

THE INCIDENCE OF SST AND SSTA ON THE SMALL PELAGICS CATCHES FROM THE CANARY ISLANDS



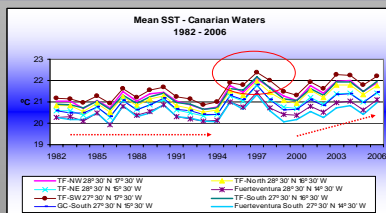
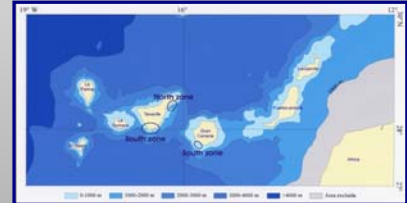
López Abellán, L.J. (*), Santamaría, M.T.G., González, J.F., Barrera (**), A., Balguerías, E. and Quintero, M.E.

(*) Centro Oceanográfico de Canarias. Instituto Español de Oceanografía. 38005 Santa Cruz de Tenerife. Islas Canarias (España)
E-mail: luis.lopez@ca.ieo.es

(**) Instituto Canario de Ciencias Marinas. Taliarte, Telde, Gran Canaria. Islas Canarias (España)

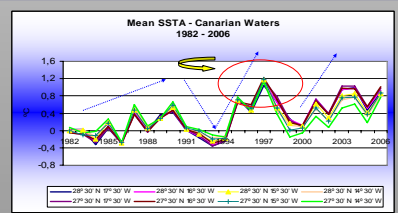
GENERALITIES

- We present, as one of the result of the ConAfrica Project (Cicyt CTM2004-02319), the relations between catches and catch index of small pelagics and the SST (Sea Surface Temperature) and the oscillations of SST Anomalies
- Species: Mackerel (*Scomber colias* Gmelin, 1789), Round Sardinella (*Sardinella aurita* Valenciennes, 1847), Horse Mackerel (*Trachurus picturatus* Bowdich, 1825), Sardine (*Sardina pilchardus* Walbaum, 1792), Flat Sardinella (*Sardinella maderensis* Lowe, 1838) and Anchovy (*Engraulis encrasicolus* Linnaeus, 1758)
- Study area: Zones North-East (28°30'N-15°30'W) and South (27°30'N-16°30'W) of Tenerife, and South of Gran Canaria (27°30'N-15°30'W) (Canary Islands)
- Period: 2005-2006
- Monthly satellite-derived sea-surface temperature (SST) and SST anomalies were obtained from the IGSS-IRI (International Research Institute for Climate Prediction, Columbia University)

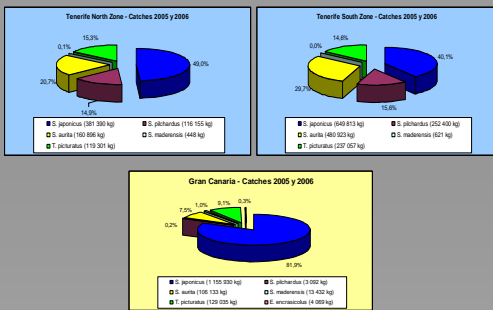


SST AND SSTA 1982 - 2006

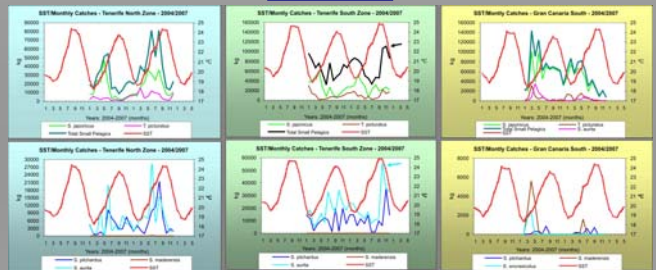
- 1982 - 1994: SST oscillations with similar values
- Late 1994: it starts a process where temperature increases until reach its maximum level in 1997
- 1998: slight decrease of SST until 2000 (as usual values)
- Since 2000: the temperature increases until reach the highest values in the whole series (25.2°C, September, 2006)



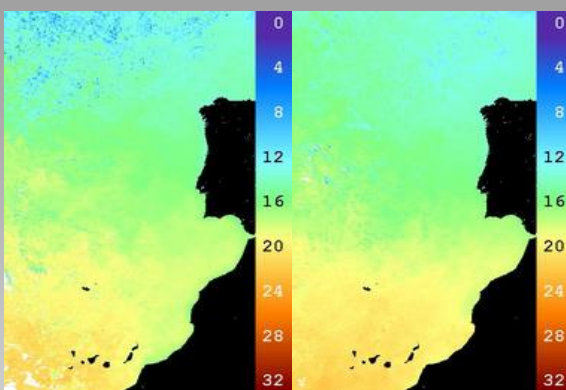
SMALL PELAGICS - TOTAL CATCHES 2005-06 BY ZONE



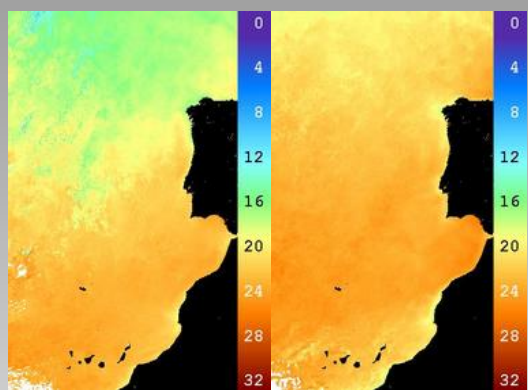
CATCHES / SST



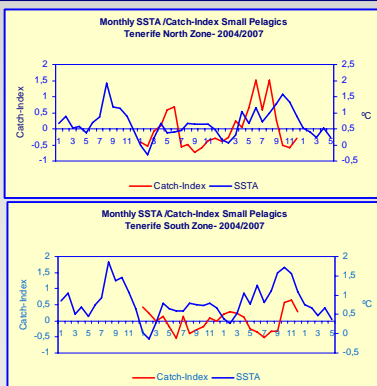
- Lower SST in February-March (18°C-20°C) and greater SST in September-October (25.2°C-23.5°C)
- The total catches, where mackerel was the predominant species, were great in the first semester of every year, with a certain lag on February (lower SST value)
- Contrary, lower values of the catches corresponded to previous months where the temperatures increased
- The greater captures in relation to the SST within the period October to November 2006 in the South of Tenerife were caused by the catches of *S. aurita*
- In general terms, greater catches \longleftrightarrow lower SST



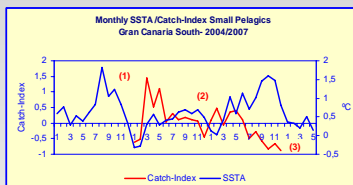
Thermic situation (SST) in February and March 2005: dates of the greater catches of small pelagics off Tenerife and Gran Canaria. Source: NOAA AVHRR data



Thermic situation (SST) in June and July 2006: dates of the lower catches of small pelagics off Tenerife and Gran Canaria. Source: NOAA AVHRR data



CATCH - INDEX (CI) / SSTA



SSTA values were always positive except for January and February 2005
Greater SSTA positive values in August-September 2004

General process:

- CI increases with a lag in relation to the cooling process in the previous months
- CI decreases in relation to the warming process, until reaching the lower values that correspond to a certain "stability" of temperatures
- CI decreases in general after the warming processes

DISCUSSION

It was observed an inverse relationship with a lag between the SSTA and the ratio of catches (CI): the cooling process of the water is related to a CI increasing with a lag and vice-versa
It seems that catches increase and decrease (distribution and/or abundance) of small pelagics off Tenerife and Gran Canaria (probably in all the Canaries) could be mainly affected by SST variations rather than by SST themselves
However, the SSTA could indicate that oceanographic processes acted on the resource, by the process itself rather than by the temperature

It does not seem to be prudent to extract conclusions with only two years analyzed. Nevertheless, the established "pattern" might be considered to be a contribution to the knowledge of the distribution and catches of small pelagic distributed in the Canary waters, besides as hypothesis to be confirm by the study of the historical catch series and the series of oceanographic parameters