

A day ON BOARD the R/V Dr Fridtjof Nansen



It is 6am and the sun has only been up a short while. For some on board the *R/V Dr Fridtjof Nansen* it is the end of a long shift. For others, the day is just beginning.

Susana, an invertebrates expert from Spain, is watching the crew prepare a trawl. Shortly she will be very busy.

The three-man team of two Norwegians and a cadet from Namibia work with practiced efficiency. They unwind the trawl net from a large suspended drum so that it drops down onto the flat open area at the back of the boat. They then fit a couple of orange boxes to it which will transmit data on the trawl's geometry and sea conditions. They also attach a small metal tube which will collect a mud sample from the ocean floor.

Thirty minutes later and the trawl is hauled back on deck. The fish are a riot of colour, sizes and shapes. Eels make s-shapes in attempts to escape, crabs blow bubbles, small jelly fish drop from the overhanging net.

Wearing hard hats, aprons and rubber boots, scientists Mohammed and Ali, from Mauritania, and Fambaye from Senegal move in. With a combination of hands, shovels and sticks with a hook on the end they sort key species into plastic buckets. Oddgeir and Tomio, two experienced taxonomists, direct the process and quickly spot unusual finds. Species protected by international laws or endangered are quickly recorded and sent back to the water.

The filled baskets are dragged to the nearby sorting area while the remainder are hosed, or swept using snow shovels, into a measuring container under the deck. There they are volume-measured and then flushed out to sea.

For the next hour the fish are counted, weighed, measured and photographed. Data is recorded both electronically and on a written log for entering on a database later.

The scientists and crew are split into two shifts, each working for six hours at a time. It means someone is always preparing for work, analysing data or tidying up.

Down in the galley the three person team led by Lars the chef is getting breakfast ready for 7.30am. The

galley isn't that much bigger than a large domestic kitchen except its appliances are all on the industrial scale. Breakfast is prepared in a large frying pan on a gimble so it is level even if the ship is pitching. As the crew eat, waves crash against the portholes. The ship has picked up speed as it makes its way to the next station – the location where it will gather more data.

Two hours later and another trawl is underway. A small colony of birds circle waiting for discards. Watching them from a panoramic viewing area high up above the wheelhouse is Paul, from England, and Djiba, from Senegal. The pair spend every day on the platform recording sightings of birds and whales.

It is mid morning and the thin smudge on the horizon is the first sign of the West African coast. It will get steadily closer and then recede. The ship sails at 90 degrees to the coast on a route called a transect. Each transect can be up to 50km long. Along each one the scientists will examine marine life at a steadily changing depth up to the edge of the continental shelf. Over a ten day period dozens of transects will be worked and around 40 trawl hauls undertaken.

The next shift is now on duty and Raymond, a scientist from Guinea Bissau, is on deck. The crew have just hauled on board the sediment grab which has scooped up a mud sample from the ocean floor. Raymond will sift through it to see what life it contains.

Tomio and Fambaye prepare fish for measuring



Left to right: Tomio among a fresh trawl of fish; Captain X in the wheelhouse; Ana (left), Susana (centre) and Jemal sift through invertebrates recovered from a trawl.



He has adopted the steel capped, non-slip clogs favoured by the crew and braces himself against the swaying boat. The mud is put into a large round tin with a fine mesh bottom and then washed out. Raymond uses a pair of tweezers to extract any creatures. These are placed in a sample bottle which will be sent to a lab ashore for closer analysis.

Also recovered from the sea is the multi net, a plankton collector with five nets ending in flasks which filter water at different depths. Bjorn observes as Vito, from Cape Verde, and Jemal, from Mauritania, take the flasks to the lab for closer inspection.

The largest creatures are plucked out and put under a microscope to have their picture taken. The contents are then put through three size-levels of filtration with even more minute living material is extracted and stored. After Bjorn goes once through the process, with Vito and Jemal observing, they take over for the other flasks.

Meanwhile in the next room a hatch opens in the side of the boat – the CTD is being prepared. This 1.5m high 'cotton reel' has five cylinders which collect water. The CTD also has an electronic brain that continuously gathers information on water properties, including temperature and salinity. A crew member uses a small joystick attached to the powerful winch on deck to lower the CTD into the deep. It will take 30 minutes to reach its target depth of 1000m – and can go even deeper.

It is now mid afternoon and the vessel ploughs on to the next transect. The crew and scientists have pulled up plastic chairs and are enjoying a short rest. Norwegian, Spanish, French, English, and Wolof phrases bounce around. Someone brings up pastries from the galley – a daily tradition at 3pm.

The ship isn't resting however. It bristles with equipment to sample its environment. From sensors in the keel to radar above the wheelhouse, information is constantly gathered. The results can be seen best in the Instrument Centre where two electronic engineers make sure the systems keep operating 24 hours a day.

Next to the Instrument Centre, Jens-Otto, the chief scientist, is on the computer looking at the results from the hauls collected earlier that day.

After dinner finishes at 6.30pm some of the crew and scientists will relax in the gym or watch films in the TV room in the bowels of the boat. Meanwhile a new shift will carry on the research work on deck and in the laboratories.

During the afternoon several trawls were aborted because of local fishing nets. It has put the ship behind schedule. The late shift will be busy making up time. Four trawls are carried out, the last two under the glare of floodlights.

It is close to midnight. Susana and her Spanish colleague Ana take pictures of the invertebrates brought up in the last trawl. The samples will be taken ashore for further study by experts. Bright Spanish pop music plays from one of the computers as they work in the lab. A new shift is about to take over but it will take the pair several hours to log the stack of creatures collected.

In four hours it's dawn. The morning shift gets ready for another trawl, the first in the new day.



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