

## ENVIRONMENTAL CHANGE ~ BIOLOGICAL RESPONSE

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Abstracts of Papers and Posters presented

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ABSTRACTS OF PAPERS AND POSTERS

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### POSTERS

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#### Ivory Coast and Ghana *Sardinella aurita* fisheries variations and climatic changes

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The catches of *Sardinella aurita* from the Ivory Coast and Ghana fluctuate greatly. In 1972 an exceptional availability led to overfishing and collapse. In 1978, the abundance was restored. Since 1981, the landings have remained at a very high level. This new situation is accompanied by changes in seasons and fishing areas. During the first period, the bulk of *S. aurita* was caught off Ghana, during the upwelling season. In the later years the catches come also from the Ivory Coast, all the year round.

Variability of upwelling and river flows are no longer sufficient to explain the changes in the yield. The rise of fisheries off the Ivory Coast would correspond to the development of a new population, due to a change in the shelf currents.

The hypothesis of an alteration in the current pattern is supported by some direct observations and a set of changes in the tropical Atlantic. (i) A sub-surface salinity maximum spreads out during 1984, in the eastern part of the Gulf of Guinea. It would be the origin of a westwards Guinea undercurrent spreading and intensifying. (ii) The latitude of the ITCZ (Inter Tropical Convergence Zone) affects that of the North Equatorial Counter Current (NECC). The Guinea Current (GC) issues from the NECC. Now, since 1984, the ITCZ has been shifting equatorwards, so an offshore displacement of the GC may be expected.

Over the shelf, the result would be an increase of the westwards advection increasing the loss of *Sardinella* larvae from the Ghanaian shelf, and their retention off the Ivory Coast. Hence, the recruitment of the Ivory *S. aurita* should rise.

#### Decline of the dogwhelk, *Nucella lapillus*, in response to tributyltin (TBT) pollution

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Tributyltin (TBT) has been extensively used as a biocide in antifouling paints; consequently concentrations of TBT leachate exceeding  $1 \mu\text{g l}^{-1}$  (1000 ppb) have been measured in some harbour waters. TBT concentrations as low as  $1 \text{ ng l}^{-1}$  (1 ppb) induce a genital disorder in stenoglossan gastropods, known as 'imposex'. This phenomenon, now recorded world-wide, causes male sex organs (penis and sperm duct) to develop on the female. Imposex in the European dogwhelk, *N. lapillus*, is induced by  $<1 \text{ ng l}^{-1}$  of TBT in ambient water, and females reared in excess of  $5 \text{ ng l}^{-1}$  are sterile because the imposed sperm duct blocks the oviduct preventing copulation and the release of egg capsules. The latter accumulate in the oviductal capsule gland, eventually causing it to rupture, killing the female. Populations close to harbours are thus non-breeding,