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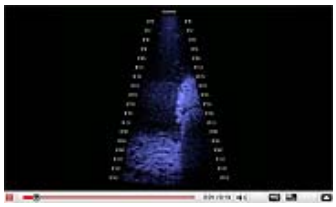
For quality of life

Accurate measurements with the DIDSON



A high frequency sonar (DIDSON) was used this summer to determine fish densities around windmills in the wind energy park off the shore of Egmond aan Zee. Since the research vessels normally used for the estimation of pelagic fish abundance were not allowed near the windmills, scientists were kept in the dark about the amounts of fish located around the poles of the turbines. They relied on rough estimates. Finally, two years after the first measurements were taken in de park, the missing data were collected.

Researcher Bram Couperus is very enthusiastic about the results gathered with the Dual frequency IDentification SONar (DIDSON). Couperus: “In 2003, two years before the windmill park was built, we measured the fish quantities in the area. To monitor the effects of the park on pelagic fish populations, we repeated the survey in 2007 – one year after the windmills were put up – and are planning to measure again in 2011, after five years. However, in 2007 we discovered we were unable to survey within a range of 200 meters from the windmills with our research vessel, due to safety procedures. This could lead to a serious bias in our research data.”

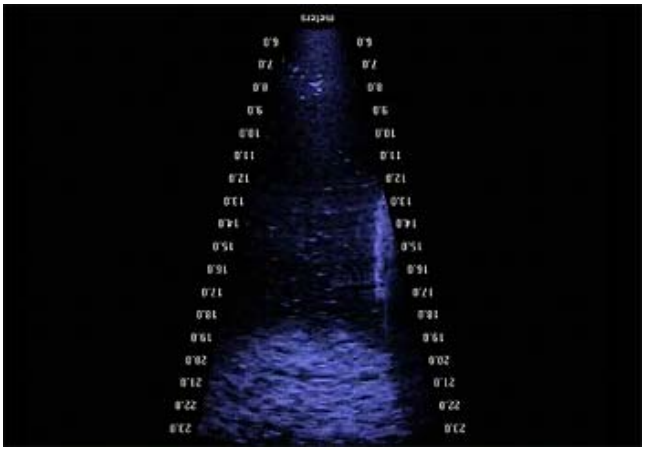
Higher density

The regular echosounder Couperus and his team had at their disposal in 2007 only allowed them to take measurements in between the windmills. Couperus: “We suspected that the fish densities around the poles were higher than in open water, while we were forced to survey outside a range of 200 meters from the windmill pillars. With this new piece of equipment we were allowed to survey close to the windmill pillars. We have collected very detailed information of life around the pillars. Sometimes you can even recognize a fish species with the DIDSON.”

The data collected in 2007 and the most recent findings from the DIDSON will now be put together to come to more accurate figures. Couperus stipulates it is too early to draw conclusions. “We found that the density of pelagic swimming fish was a factor 37 higher within 20 meters around the pillars, compared to the open water. This would imply a bias of 3% in our surveys of 2003 and 2007. However, the DIDSON data were collected in July, whereas the acoustic surveys from 2003 and 2007 were carried out in April. Fish distribution differs by month. In addition we were not able to collect sufficient data on the species composition during the DIDSON survey. We suspect that the fish near the pillars consisted of horse mackerel and cod, whereas the species in the acoustic surveys consisted of sandeel, herring and sprat. Therefore, it is imperative to again collect data with the DIDSON sonar in 2011 during the hydro acoustic survey, preferably combined with catch data.”

DIDSON clips online

The results of the DIDSON project will be reported before the end of the year. Couperus plans to place the high frequency sonar clips that were recorded in the windpark on the internet. “We are now putting sonar pictures in reports, but it would be much nicer to show the actual clips. The plan is to link the images in the report to the clips on the internet. I realize that for a lay person these clips might be a bit disappointing to see”, says Couperus, “but I can assure you: as an acoustic researcher I am very enthusiastic about the detailed results.”



- In this clip one can see the stony bottom around the windmill pillar. On the right side in the beam the pillar is visible. Above the bottom and left of the pillar tens of fish are visible. On the left, high in the beam (that is close to the sonar itself) one can spot a small separate fish school which moves down to the right and seems to dissolve within the fish near the pillar.