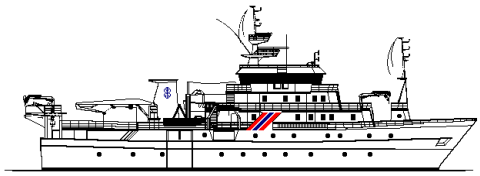
NANSEN PROJECT



Country: South Africa, Namibia

Research vessel: R/V DR. FRIDTJOF NANSEN

Survey number: 2009401

Number of days: 43

General objectives: Transboundary survey between Namibia and South Africa with focus on the shared stocks of deep water hake

	Port	Date	Coverage	Specific objectives
Departure	Cape Town	7 January	South Africa, Namibia	1. To plan and conduct a transboundary survey from Cape Agulhas to Orange River to produce distribution maps and abundance estimates of the two species of hake to be later merged with similar data from a co-occurring Namibian national demersal survey, to enable complete mapping and assessment of shared stocks, thus providing a measure of the degree of sharing of the stocks at the time of the survey. 2. To collect data on the maturity stages of the hakes to check for possible spawning activity. 3. To do an acoustic mini-survey off Hondeklip Bay to map aggregations of pelagic juvenile hake. 4. To collect other relevant data to better understand the environment impact on the distribution of hakes, and the fish community structure in the distribution areas of the hake.
Arrival	Walvis Bay	20 February		

Cruise leader: Oddgeir Alvheim (cruise leader 7-23.01 and 11-20.02), Tore Strømme (cruise leader 24.01-10.02)

Participants:
From MCM, South Africa: Sharon de Plessis (teamleader until 23.01), Marek Lipinski (teamleader from 24.01)
Interns, South Africa: Gavin Louw; Until 23.01: Sekive Mbande, Andrea Bernatzeder, Marc Hendrichs, Mthuzeli Gulekana, Robert Wiiliamson, Garth Walters; From 24.01: Jessica Escobar, Christine Madden, Kit Magellan, Robert McFarlane, Dean Weltz; From 11.02: Brendon Lee.
From IMR, Norway: Oddgeir Alvheim (cruise leader 7-23.01 and 11-20.02), Tore Strømme (cruise leader 24.01-10.02), Marek Ostrowski (until 10.02), Tore Mørk, Terje Svoren (until 10.02), Jan Frode Wilhelmsen (from 11.02)

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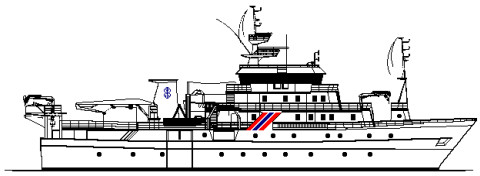

Summary of the results:

The findings from the survey 7 January-20 Februar combined with similar findings from the Namibian survey in the period 12 January-14 February confirms some the general features as regards the distribution of *M. paradoxus*:

- Minimal spawning takes place at this time of the year, confirmed through few signs of maturing gonads.
- The early pelagic stage is mainly confined to the central-outer part of the shelf off Port Nolloth in an area off the Cape Peninsula.
- Juveniles between 15 and 24cm are mainly concentrated on the shelf between Hondeklip Bay and St. Helena Bay. In contrast to some earlier years there are no spillover of juvenile fish northwards over the Orange Banks into Namibia. The main interface between Namibia and South Africa seems to be along the slope. The same pattern occurred in 2007 and 2008 while in the preceeding years there was a continous channel of fish extending into Namibia over the Orange Banks during the January surveys.
- The massive migration towards the slope starts in the 25-29cm group and when the fish is bigger than 30cm this movement is mainly completed.
- The adult fish is found from Cunene in the north and southwards beyond Cape Agulhas. The biggest fish, bigger than 70cm is, in consistency with previous surveys, only recorded in South Africa.
- The main part of the stock is at the time of the survey in 2009 located in South Africa which holds about 62% of the fishable biomass (fish bigger than 35cm) and 82% of the non-fishable biomass.
- The regional standing stock has been on a rising trend in the last three years, perhaps culminating during the last year. The regional estimate of fishable biomass has increased from 110 thousand tonnes in 2006 to roundly 200 thousand tonnes in 2009, close to the 210 thousand in 2008.
- Between 55 and 60cm fish length there is an increased share of the biomass in Namibian waters compared to smaller and bigger fish classes, perhaps indicating a periodic immigration from south.
- Blue Sea and Dr. Fridtjof Nansen use identical trawls and similar survey design and sampling protocol. The catchability coefficient in the biomass estimates applied is 0.8. Since the catchability coefficient of the trawl used on Dr. Fridtjof Nansen and Blue Sea has not been calibrated against absolute densities in the path of the trawl, the biomass estimates given here should not be considered as absolute biomass, but as indices of biomass. Thus the essential information is in relative comparisons and trends.

Report: status: final References:

FAO PROJECT: CCP/INT/003/NOR, Cruise reports “Dr. Fridtjof Nansen”, EAF-N2009/, T. Strømme, M. Lipinski, M. Ostrowski and O. Alvheim. **Transboundary survey between Namibia and South Africa with focus on the shared stocks of deep water hake. Cruise report No 1/2009. 7 January – 20 February 2009.**Institute of Marine Research, Bergen, Norway and Marine and Coastal Management**,** Cape Town, South Africa. Bergen, May 2010.

Constraints/Comments: