

**Half-year status for the project entitled:
Investigations on the artificial reef effect on fish from a
marine wind turbine park at Horns Reef.**

July 2002.
Contract Ref: Ordre Nr. 69.(11-06-01)
Our ref: 2002-132-1

1. Purpose of the project

The objectives of this investigation are:

- to study fish attraction relative to single wind turbine structures and to the wind turbine park
- to study the potential fish production enhancement of single wind turbine structures and of the wind turbine park

The first project year is the baseline study based on data from 2 fishing surveys, an early spring and late summer survey.

2. Description of the program during the first half of 2002 (part of Baseline study).

The second base-line survey was planned to take place during March 2002 just before deployment of the wind turbine park.

Conditions: A total of 8 fishing days are required to provide 24 gillnet samples per station. The ship and crew are on stand-by for a period of 30 days, to ensure 8 complete fishing days.

Analysis of the results and completion of the baseline study.

3. Status for the project.

The fishing.

Survey 2 (HR02-1): The second base-line survey HR02-1 was conducted during March 2002, just before the wind turbines were deployed. A commercial vessel was chartered for this purpose and two, trained HFI personnel assisted with the fishery.

Fishing: Each of three wind turbine positions (M55, M58 and M95) and the reference area were fished over 4 fishing days with 6 gillnets at each position. Table 1 gives an overview of the positions and total number of gillnets (=samples) fished during both surveys.

Data analysis

The catch data from both surveys were computed in the DIFRES fish biology database and checked for errors.

The species abundance and composition in the wind turbine and reference site were compared using the Primer (Clarke, 1993) and (SAS).

Table 1. Position and number of gillnets deployed at each position during the baseline fishing surveys.

Position	Gillnets deployed HR01-2 (samples)	Gillnets deployed HR02-1 (samples)
M55	24	24
M58	24	24
M95	18	24
Reference	18	24
TOTAL	84	96

Univariate analyses of abundance and diversity. The species diversity was calculated with the Shannon-Wiener (H') index using the Primer and tested for differences using student's t-test.

Multivariate analyses of community structure. A cluster analysis (dendrogram) and a nonmetric multi-dimensional scaling (MDS) ordination were the two methods applied to describe similarity in the fish community between the wind turbine and reference site during the two surveys.

4. Deviations from the programme .

The project is developing satisfactorily. The baseline study has been completed, the results analysed and the baseline report being compiled.

5. Program for the second half of 2002.

No field activities are planned for the remainder of this year. The complete baseline report with all the results is being compiled. A year report will be available by January 10, 2003.

Timetable for 2002. FD is Fishing Days.

Details	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec
½ year report JGS												
Survey 2 plan JGS/JD	x											
Survey 2 JD/CB		8 FD										
Data computing				xxx								
Otoliths					xxx							
Data treatment					xxx	xxx						
½ year report						xxx						
2. year report												xxx

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