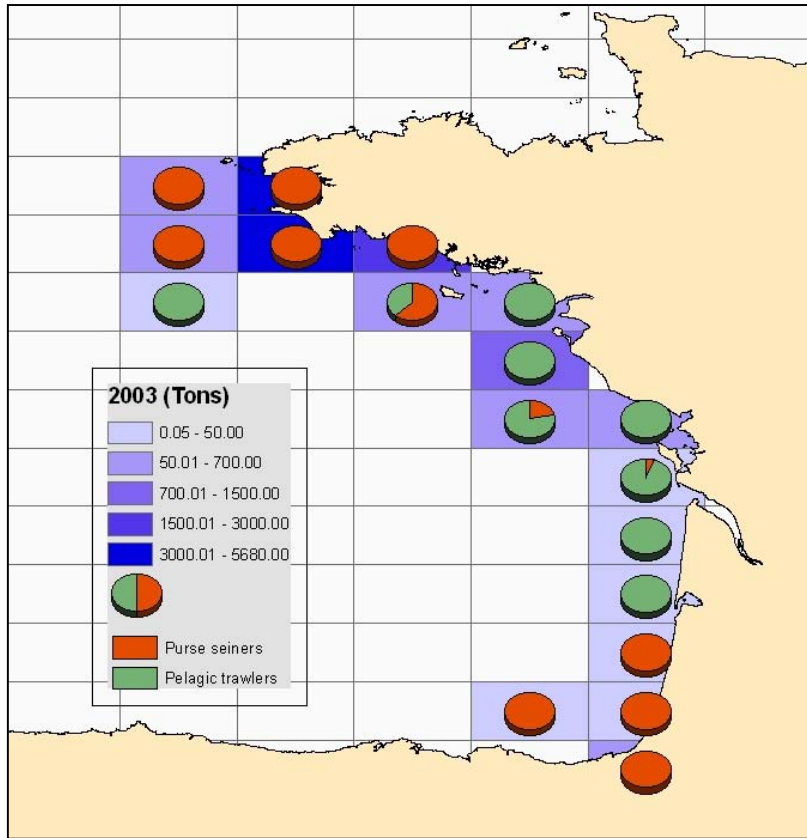
probable that the best period to catch sardine isn't the same in other part of the bay of biscay, but the only part of the Bay where sardine is really targeted is the North.

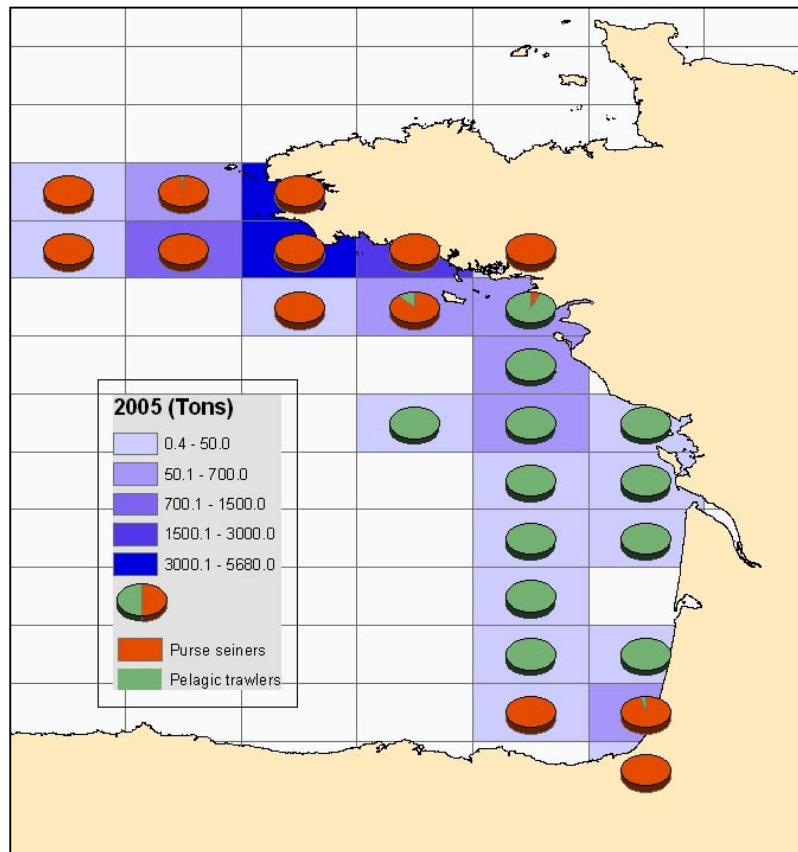
2005 is an atypical year : in the North part of the bay of Biscay, purse seiners used to fish anchovy in autumn. In 2005, the closure of the anchovy fishery has modified the activity of this fishery. These vessels had two choices : they could stop fishing all species during 45 days (with a financial compensation) or continue, knowing that anchovy is closed. One third have decided to stop fishing during this period. therefore, if anchovy was not closed, the landings of sardine could have been bigger during septembre and octobre 2005!

2.3. Geographic distribution

This approach is done from a part of the fleet as it is provided by a cross analysis between Log books and reported sardine sales. After some comparisons it appeared that they represent the near totality of the targeting fishery and were well representative.







Figure(s) 6

Figure 6 shows 2002 to 2005 distribution of sardine catches from french purse seiners and pelagic trawlers.

- purse seiners catch sardine in the North of the Bay of Biscay all along the year but in large quantities during spring and summer.
- Pelagic trawlers catch sardine (less and less) in the middle part of the Bay, they target small sardine, mostly during spring.

We can observe that the geographic distribution of purse seiners are respected : a big fleet in the north of the bay and a smaller in the basque country. These last vessels do not really target sardine : they catch anchovy during the second trimester, and mackerel and horse mackerel during the second semester.

The most part of sardine catches are realised in the south and west of Brittany each year. It seems that purse seiners are now fishing farther and farther from the coast.

Conclusion :

This is the best approach we can have for the time being about the French sardine fishery. This shows mainly that pelagic trawlers are targeting less and less sardine, year after year. In an assessment approach, it would be necessary to define an estimation of fishing effort, but it will be very difficult. We are able to count the number of fishing days, but not the time of fishing (or number of shoots for example for purse seiners) or time of searching schools. So, accessibility and catchability could be certainly more accurate than the fishing effort for assessment purposes.