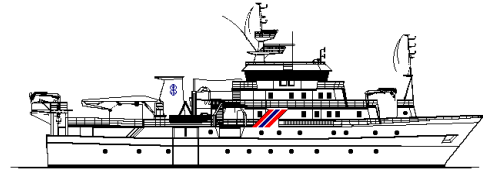


<b>Country:</b> Gabon and Congo				
<b>Research vessel:</b> R/V DR. FRIDTJOF NANSEN				
<b>Survey number:</b> 2008404				
<b>Number of days:</b> 10				
<b>General objectives:</b> Survey of the pelagic fish resources of Gabon and Congo.				
	<b>Port</b>	<b>Date</b>	<b>Coverage</b>	<b>Specific objectives</b>
<b>Departure</b>	Port Gentil, Gabon	3 May 2008	Gabon and Congo	<ul style="list-style-type: none"> <li>To estimate the abundance and to map the distribution of the main commercially important pelagic and semi-pelagic fish species in the region waters, including the two sardinella species <i>Sardinella aurita</i> and <i>S. maderensis</i>, the Cunene horse mackerel <i>Trachurus trecae</i> and other pelagic species.</li> <li>To map the general meteorological, hydrographical and biological conditions in the survey area by means of continuous recordings of weather data, CTD-casts (Temperature, Salinity and Oxygen), ADCP measurements (Acoustic Doppler Current Profiler) and plankton sampling along acoustical and hydrographical transect lines.</li> <li>to collect bottom sediment samples to map the benthic biodiversity in the region.</li> <li>On-the-job training for the local and regional participants on the main survey routines, including using the Nansis and Hydrobase software, scrutinizing acoustical data with the latest Norwegian post-processing system, Large Scale Survey System (LSSS), and producing acoustical biomass estimates.</li> </ul>
<b>Arrival</b>	Point Noire, Congo	13 May		
<b>Cruise leader:</b> Jens-Otto KRAKSTAD				
<b>Participants:</b>				
<b>From Direction Générale de la Pêche et de l'Aquaculture, Gabon:</b> Micheline SCHUMMER GNANDJI, Donatien LEYOKO and Jean de Dieu LEWEMBE				
<b>From Direction Générale de la Pêche et de l'Aquaculture, Congo:</b> Jean SAMBA, Claude Benoit ATSANGO and Romuald Tite AKENZE				
<b>From, Direction des pêches. Ministère de l'agriculture et developpement rural, R.D. Congo:</b> Koffi MULUMBA				
<b>From IMR, Bergen:</b> Jens-Otto KRAKSTAD (Cruise leader), Magne OLSEN, Tore MØRK and Ole Sverre FOSSHEIM				
<b>From University of Bergen, Norway:</b> Cathrine STABEL HENRIKSEN				
<b>Summary of the results:</b>				
The abundance of pelagic species in Gabon and Congo, particularly the sardinellas has been relatively high in recent years. Several areas in Congo and Gabon are restricted because of oil exploration activities, and particularly the area outside Olinde in Gabon is large and can possibly contain high abundance of pelagic fish. The area is omitted from the abundance calculations.				
<b>Sardinellas:</b> Sardinellas was distributed in several small low density area across the entire region of Gabon and Congo from inshore of 20 m depth to offshore of 100 m. Concentrations increased in the southern part				





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of the survey area. Typical schooling pattern of sardinella was observed less frequently than usual, partly because of the dominance of juvenile stages, but possibly also because of the warmer than usual sea water observed in the area. The two species showed typical separation in distribution with *S. aurita* generally found further offshore than the *S. maderensis*.

Last year there was a lack of signs of recruitment in catches of *S. aurita*, contrary to what has been observed previously in the area. This year again the main part of the fish is <15 cm, with a modal peak at 9 cm. Another modal peak can be observed for adult fish around 28 cm. The length distribution of *S. maderensis* shows four modal peaks at 8 cm, possibly at 14 cm, 22 cm and 27 cm. Juvenile *S. aurita* dominated in the survey area in numbers but in terms of biomass an adult cohort made so approximately 50% of the biomass was >27 cm. For *S. maderensis* 50% of the biomass <25 cm. Last year no juvenile *S. aurita* was found in the survey area, and 50 of the biomass was >28 cm. The situation was different for *S. maderensis* were 50% of the biomass was < 22 cm.

The biomass in Gabon and Congo was estimated to 80 thousand tonnes of *S. aurita* and 63 thousand tonnes of *S. maderensis*. Last year the biomass of sardinellas was estimated at 159 thousand tonnes all together. This consisted of 123 thousand tonnes of *S. aurita* and 35 thousand tonnes of *S. maderensis*. The two species showed slightly higher proportion of *S. maderensis* in the survey area this year than what was observed last year. 56% of the Sardinella was calculated to be *S. aurita*. The abundance of sardinellas has continued to decrease in the region from the estimate in 2005 that was the highest ever recorded.

**Other Clupeids:** As last year some *Ilisha africana* was found inshore along the coast associated with brackish water areas. The abundance was low and no abundance estimate or distribution map was produced. No Anchovy, *Engraulis encrasicolus* was found in the survey area this year.

**Trachurus trecae:** The horse mackerel *Trachurus trecae* was distributed on the mid shelf mostly off southern Gabon and in Congo between 50 m and 100 m depth in five low density ( $s_A < 300$ ) areas, one small low density area off Congo is not shown on the illustration. The species were mainly observed on the shelf edge this year and mixed with other demersal species. It was generally found close to the bottom and acoustic species separation was difficult at times.

The length distribution shows only one cohort of fish with a modal peak of 18 cm. Last year the length distribution contained fish of a wide size distribution from 11 cm to 26 cm with a modal peak of 15 cm. The cumulative biomass reflects that only one cohort was present in the survey area. 50% of the biomass was >17 cm. The total biomass of *Trachurus trecae* in the distribution area was 5.6 thousand tonnes. This is slightly more than the very low biomass of only 400 tonnes observed last year. The 2007 was the lowest estimate recorded in the region during the last five years. The biomass is still very low and no recruitment was observed this year, possibly because the survey was earlier than previous years.

**Other pelagic fish:** The Pelagic group PEL 2 (carangids, scombrids, barracudas and hairtails) were more or less continues in Gabon and Congo. The main distribution extended from inside of the survey area to approximately 100 m depth in the whole survey area. The fish were generally scattered and density in the area was low ( $s_A < 300$ ). Catch rates were analysed for the regions Gabon, north and south of Cape Lopez, and Congo. Assuming an average total length of 23 cm for all the species and a measured condition factor of 0.88 the biomass of PEL 2 was estimated to 41 000 tons, of this 8 000 tons were found in Congo. Last year about 57 thousand tonnes of P2 was estimated in total. Of this 48 thousand tonnes was found in Gabon while 9 thousand tonnes were found in Congo.

**Report: status: final References:**

J.O. Krakstad, M. Schummer Gnadji, J. Samba,(2008). **NORAD/FAO PROJECT GCP/INT/003/NOR, CRUISE REPORTS DR. FRIDTJOF NANSEN, SURVEYS OF THE PELAGIC FISH RESOURCES OF GABON, CONGO, DRC, ANGOLA and NAMIBIA Part I. GABON and CONGO, 3 May – 13 May 2008**, IMR, Norway, Direction Générale de la Pêche et de l'Aquaculture, Gabon, Direction Générale de la Pêche et de l'Aquaculture, Brazzaville, Congo.

**Constraints/Comments:**

