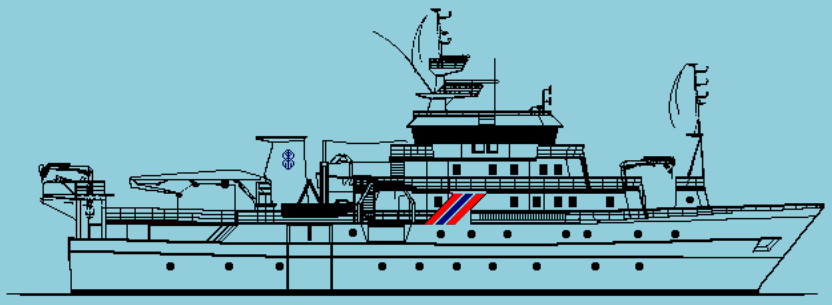

MARINE ENVIRONMENTAL SURVEY OF BOTTOM SEDIMENTS IN GHANA

Survey of the bottom fauna and selected physical and chemical compounds

in May 2009

28 April - 16 May 2009

Institute of Marine Research (IMR)
Norway

Uni Research AS, SAM-Marin
Norway

Environmental Protection Agency (EPA)
Ghana

University of Ghana
Legon, Ghana

University of Cape Coast (UCC)
Ghana

Tullow Oil

Survey Department
Ghana

Bergen November 2009

THE EAF-NANSEN PROJECT

FAO started the implementation of the project “Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF-Nansen GCP/INT/003/NOR)” in December 2006 with funding from the Norwegian Agency for Development Cooperation (Norad). The EAF-Nansen project is a follow-up to earlier projects/programmes in a partnership involving FAO, Norad and the Institute of Marine Research (IMR), Bergen, Norway on assessment and management of marine fishery resources in developing countries. The project works in partnership with governments and also GEF-supported Large Marine Ecosystem (LME) projects and other projects that have the potential to contribute to some components of the EAF-Nansen project.

The EAF-Nansen project offers an opportunity to coastal countries in sub-Saharan Africa, working in partnership with the project, to receive technical support from FAO for the development of national and regional frameworks for the implementation of Ecosystem Approach to Fisheries management and to acquire additional knowledge on their marine ecosystems for their use in planning and monitoring. The project contributes to building the capacity of national fisheries management administrations in ecological risk assessment methods to identify critical management issues and in the preparation, operationalization and tracking the progress of implementation of fisheries management plans consistent with the ecosystem approach to fisheries.

LE PROJET EAF-NANSEN

La FAO a initié la mise en oeuvre du projet "Renforcement de la base des connaissances pour mettre en œuvre une approche écosystémique des pêcheries marines dans les pays en développement (EAF-Nansen GCP/INT/003/NOR)" en décembre 2006. Le projet est financé par de l'Agence norvégienne de coopération pour le développement (Norad). Le projet EAF-Nansen fait suite aux précédents projets/ programmes dans le cadre du partenariat entre la FAO, Norad et l'Institut de recherche marine (IMR) de Bergen en Norvège, sur l'évaluation et l’aménagement des ressources halieutiques dans les pays en développement. Le projet est mis en oeuvre en partenariat avec les gouvernements et en collaboration avec les projets grands écosystèmes marins (GEM) soutenus par le Fonds pour l’Environnement Mondial (FEM) et d'autres projets régionaux qui ont le potentiel de contribuer à certains éléments du projet EAF-Nansen.

Le projet EAF-Nansen offre l’opportunité aux pays côtiers de l'Afrique subsaharienne partenaires de recevoir un appui technique de la FAO pour le développement de cadres nationaux et régionaux visant une approche écosystémique de l’aménagement des pêches et la possibilité d'acquérir des connaissances complémentaires sur leurs écosystèmes marins. Ces éléments seront utilisés pour la planification et le suivi des pêcheries et de leurs écosystèmes. Le projet contribue à renforcer les capacités des administrations nationales responsables de l’aménagement des pêches en introduisant des méthodes d'évaluation des risques écologiques pour identifier les questions d’aménagement d’importance majeure ainsi que la préparation, la mise en œuvre et le suivi des progrès de la mise en œuvre de plans d’aménagement des ressources marines conformes à l'approche écosystémique des pêches.

Participations at the cruise

Sediment sampling onboard *Dr. Fridtjof Nansen*

From Ghana:

Emmanuel Appoh	(EPA Ghana)
Abdalla Ibin	(EPA Ghana)
John Kofi Nyante	(EPA Ghana)
Lloyd Cyril Allotey	(University of Ghana, Legon)
Benjamin O. Botwe	(University of Ghana, Legon)
Kwame N. Damoah	(Marine Fisheries Research Division)
Reynolds Obeng	(Marine Fisheries Research Division)
Joseph Aggrey-Fynn	(University of Cape Coast, Dept. of Fisheries & Aquatic Sciences)
Edward A. Awuah	(Survey Department)
Isaac Larbie	(Survey Department)

From Norway:

Frøydis Lygre	(University of Bergen)

Supervised by:

Gisle Vassenden	(Uni Research AS)
and	
Bjørn Serigstad (Cruise leader)	(IMR)

Seabed mapping with multibeam

Alexey Andrew	(Elcom/Marimeter)
Atle Lagestrand	(Norwegian Mapping Authority, Hydrographic Service)

From IMR

Magne Olsen
Tore Mørk
Jarle Kristiansen
Marek Ostrowski

We would like to thank the officers and the crew onboard *Dr. Fridtjof Nansen*.

ANALYSIS AND REPORTING

Sorting of biological samples
Uni Research AS

Identification of biological samples
Øystein Stokland (Marine Bunndyr AS)

Organic chemical analyses
Personnel at Eurofins Environmental laboratory AS

Metal analyses
Personnel at Eurofins Environmental laboratory AS

Physical analyses
Helge Grønning (Uni Research AS)

Computer analyses
Kristin Hatlen and Gisle Vassenden (Uni Research AS)

Reporting
Bjørn Serigstad (IMR), Gisle Vassenden, Kristin Hatlen, Tor Ensrud and Per-Otto Johansen (all from UNI Research), Marek Ostrowski, (IMR), Magne Olsen (IMR), Atle Lagestrand (Norwegian Mapping Authority, Hydrographic Service), Joseph Aggrey-Fynn (UCC)

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1.INTRODUCTION

The coastal zone of Ghana stretches from the borders with the Republic of Togo in the east to the Republic of Cote d'Ivoire in the West and covers a total distance of 565 km. The coastal stretch may be divided into three geomorphologic zones with various characteristics as below:

- West Coast, 95 km fine sand, gentle beaches, coastal lagoons
- Central Coast, 321 km, embayed coast of rocky headlands, rocky shores, littoral sand barriers, coastal lagoons.
- East Coast, 149 km, sandy beaches, deltaic estuary of Volta River situated half way in between.

Ghana's coastal zone represent only about 6.5 % of the country's land area, but inhabits about 25 % of the nations population. The current use of the coastal areas in Ghana are fishing; human settlements; tourism; industrial development; mining; sand winning and oil and gas exploration. Marine fishing contributes with about 4 % to the country's GDP. The living standards in these areas are significantly lower than in the urban centres. Average welfare levels among food farmers in rural coastal areas, estimated by the Ghana Poverty Assessment, are 12 % below that in large urban centres such as Accra. Lack of healthcare, poverty and environmental degradation contribute to a vicious circle that inhibits human development in the coastal zone.

In this setting the emerging oil industry poses a challenge to Ghana's coastal population, mostly consisting of fishermen. The effects of the oil indusry on other industrial and economical interests are also of concern to Ghana. These groups are worried about the possible negative impacts from the petroleum activity on several areas such as:

- Pollution from oil production
- Discharges of untreated wastes from oil tankers and other vessels
- Reduced recruitment to fish stocks
- Loss of marine biodiversity
- Limited access to fishing grounds
- Limitations to settlements and recreational use of the coast line
- Fear of health problems related to pollution.
- Limitations to the emerging tourist industry

The co-existence of the fishing communities and oil sectors as well as other interests is necessary for a sustainable utilisation of marine resources as well as conservation and protection of the marine environment. An effective Coastal Zone Management must be based on a clear understanding of the complexities in relation to coastal natural resources, and the coastal population that subsists on these resources.

An important factor in safeguarding and balancing the relation between different commercial users, the coastal inhabitants, and the protection of the marine environment has been the development of legislation, political instruments, the establishment of governmental institutions, NGOs and private institutions. Ghanaian legislation that has been passed in the area of integrated coastal zone management and sustainable development includes the following:

- Beaches Obstruction Ordinance, 1897 (Cap 240)
- Rivers Ordinance, 1903 (Cap 226)
- Wild Animals Preservation Act, Act 43, 1961
- Oil in Navigable Waters Act, Act 235, 1964
- Towns Ordinance, 1892
- Volta River Development Act, 1961
- Fisheries (Amended) Regulations, 1977 and 1984
- Fisheries Law, PNDC 256, 1991
- Fisheries Act 625, 2002.

The legislation for marine environmental protection and sustainable use and conservation of marine living resources is contained in *the Biodiversity Strategy and Action Plan* and the Coastal Wetlands Strategy.

Ghana have developed offshore environmental monitoring programme/plan comprising both baseline surveys prior to oil and gas development and follow-up surveys during production and decommissioning. The baseline or initial survey aims at providing data on the existing marine environment and will help with the design of future monitoring programme. Both field-specific monitoring and wider area monitoring has been adopted by the Environmental Protection Agency to ensure holistic environmental quality monitoring of the marine environment. The present survey is the first focusing on environmental monitoring of the Ghanaian continental shelf, and the intension is that, this survey should be the starting point for systematic environmental monitoring in Ghana.

For implementation of the offshore environmental monitoring programme/plan, a multi-sectorial cooperation will be facilitated between the authorities for Environment, Petroleum, Fisheries and Coastal/maritime Affairs including the Universities.

The problems with pollution and transport of pollutants are complex and a transboundary. Petroleum activities are not limited to the Ghanaian territory; it also takes place West and East of Ghana in Cote d'Ivoire and Nigeria, respectively. In this way, it is a shared problem with countries in the Guinea Current Large Marine Ecosystems (GCLME).

This monitoring survey is a joint effort between EPA, University of Ghana, University of Cape Coast, Survey Department, Marine Fisheries Research Division and Tullow Oil. It will contribute with valuable information about the benthic communities and the background levels of hydrocarbons and the metal composition in the benthic sediments, and serve as reference material in future surveys. Oceanography and bathymetry started at the West Coast (Jubilee Field) will gradually be expanded to cover a representative area of the Central and East Coast of Ghana. These data will also be an important part of the sensitivity map.
A detailed overview of the marine resources and the environmental state of the ecosystem is necessary for the management of the marine resources in a way that will benefit Ghana.

2. MATERIALS AND METHODS

2.1 Survey area

The dominant current flow in this area is north-west to south-east, parallel to the shelf shown in fig 2.1. The shelf breaks at approximately 100 m on the western transect 120 miles off the coast, on the eastern transect the shelf breaks closer to shore and the slope is less steep. The sediments are dominated by sand down to 250m for the GW and GP transects and pelite from 500 m to 1200 m. On the eastern transect GE the shallow stations mostly consists of finer sediments while there is more sand on 250 and 500 m. Below the stations at 1200m the slope continues south to the abyss in the gulf of Guinea.

2.2 Sampling design

The goal of this survey was to provide increased knowledge about the environmental status of the marine ecosystem in the Western Region of Ghana. To achieve this goal 18 grab sites on 3 transects in the western part of Ghana, in addition to selected sites at a pre-drilled area of the Jubilee field operated by Tullow Oil was sampled. The sampling sites were spread out on the three transects at six predefined depths (aprox. 25 m, 50 m, 100 m, 250 m, 500 m and 1200 m depth). These sites may be used as reference stations for future surveys.
At the Jubilee field, sampling was carried out at the drilling site J7 (planned to be drilled from May 22. 2009). The stations were located at a distance of 250 m to the north-west and 250 m and 1000 m south-east of the planned drilling site J7. 3 additional samples for chemical analysis were collected at a site located eastwards, 500 m from J7 as shown in figure 2.2

The sediment sampling was executed in accordance with the OSPAR guidelines for sediment monitoring in offshore oil production areas.

Duplicate samples were collected for chemical analysis (for training and comparison of results).

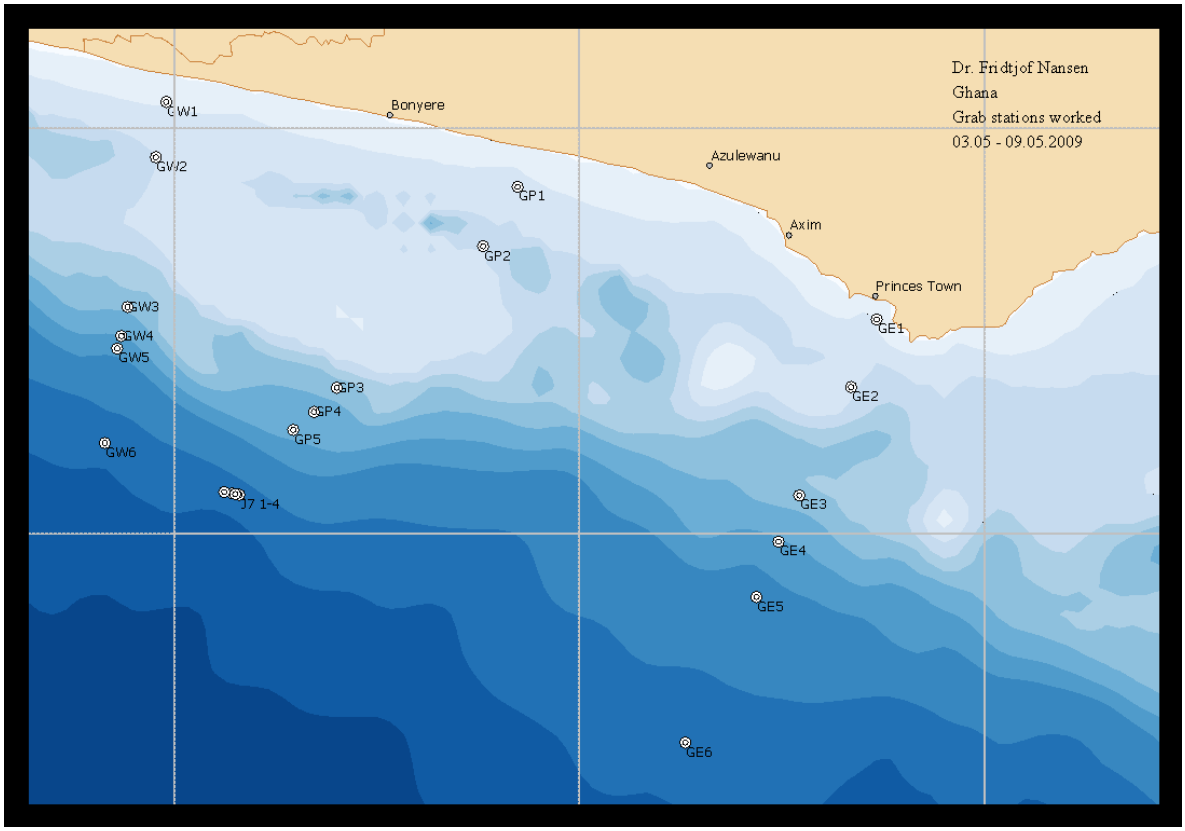


Figure 2.1. Map showing the investigated sites.

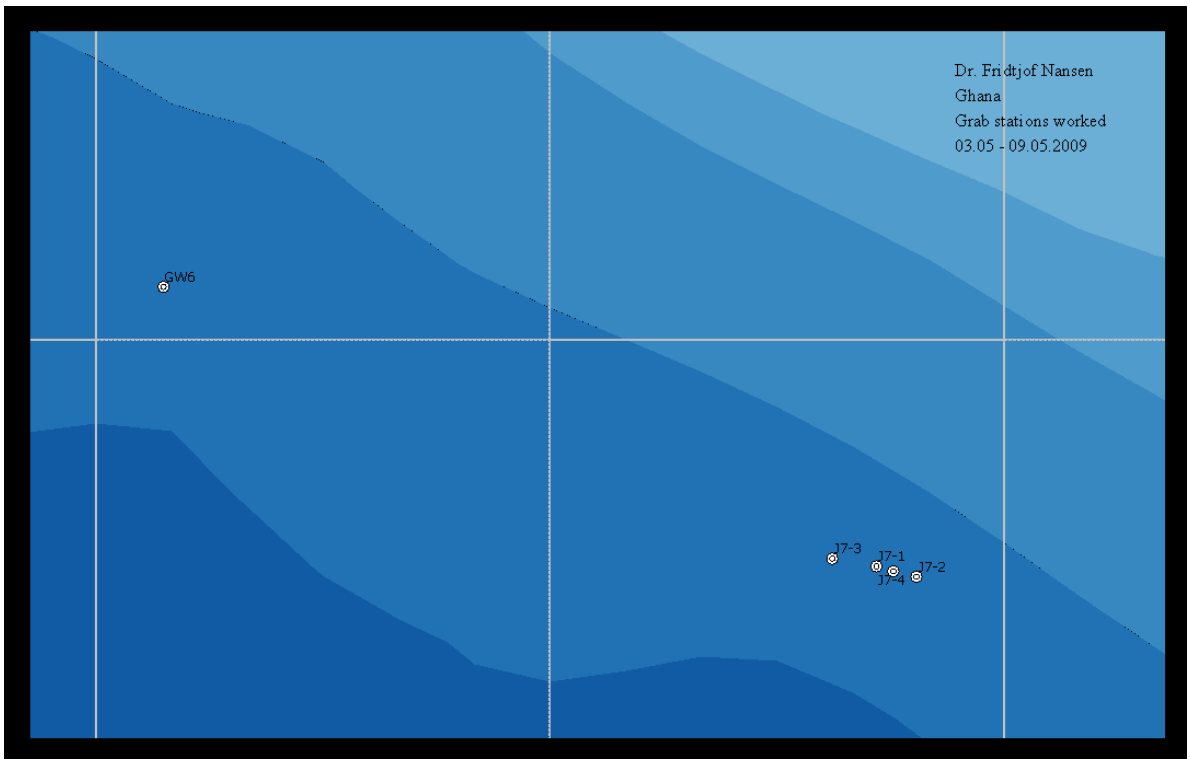


Figure 2.2. Map showing the investigated sites at the Jubilee field (J7 1-4) in relation to GP4 and GP5.

Table 2.1. Information about benthic sampling sites and the CTD-sites.

Grab-station nr.	CTD-station nr.	Date	Time UTC	Longitude WGS84	Latitude WGS84	Depth (m)	Sediment description
GE1	477	04.05.2009	13:15:32	-2.13267	4.764733	28	Silt and sand. Broken shells
GE2	476	04.05.2009	09:46:42	-2.16448	4.681167	50	Silt and clay
GE3	478	04.05.2009	16:21:58	-2.22888	4.547150	101	Silt and sand
GE4	479	04.05.2009	19:36:36	-2.25403	4.490267	250	Silt and sand
GE5	480	05.05.2009	00:01:23	-2.28167	4.421583	503	Clay and silt
GE6	481	05.05.2009	05:54:40	-2.36910	4.242100	1201	Clay and silt
GW1	488	06.05.2009	15:42:55	-3.00923	5.032833	28	Sand
GW2	487	06.05.2009	13:42:23	-3.02270	4.964233	52	Silt
GW3	486	06.05.2009	11:14:52	-3.05775	4.779500	104	Sand and silt
GW4	485	06.05.2009	07:12:34	-3.06473	4.743967	252	Sand and silt
GW5	484	06.05.2009	03:33:52	-3.06982	4.728583	501	Clay and silt
GW6	489	06.05.2009	22:36:37	-3.08517	4.611617	1200	Clay and silt
GP1	492	07.05.2009	12:20:57	-2.57592	4.928033	28	Sand
GP2	491	07.05.2009	10:21:52	-2.61877	4.854317	51	Sand, broken shells
GP3	490	07.05.2009	06:48:08	-2.79882	4.679933	102	Sand, broken shells
GP4	483	05.05.2009	22:49:24	-2.82733	4.650300	250	Sand
GP5	482	05.05.2009	18:49:39	-2.85302	4.628283	508	Clay and silt
J7-1	493	07.05.2009	18:35:03	-2.92807	4.550033	1273	Clay and silt
J7-2	-	08.05.2009	02:09:48	-2.91933	4.547633	1300	Clay and silt
J7-3	-	08.05.2009	10:59:28	-2.93790	4.551667	1271	Clay and silt
J7-4	-	08.05.2009	15:52:16	-2.92442	4.548900	1280	Clay and silt

2.2.1 Hydrographic sampling

CTD profiles were deployed at selected sediment sampling stations. A Seabird 911 CTD Plus was used to obtain vertical profiles of temperature, salinity and oxygen. Real time plotting and logging was done using the Seabird Seasave software installed on a PC. The profiles were taken down to a few metres above the sea floor. The oxygen sensor (SBE 43) has prooved itself to be very stable; hence no calibration samples were collected during the survey.

The SBE 21 Seacat thermosalinograph was running continuously during the survey, collecting data for salinity and relative temperature at 5 m depth every 10 seconds. An attached in-line Turner Design SCUFA Fluorometer was used to supplement these data with the underway measurements of Chlorophyll-a levels [RFU].

Meteorological data, wind direction and speed, air temperature and sea surface temperature (SST) were automatically logged using a WIMDA meteorological station and averaged by every nautical mile distance sailed.

2.2.2 Sediment sampling and sample treatment

The sediment samples were collected by Ghanaian scientists under the supervision of expirenced Norwegian scientists from accreditated institutions that instructed and assisted them with the sampling. The sampling was done according to the Norwegian guidelines ”Aktivitetsforskriften”, OSPAR guidelines, the Draft “Requirements for Environmental Monitoring of the Petroleum Activities on the Ghanaian Continental Shelf” and International Standards (ISO 5667-19 and ISO 16665).
The positioning of *Dr. Fridtjof Nansen* was done by Differential Global Positioning System (DGPS). The sediment samples were collected using a Van Veen grab with adjustable weights and an opening of 0.1 m². The total volume of the grab was 21 litres.
Ten grab samples were collected at each grab station along the three transects. Five samples were used for biological analysis. The volume of each sample was measured, then the sample was sieved through a 5 mm sieve and a 1 mm mesh sieve placed in a water bath. The material retained in the sieves were placed in 500-1000 ml plastic containers and fixed with 4% formaldehyde in seawater, borax was added to avoid acidity. Each sample was labelled for identification using the station ID, sample nr, date etc. and stored on board in transport containers.

Three samples were used for chemical analysis (metals and oil hydrocarbons) and grain size analysis. Chemical samples were taken from the upper 0-1 cm of the samples surface, and the samples for grain size were taken from the upper 5 cm. The last two grab samples were sieved through a 0.5 mm mesh sieve in a water bath and fixed with 4% formaldehyde in seawater and the pH stabilised with borax. These two samples were meant for analyzes by The University of Ghana, Legon students.

The sediment samples for hydrocarbons and grain size analyses were taken with a specially designed metal spatel, to avoid contamination while the samples for metal analyses were collected with plastic spoons. The spoons were washed with seawater inbetween sampling. The samples for chemical analysis were packed in pre labelled Rilsan plastic bags and immediately frozen to prevent evaporation of labile compounds. The samples were kept frozen for further analysis in the onshore laboratory. Samples for TOM and grain size analyses were taken from the upper 0-5 cm layer of the sediment and put in separate plastic bags, labelled and imediatly frozen.

At the end of the survey the samples for metal and THC to be analyzed in Ghana were transported directly to the laboratory of the Environmental Protection Agency. The chemical samples for analyses in Norway were stored onboard in the freezer, and later shipped frozen to Norway from the Tema port. The biological samples were transported to Uni Research, SAM-Marin`s Taxonomy lab from Walvis bay, Namibia. The chemical samples were later transported to Eurofins Norway, Environmental Laboratory AS.

Deviations

As a general requirement, only samples with complete grab closure, and undisturbed sediment surface should be collected for further processing. This could not always be achieved due to very soft sediment encountered in the deepest stations. In some of the samples the sediment pressed against the lid of the grab. All samples however were collected and analyzed according to the sampling plan. All deviations from the sampling procedures were noted in the sampling journal.

Plate 1. Sediment sampling carried out by Ghanaian scientists.

2.2.3 Seabed mapping with multibeam echosounder

Location: Outside the coast of Ghana
Vessel: R/V Dr. Fridtjof Nansen
Period: May 2009

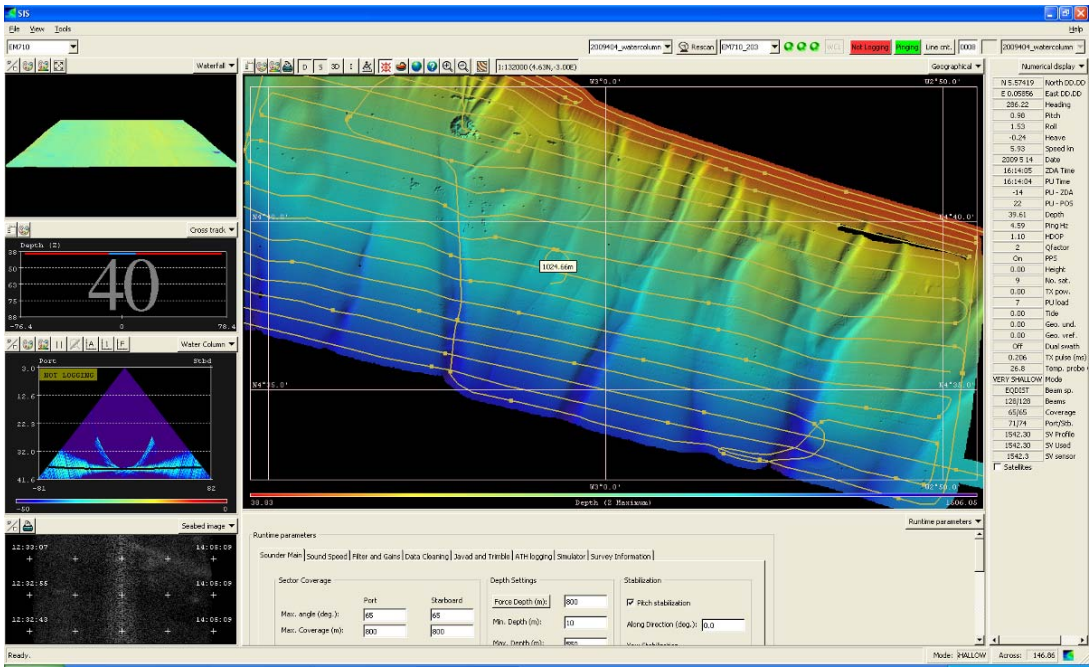
MULTIBEAM SURVEY

The multibeam survey covered an area of 800 km^2 between the border of the Ivory Coast and 20 nautical miles eastward, depth from 100 m to 1500 m. During the survey, local scientists were trained in the sampling methodology and equipment operation.

The survey was executed using the Kongsberg Maritime EM710 multibeam echosounder with positioning and motion data from Seapath 200. The positioning system used was Fugro SeaStar. Seabed Information System (SIS) software was used for online logging and echosounder control. Post-processing of data was performed using Neptune, which was also used for the calibration of the EM710.

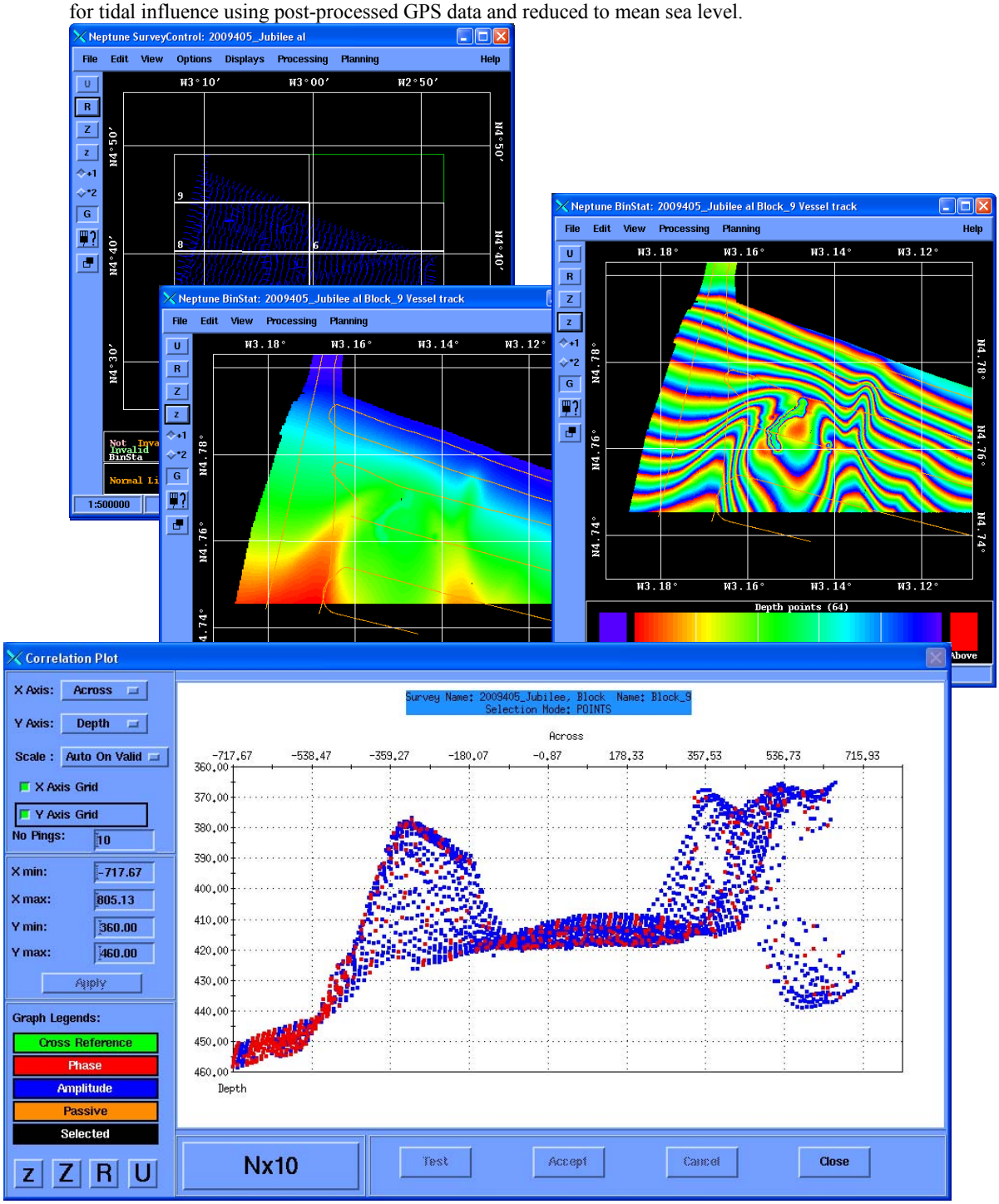
Seabed Information System (SIS)

SIS is used for the online operation of Kongsberg Maritime multibeam echosounder systems. The application was used by the operator to control all settings and logging during the survey.



NEPTUNE – Post Processing

Prepared raw data from SIS were processed using Neptune post-processing software. All depths were corrected for tidal influence using post-processed GPS data and reduced to mean sea level.



Screenshots from Neptune Post-processing software

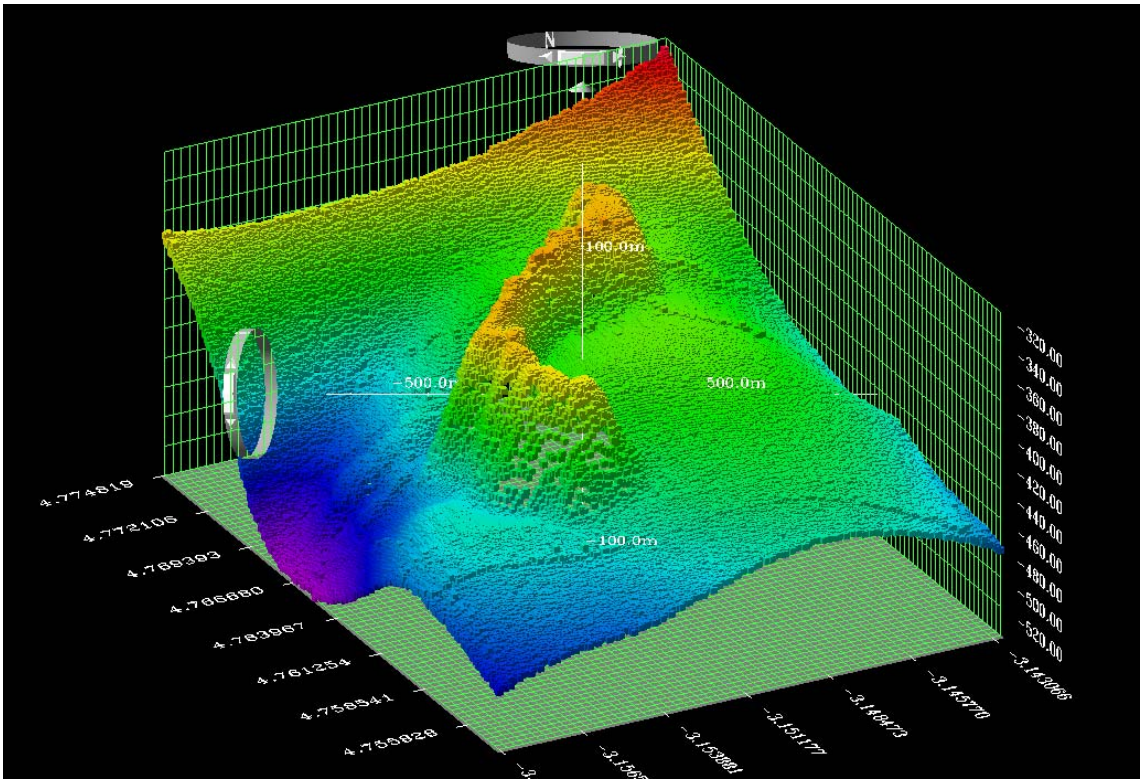
After tide correction, spurious soundings were removed/flagged invalid using the BinStat module.

Cleaned accepted data were exported to ASCII files as formatted as latitude, longitude and depth. In addition, mean depths were exported for each processing cell (30x30m).

The surveyed area is 780km2 containing approx. 14 million soundings ranging from 104m to 1474m.

Fledermaus – Visualization.

Exported ASCII data were imported into Fledermaus visualization and DTM software.



DATA DELIVERABLE

Exported data were stored on DVD.

2.2.4 Colour, grain size and Total Organic Matter (TOM)

The colour of the sediment was determined using a revised Munsell® Soil Colour Chart System year 2000 (GretagMacbeth, New Windsor, NY, USA). A mixture consisting of sediment from the upper 0-5 cm of three separate grab samples was used for the grain size analysis at each sampling site.

The particle size was analysed in the laboratory by dissolving the sediment in water and then sieving it through a 0,063 mm sieve. Particles larger than 0,063 mm, was then dry sieved trough Endecott sieves. The sieves had square holes with mesh sizes found in table 2.2. The analysis was performed at SAM.

The median diameter and sorting (Table 2.2) were calculated with the formulas below (Buchanan (1984) and Folk & Ward (1957)), and the program GradiStat version 4.01 (Blott & Pye 2001).

Particle diameter: x = Φ-value ($\Phi=-\log_2 x$)

Median particle diameter: Md Φ = Φ50.

Mean diameter $M_z = \frac{\Phi(16) + \Phi(50) + \Phi(84)}{3}$

Sorting: SD $\Phi = \frac{\Phi(84) - \Phi(16)}{4} + \frac{\Phi(95) - \Phi(5)}{6,6}$

Table 2.2. The mesh sizes of the sieves used for grain size analysis.

Size of the sieve (mm)	Phi class Φ	Description
16	-4	Gravel
16-8	-3	Gravel
8-4	-2	Gravel
4-2	-1	Gravel
2-1	0	Sand
1-0,5	1	Sand
0,5-0,25	2	Sand
0,25-0,0125	3	Sand
0,0125-0,063	4	Sand
< 0,063		Pelite

TOM

The total organic matter (TOM) was determined as the weight loss in a 2-3 gram dried sample (dried at 105° C for about 20 hours) after 2 hours of combustion at 480° C.

2.2.5 Chemical Compound Analysis

2.2.5.1 Oil Hydrocarbons Analysis

- Principle

The petroleum hydrocarbon content was determined by GC/FID analysis of the extracts obtained as outlined in Intergovernmental Oceanographic Commission, Manuals & Guides no 11, UNESCO (1982).

The petroleum hydrocarbons were isolated from the sediment sample by saponification with methanolic potassium hydroxide for two hours, followed by extraction with pentane. The pentane phase is reduced using a Rotavapor and is subsequently purified by solid phase extraction. The petroleum hydrocarbon components were eluted (extracted) from the solid phase column with pentane followed by dichloromethane. The extract was reduced using a heating jacket and analyzed using Gas Chromatography with Flame Ionisation Detection (GC/FID). The analyses of PAHs and Decalines were performed by Gas Chromatography with Mass Selective Detection operating in the Single Ion Monitoring mode (GC/MS SIM).

- Procedure

The sediment sample was homogenized by stirring and subsequently centrifuged at 2300 rpm for 5 minutes to remove excess water. The amount of dry matter in the centrifuged sample was determined by the differencial weight of a small part (about 10 g) of the sample before and after drying at 105°C for 16 hours.

- Soxtec extraction

The saponification was carried out using a Soxtec System equipped with glass cups and cellulose thimbles at 150°C. In order to reduce the background level of hydrocarbons in the blank samples, the empty cellulose thimbles were boiled for 1 hour in methanol prior to its use.

About 20 g of the sample was placed in the cellulose thimble and boiled for 1 hour (in the "boiling position" in 50 mL of a solution of potassium hydroxide in methanol (30 g/L). Before boiling, 1.0 mL of a mixture of internal standards is added to the extraction cups. The thimble was lifted to the "rinsing position" for 1 hour while the refluxing methanol extracted hydrocarbons from the sample. For every 20 samples, reference samples of HDF 200 (base oil in drilling fluid; for THC, olefins and decalines) and HS-4B (Harbour Marine Sediment Reference Material; for PAH and NPD) are extracted, purified and analysed according to this method for monitoring the accuracy of the method.

- Pentane extraction

The methanol extract was collected in a Duran bottle. After cooling, 25 mL of pentane was added and the bottle shaken for 10 minutes. The pentane phase was separated from the methanol phase and collected in a conical flask. Another 25 mL of pentane was added to the methanol, shaken, separated and added to the first pentane phase. The pentane was reduced to 1 mL using a Rotavapor with a water bath at 30°C.

- Solid phase clean up

The final clean up was carried out using 200 mg florisil solid phase columns. The columns were conditioned prior to use. The sample was then added to the column which was eluted with 2x2 mL pentane and 2 mL dichloromethane. The elute was reduced to dryness using a heating jacket at 40°C. The residue was redissolved in 1 mL of dichloromethane and analyzed by GC/FID (THC) and GC/MS-SIM (PAH, NPD).

Quantification of components

- THC

The content of THC was quantified in the nC_{12}-nC_{35} boiling point range by using external and internal standards. The external standard was a solution of n-alkanes in dichloromethane (5 mg/L of each component; Restek # 57257). This external standard was also used to establish the retention time window. The internal standards (bromobenzene, *o*-terphenyl and squalane; all 5 mg/L) were added to the sample before boiling as well as to the external standard. The average THC value from blank samples was subtracted before the final quantification of the THC content of the sample. A chromatogram illustrate the presence of specific compounds within the samples (Figure 2.1) while the analytical conditions of the GC/FID system are presented in Table 2.3.

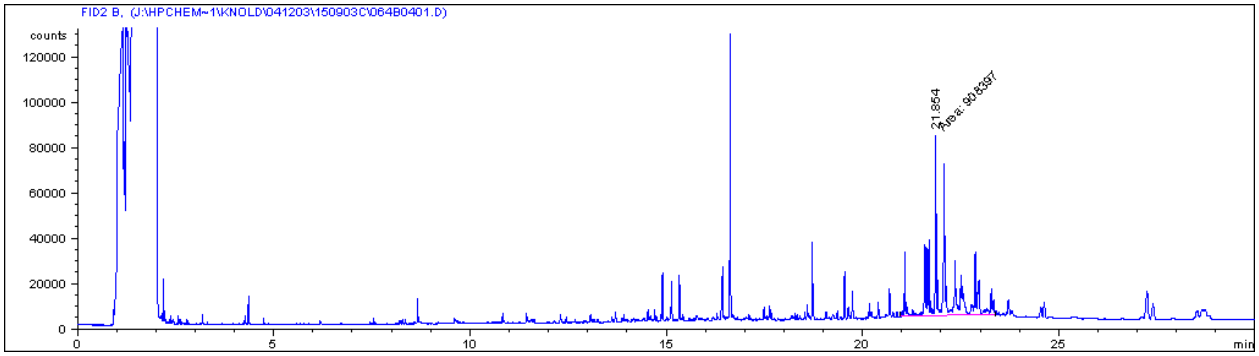


Figure 2.1. Chromatogram showing the subtracted phytosterol fraction of sediment sample.

Table 2.3. GC/FID conditions

GC system	Hewlett-Packard 5890 Series II Gas Chromatograph with split/splitless injector, Flame Ionisation Detector
Column	Agilent DB-5, length: 25 m, ID: 0,2 mm, film: 0,33 µm
Injector temperature	290°C
Detector temperature	300°C
Temperature program	35°C (3 min) - 15°C/min - 315°C (9,5 min)
Carrier gas	H_2, 1,4 mL/min
Injection	1 µL, splitless

- PAH and NPD

The PAHs/NPDs analysis was performed by GC/MS operating in the SIM (single ion monitoring) mode. The analytical conditions of the GC/MS system are shown in Table 2.4.

Table 2.4. GC/MS conditions

GC system	Agilent Technologies 6890N Network GC System
MS	Agilent 5973 Network Mass Selective Detector
Column	Agilent DB-5ms, length: 30 m, ID: 0,25 mm, film: 0,25 μm
Injector temperature	300°C
Temperature program	60°C (2 min) - 12°C/min - 300°C (8 min)
Carrier gas	He, 1,0 mL/min
Injection	1 μL, splitless, purge flow: 40 mL/min in 1 min

The amounts of PAHs and NPDs were quantified using internal deuterium marked standards and calibration curves made from 3 levels of standards containing the 16 EPA PAHs and selected NPDs (Table 2.5). The internal standards were added to the sample before boiling as well as to the external standard. The 16 standard EPA PAHs were obtained in PAH cocktail ampoules from Ehrensdorfer (20952500 PAH Mix 25) and Chemservice (PP-HC6JM). A NPD cocktail containing 1 compound representing each of the NPD clusters was obtained from Chiron (NPD Cocktail 3, S-4046). The NPD compounds in the cocktail were: Dibenzothiophene, 4-methyldibenzothiophene, 2,8-dimethyldibenzothiophene, 2,4,7-trimethyldibenzothiophene, naphthalene, 2-methylnaphthalene, 2,3-dimethylnaphthalene, 2,3,6-trimethylnaphtalene, phenanthrene, 2-methylphenanthrene, 1,6-dimethylphenanthrene and 1,2,8-trimethylphenanthrene. Table 2.3.3 shows target ion, qualifier ion, and the corresponding internal standard for each PAH compound and NPD cluster. Before the final quantification was carried out, the corresponding average concentration of blank samples was subtracted.

Table 2.5 Analyzed PAH compounds and NPD clusters

Compound / cluster	**Target ion m/z**	**Qualifier ion m/z**	**Corresponding internal standard**
Naphthalene	128	102	Naphthalene-d8
C1-naphthalene	142	141	Naphthalene-d8
C2-naphthalene	156	141	Acenaphthylene-d10
Acenaphthylene	152	151	Acenaphthylene-d10
Acenaphthene	153	154	Acenaphthylene-d10
C3-naphthalene	170	155	Acenaphthylene-d10
Flourene	166	165	Acenaphthylene-d10
Dibenzothiophene	139	168	Acenaphthylene-d10
Phenanthrene	178	176	Phenanthrene-d10
Anthracene	178	176	Phenanthrene-d10
C1-dibenzothiophene	198	-	Phenanthrene-d10
C1-phenanthrene	192	191	Phenanthrene-d10
C2-dibenzothiophene	212	-	Phenanthrene-d10
C2-phenanthrene	206	191	Phenanthrene-d10
Fluoranthene	202	101	Fluoranthene-d10
C3-dibenzothiophene	226	-	Fluoranthene-d10
Pyrene	202	101	Pyrene-d10
C3-phenanthrene/antracene	220	-	Pyrene-d10
Benzanthracene	228	114	Pyrene-d10
Chrysene/triphenylene	228	114	Pyrene-d10
Benz[bjk]fluoranthenes	252	250	Benz[a]pyrene-d12
Benz[a]pyrene	252	250	Benz[a]pyrene-d12
Indeno(1,2,3-cd)pyrene	276	274	Benz[a]pyrene-d12
Dibenzo[a,h]anthracene	278	-	Benz[a]pyrene-d12
Benzo(ghi)perylene	276	274	Benzo(ghi)perylene-d12
Internal standards			
Naphthalene-d8	136		
Acenaphthylene-d10	160		
Phenanthrene-d10	188		
Fluoranthene-d10	212		
Pyrene-d10	212		
Benz[a]pyrene-d12	264		
Benzo(ghi)perylene-d12	288		

2.2.5.2 Metal Analysis

Principle
The metal content is determined by Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES) except mercury which was determined by Cold Vapour Atomic Emission Spectrometry (CVAAS) after drying, sieving and digestion.

Procedure
The sediment samples were dried at 105°C or 40°C for samples containing mercury. The sample was sieved through a 0.5 mm sieve and the fraction <0.5 mm was digested with nitric acid in accordance with NS4770.

Digestion by nitric acid
Digestion was performed in an autoclave. About 1g of sample was weighed into a sterile PP test tube with 4 mL of nitric acid. The samples were then autoclaved at 120°C for 30 min. After digestion, the samples were filtered and diluted to 50 mL.

Metal analysis by ICP-AES
The metals, except mercury, were analysed by a Varian Vista-PRO ICP-AES method. The analytical conditions are found in Table 2.6.

Table 2.6 ICP-AES analytical conditions

Element	Wavelength	Power (kW)	Background correction
Ba	233.527	1.35	Fitted
Cd	228.802	1.35	One point, left
Cr	267.716	1.35	Fitted
Cu	324.754	1.35	Fitted
Pb	220.353	1.35	Fitted
Zn	213.857	1.35	Fitted

Mercury Analysis by CVAAS

Mercury was analyzed using the mercury analyser instrument, Cetac M6000-A. The mercury in the solution was reduced by $SnCl_2$ to its elementary form Hg^0. Elementary mercury is volatile and was separated from the solution in a gas liquid separator by an argon carrier gas. The absorption at 254 nm was measured to determine the concentration of mercury.

Reference materials

CRM015-050 metals on sediment and CRM031-040 metals on soil (Resource Technology Corporation) was use as a reference.

2.2.6 Biological Analyses

Prior to sorting and species identification, each sample was washed through a 1 mm sieve to remove formalin. Specimens were then sorted out under a dissecting microscope, split into taxonomic groups and fixed on small tubes containing ethanol. The specimens were then identified and enumerated before being returned to the fixation fluid.

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A complete species list is presented in the appendix. Only the bottom fauna (benthos) was used for further analyses which included:

- Total number of species
- Total number of specimens standardised to 0.5 m² of sea floor
- The ten most abundant species at each site (species name, number of specimens and percent of total number of specimens)
- Cumulative species / area graph, for reference sites only (5 samples)
- Species diversity as "Shannon Wiener index" on a $\log_2$ base (Shannon & Weaver 1963)
- Evenness as Pielous's "J" (Pielou 1966)
- Cluster analysis based on "Bray-Curtis dissimilarity index" (Bray & Curtis 1957), followed by "group average sorting" on 4th root transformed data
- Ordination by "multidimensional scaling"

All data was analysed using the data program PRIMER, from Plymouth Marine Laboratory in England.

- Univariate analyses:

The mathematical bases for the diversity indices are outlined by (Shannon & Weaver 1949)

Evenness is an estimate of how the individuals are distributed among the species. It varies between 0 and 1, with a value close to 0 if all individuals belong to one or a couple of species and a value closer to 1 if all the individuals are equally distributed between the species.

The species-area curve is produced by the program EstimateS from The University of ticut. (For more information about the method see Colwell & al 2004).

- Log-normal curve

An indication of the environmental condition is gained by using geometrical classes. Geometrical classes are the relations between the species and the number of individuals. For example, species which are represented by one individual, 2-3 individuals, 4-7 individuals among others are defined as geometrical class I, class II, and class III respectively.

Geometrical classes are plotted against number of species for each station. Good environmental conditions are indicated by the presence of many species with few individuals and few species with many individuals. Impoverished environmental conditions are indicated by the presence of only a few species with very many individuals. For further information, see Gray & Mirza (1979) and Pearson & al. 1983.

- Multivariate analyses

Multivariate analyses were done to compare the actual species composition at the sites. Two different types of multivariate analyses where executed, a classification (cluster analysis) and an ordination (non-metric multidimensional scaling). The species abundance data were double square root transformed prior to analysis to reduce the effect of the most abundant species and to include more of the rare species. The calculation was done using the program PRIMER from Plymouth Marine Laboratory in England.

- Cluster analysis

The cluster analysis is a hierarchical agglomerative clustering of stations with the most similar species composition grouped together first at a high similarity level and then grouping the other stations at lower and lower similarity levels together, until all stations are grouped in a single cluster. The comparisons of the fauna at each station were based on Bray-Curtis similarity index (BRAY & CURTIS, 1957), while the linking of the groups is based on group average sorting of the similarity indices.

- **Ordination procedure (MDS)**

The non-metric multidimensional scaling (MDS) groups the stations with the most similar fauna. This analysis presents the results such that the distance between the stations on the plot reflects the similarity in fauna. Thus the MDS can be used to support the cluster analysis results. More importantly the MDS reveals any existing continuum or gradient in the sampled fauna. The MDS analysis is based on the same similarity matrix as the cluster analysis and the calculation was done using the PRIMER program.

2.2.7 Linking biota to multivariate environmental patterns

The correlation between biological patterns and environmental variables (all combinations of the environmental variables: pelite; TOM; Cu; Ba; Zn; Cd; Cr; Pb and THC) was studies in the computer program Canoco (Braak and Smilauer 1997). Chemical variables were log(x+1) transformed prior to analysis. The statistical significance of each envirnmental variable was determined by using Monte Carlo Permutation Tests.

2.2.8 Quality Control

Eurofins Analyse AS/Ltd is an accredited chemistry laboratory and performed the chemical analysis in accordance with the criteria of Norwegian Accreditation under accreditation-number Test043. Uni Research, SAM-marin is accreditated by Norwegian Accreditation for sampling and taxonomical analyses, professional assessment and interpretations under accreditation-number Test157. Biological samples were sorted by personnel from Uni Research AS in accordance with the criteria of the Norwegian Accreditation. Analyses of geological samples were not performed accreditated. The species identification was done by

the subcontractor 'Marine Bunndyr AS', who is not accreditated. Biological and geological samples were also subject to quality control according to Uni Research AS`s internal routines. Any deviations from the sampling procedures were noted in the sampling journal.

2.2.9 Storage of samples

The biological samples were stored at the Zoological Museum in Bergen, but selected specimens of high quality were included in the reference collection kept at Uni Research AS in Bergen for later use in this project.

3. OCEANOGRAPHIC CONDITIONS

3.1 Vertical Sections

Hydrographic stations were occupied at locations of grab stations (Figure 2.1). The collected parameters included temperature, conductivity, dissolved oxygen and fluorescence. Salinity and other derived seawater properties were computed according to the standard algorithms (UNESCO 1983). The stations covered the upper portion of the continental slope and shelf in the area located just west of the Cape Three Points (approx. 04°45'N, 02°05'W).

Distribution of temperature; salinity and oxygen along the easternmost section is presented in Figure 3.1. The distributions are representative to the remaining two sections (not shown). The temperature distribution exhibits conditions characteristic to late spring, prior to the onset of upwelling season. The thermocline was depressed to a 30 m depth. The top layer was covered with light water masses, $T > 28°C$, $S < 35.5$, which originate in the western part of the Bay of Guinea basin. The thermocline slopes downward toward the coast suggesting a downwelling. At the offshore end, the vertical structure of the water column exhibits a salinity maximum, $S > 36$ and a drop in oxygen concentration < 3 ml l^{-1}, located just below the thermocline. These are conditions typical for this section of the eastern tropical Atlantic, dominated by the presence of South Atlantic Central Water (SACW) below the thermocline.

The reported observations were done during early May, which in the long-term seasonal scale coincide with the onset of the upwelling. However, the depressed thermocline and low position of the SACW in the water column observed during the survey suggested that the warm season during the first part of 2009 was prolonged; and, perhaps, that the 2009 upwelling season arrived later than usual. The fluorescence distribution supported this observation; it pointed to the concentration of primary productivity in the deep chlorophyll layer (DCM), located just below the thermocline. This is the expected pattern in the tropical coastal ocean during downwelling season, because the oligothrophic top layer is devoid of nutrients and the best conditions for phytoplankton growth occur at the interface between the illuminated portion of the water column and nutrient-rich SACW.

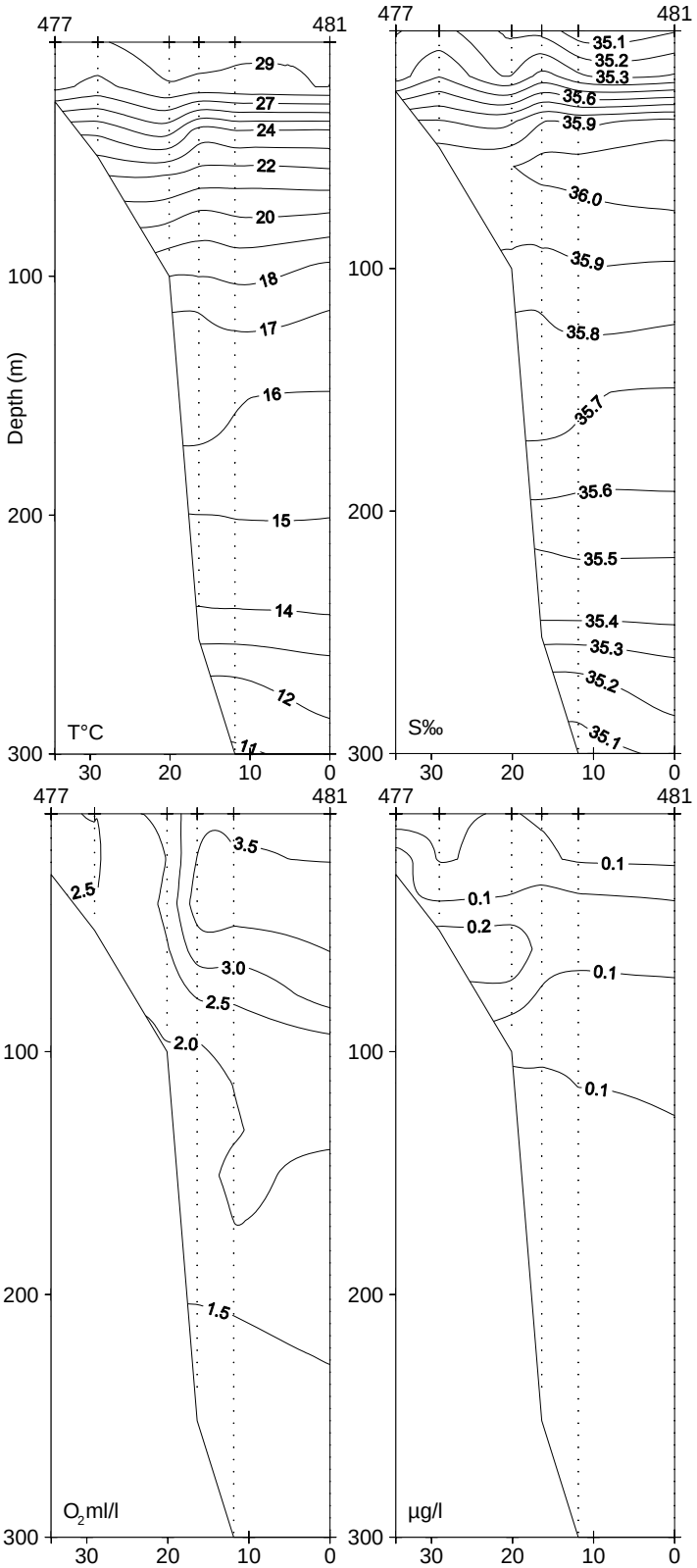


Figure 3.1. Vertical sections of temperature, salinity, oxygen and fluorescence at selected sampling sites along the Ghana east transect.

4. SEABED MAPPING

The surveyed part of the continental slope is shown on Figure 4.1. The slope is rather steep, the depths increase from appr. 100m on the shelf to appr. 1500m at the deepest part of the slope. The whole area is characterized by several vertical running trenches or ravines, starting from the shelf. The trenches are most likely created by underwater landslides. In the deeper parts of the area the trenches are fewer but deeper. Figure 4.2 gives a detailed image of some of the trenches in the middle of the survey area. A striking feature is seen in the western part of the area. In figure 4.3, a ridge of about 300m length and 50m elevation exists at about 400m.depth.

The multibeam surveying implies enormous amount of data that need to be postprosessed before they are presented in charts and topographic models. The data management should be taken care of by a relevant national institute. A data management system should be established for taking care of existing and future bathymetric data and other hydrographical data. Further analysis of the multibeam data will also be useful for the classification of the geology of the bentic surface.

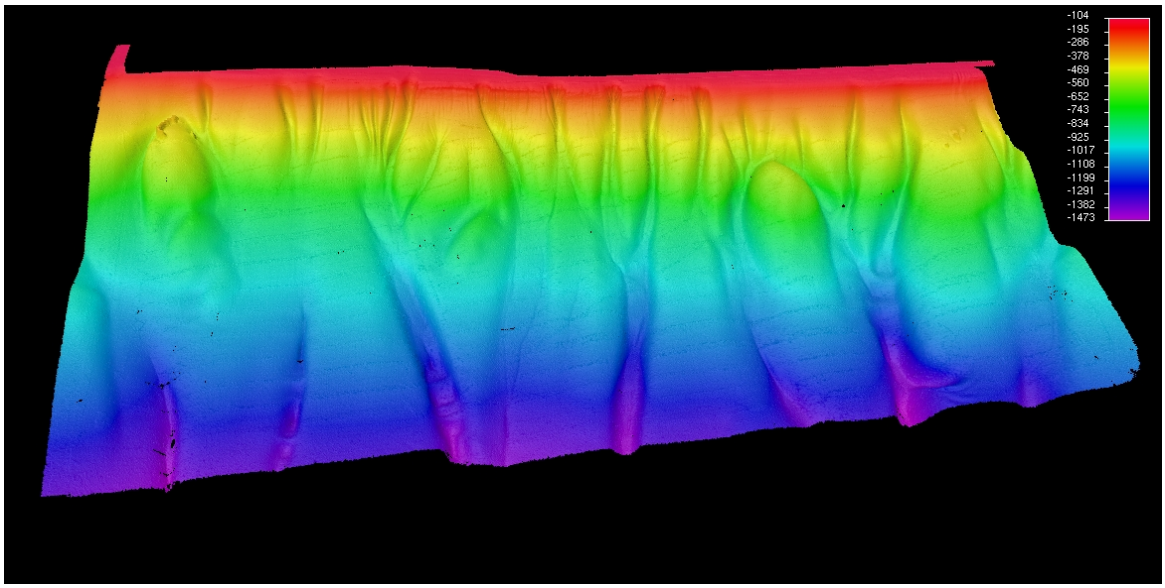


Figure 4.1. Bathymetrical image showing the continental slope from the boarder of the Ivory Coast and eastward to the location of the Jubilee oil field. The colour scale to the right explains the distribution of depths.

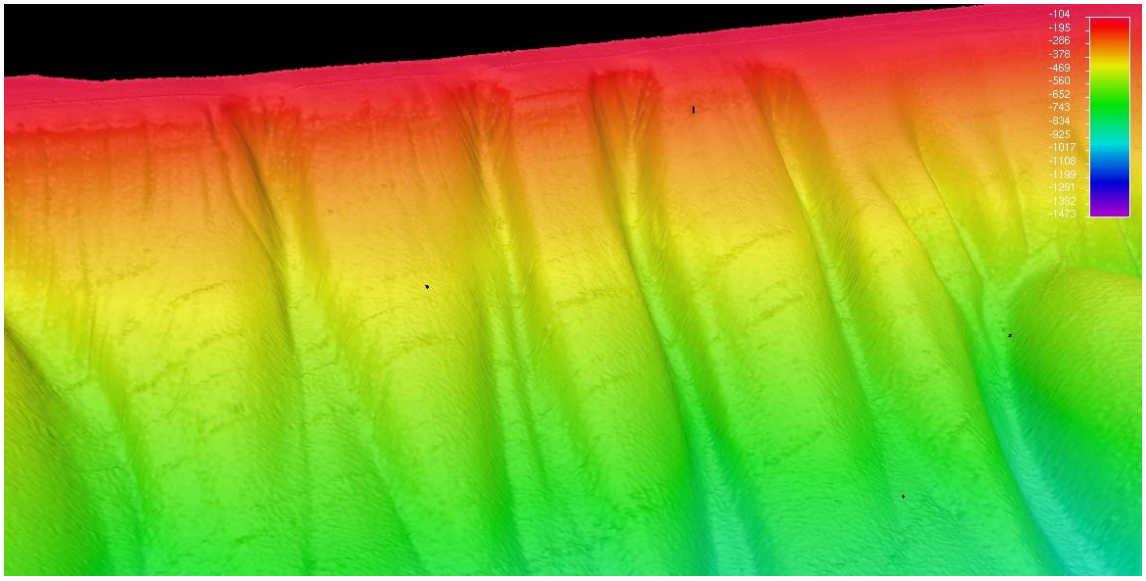


Figure 4.2. The upper part of the slope in the middle of the surveyed area, clearly showing the land sliding starting from the shelf.

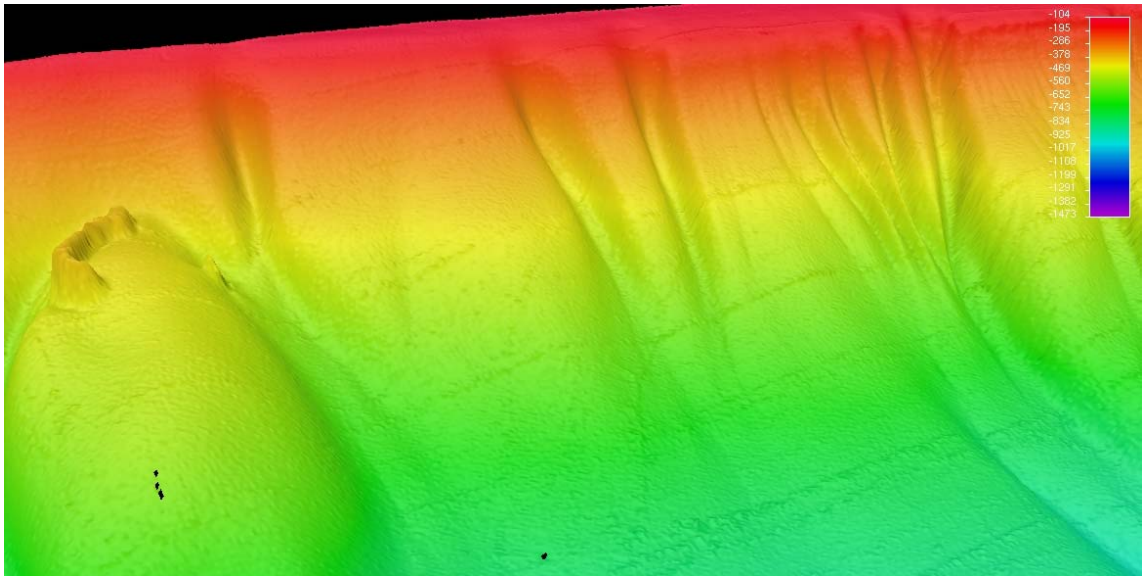


Figure 4.3. The western part of the survey area. A ridge is seen on the left side at about 400m depth

5. SEDIMENT SAMPLING

Plate 2. Sediment grab samples at some of the sites.

5.1 Sediment characteristics

Total organic matter (TOM), and the amount (%) of gravel, sand, pelite, median (Φ) and sorting in the sediment are presented in Table 5.1. Additional information on colour and odour can be found in the sampling journal in the Appendix.

The sea bed was dominated by very fine grained sediment in the deepest part of the investigated area. The shallower sites were dominated by more sandy sediments. An exception was the station GE-2 (50m depth) who had similar grain size to the 1200 m depth stations. The amount of pelite varied from 0.9 to 99.1 %.

The content of total organic matter (TOM) correspond to the content of pelite, with higher TOM content in the deepest part compared to the more shallow part of the investigated area. TOM varied from 1.5 to 13.1 %.

Table 5.1 Total organic matter and sediment grain size at sites along the three transects Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and at the Jubilee field (J7) in 2009. Pelite is particles < 0,063 mm.

Station	Dyp	% Gravel	% Sand	% Pelite	Median(□)	Sorting	% TOM
GW-1	28	11.4	87.7	0.9	0.562	1.269	1.5
GW-2	50	0.7	75.5	23.8	3.236	1.938	3.5
GW-3	101	6.3	69.6	24.0	2.227	2.634	6.1
GW-4	250	0.7	82.9	16.4	1.872	1.792	6.0
GW-5	503	0.0	17.6	82.4	5.572	1.556	11.5
GW-6	1201	0.0	3.2	96.8	5.934	1.266	13.1
GE-1	28	0.1	45.1	54.8	4.349	2.142	7.4
GE-2	50	0.1	2.1	97.8	5.955	1.253	7.6
GE-3	101	3.5	69.2	27.3	2.000	2.622	5.3
GE-4	250	1.0	77.5	21.5	2.530	2.051	6.2
GE-5	503	0.0	44.9	55.1	4.369	2.111	10.1
GE-6	1201	0.0	1.5	98.5	5.969	1.244	11.8
GP-1	28	0.0	89.6	10.4	3.369	1.138	3.1
GP-2	51	3.2	68.7	28.1	3.171	2.324	5.2
GP-3	102	0.9	71.9	27.2	3.388	1.846	5.3
GP-4	250	2.8	84.4	12.8	1.184	2.022	5.7
GP-5	508	0.0	24.8	75.2	5.342	1.733	10.0
J7-1	1273	0.0	1.2	98.8	5.977	1.240	12.5
J7-2	1300	0.0	1.2	98.8	5.977	1.240	13.0
J7-3	1271	0.0	1.2	98.8	5.976	1.240	12.9
J7-4	1280	0.0	0.9	99.1	5.982	1.237	13.1

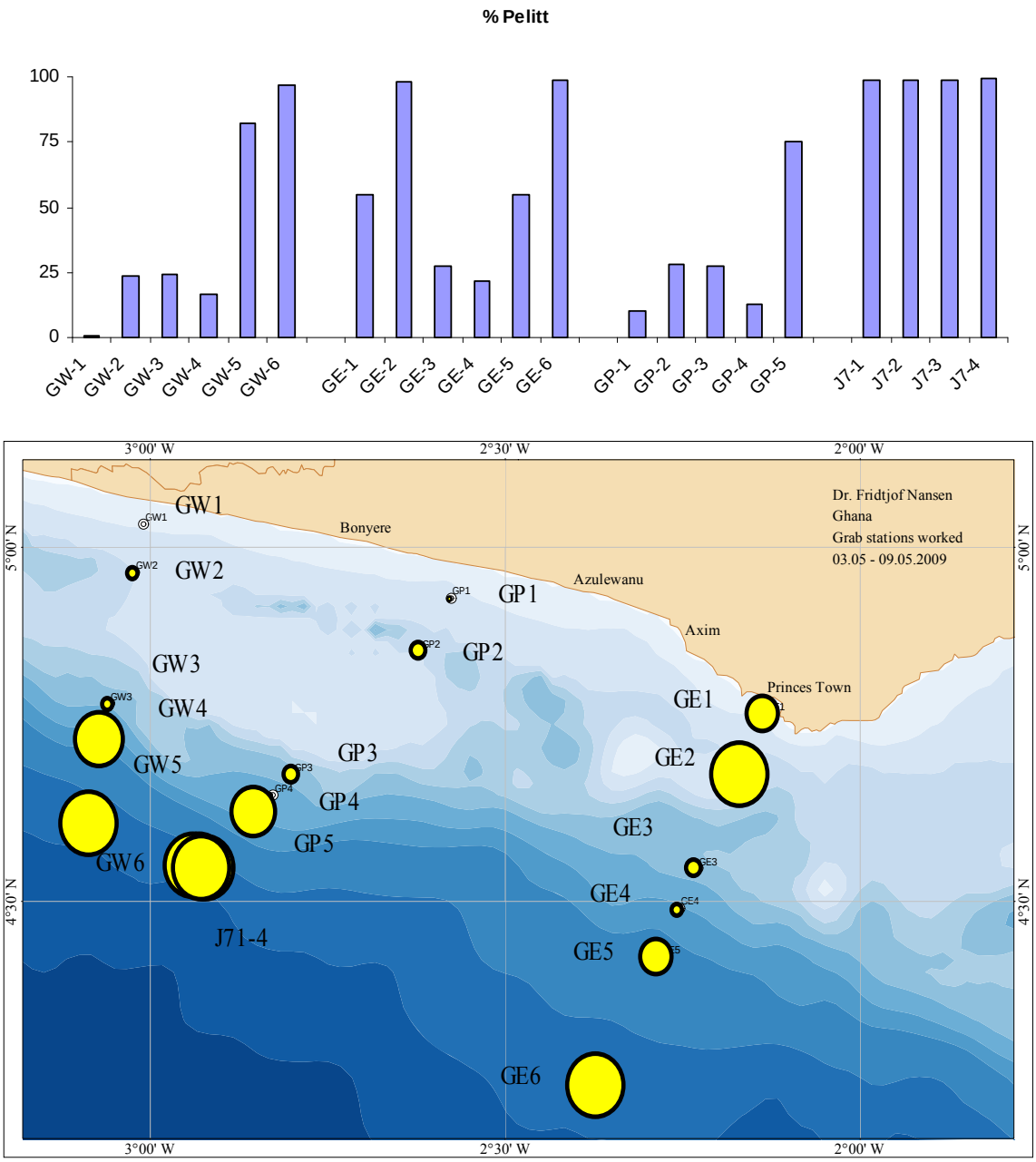


Figure 5.1 Content of pelite along the three transects Ghana west, Ghana east, Ghana pipeline and at the Jubilee field in 2009. The size of the circles in the map illustrate the amount of pelite.

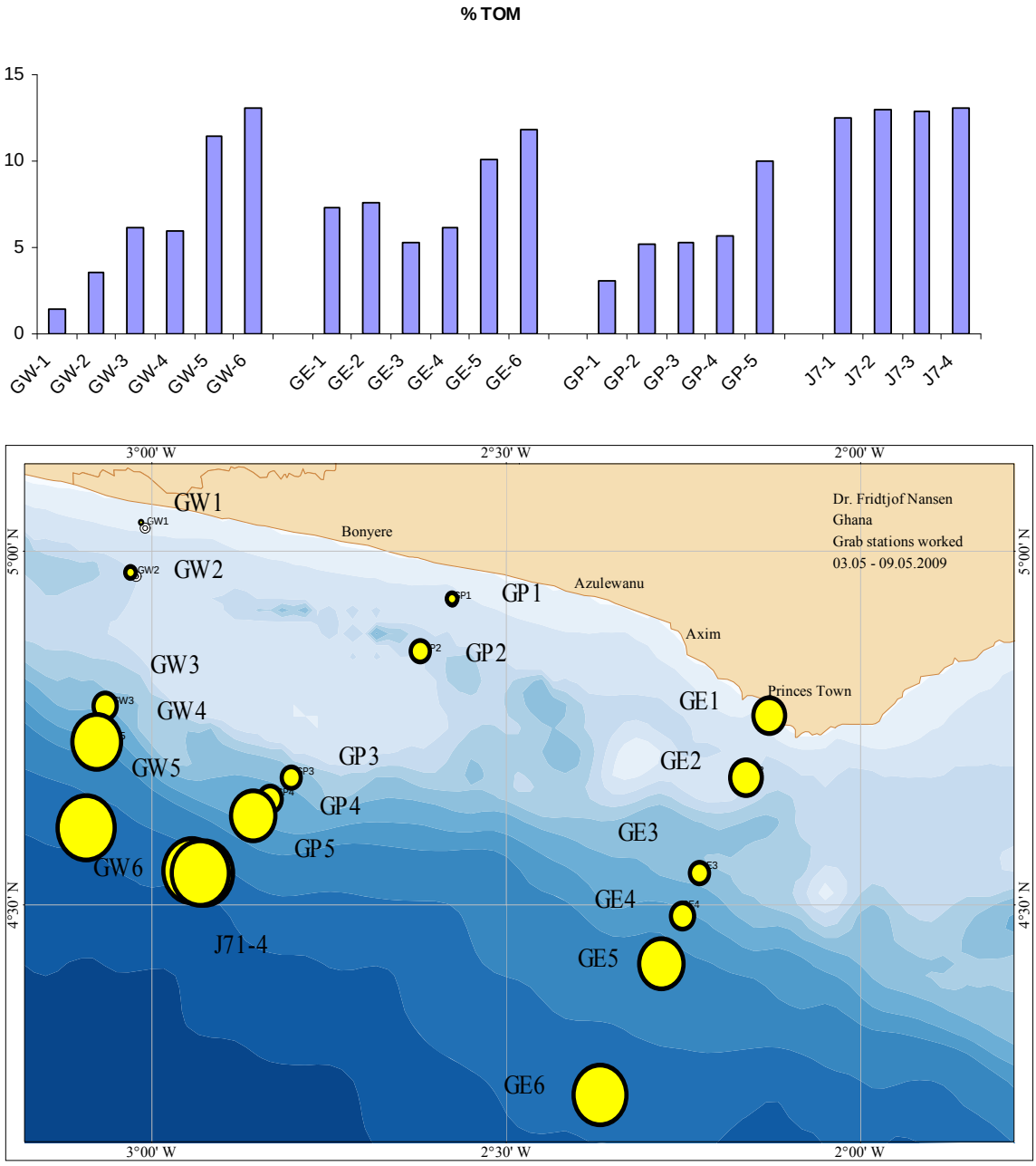


Figure 5.2 Content of TOM (total organic material) along the three transects Ghana west, Ghana east, Ghana pipeline and at the Jubilee field in 2009. The size of the circles in the map illustrate the amount of TOM.

5.2 Chemistry

5.2.1 Metal

Table 5.2 summarises the results of the metal analysis. The complete data set including replicates is given in the Appendix.

Most of the metals occurred in higher concentration in the fine grained sediments in the deepest part of the investigated area. This corresponds to the particle sizes found in the sediments; thus smaller particles have higher affinity to chemical compounds. None of the concentrations are particularly high; they are mostly within the range of background values from comparable sediment conditions on the Norwegian shelf (Renaud et al 2008).

Barium was found in a range from 1.7 ± 0.3 mg/kg at GW-1 close to shore to 176 ± 8 mg/kg at GE-6 in the deep area. The barium content increased sharply at the two deepest sites at all three transects. This corresponds to the particle size of the sediment. However, the concentrations of barium at GE-2 were low even though the particle size of this site was comparable to sites with higher barium concentrations.

The concentration of cadmium also increased with increasing depth. The highest concentrations were found at the 500m and 1200m sites along the transect GW and GP, including the Jubilee field sites. Lower concentrations were found along the GE-transect.

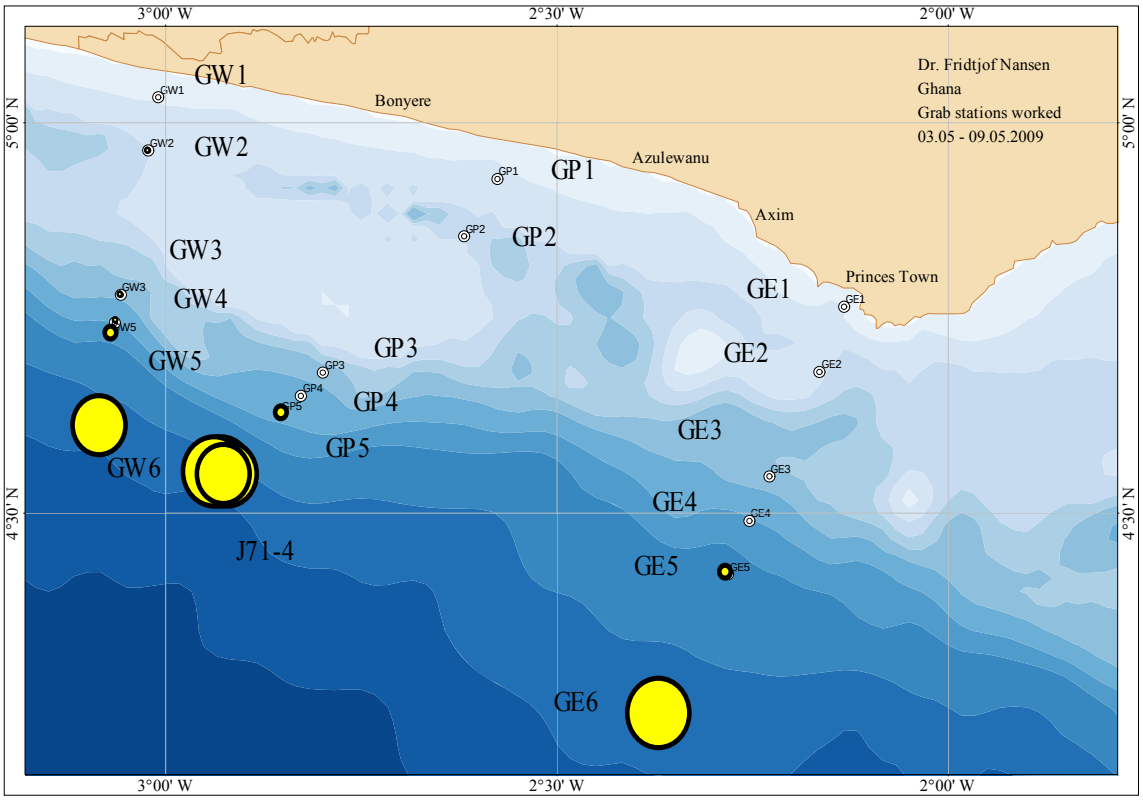
The concentration of copper and mercury increased with increasing depth along all transects. The metals chromium and sink had the highest concentrations at the 250m site GW-4, while lead had the highest concentration at the 25m site GE-1.

Table 5.2 Average concentrations of metal and standard deviations from three parallel samples (mg/kg dw) at the three transects off Ghana (Ghana west, Ghana east, Ghana pipeline) and at the Jubilee site in 2009.

Site	**Ba**		**Pb**		**Cd**		**Cu**	
	Average	ST.DEV	Average	ST.DEV	Average	ST.DEV	Average	ST.DEV
GW-1	**1.7**	0.3	**1.6**	0.3	**0.01**	0.00	**0.6**	0.2
GW-2	**14.2**	2.2	**3.4**	0.2	**0.02**	0.00	**2.0**	0.5
GW-3	**19.5**	4.1	**1.8**	0.4	**0.08**	0.01	**3.6**	0.5
GW-4	**16.3**	3.3	**4.8**	0.6	**0.07**	0.00	**2.1**	0.5
GW-5	**40.4**	8.1	**3.3**	0.4	**0.17**	0.05	**9.8**	2.4
GW-6	**145.3**	7.1	**5.2**	1.2	**0.23**	0.02	**15.5**	0.3
GP-1	**3.8**	0.9	**2.4**	0.6	**0.04**	0.01	**1.4**	0.4
GP-2	**5.2**	0.8	**3.9**	0.3	**0.02**	0.00	**2.5**	0.4
GP-3	**10.3**	0.9	**1.7**	0.2	**0.07**	0.02	**4.2**	0.4
GP-4	**7.9**	0.8	**2.1**	0.2	**0.07**	0.02	**3.1**	0.3
GP-5	**39.5**	4.7	**3.0**	0.2	**0.21**	0.01	**9.3**	0.7
GE-1	**7.4**	0.1	**6.1**	0.3	**0.02**	0.00	**4.2**	0.1
GE-2	**9.8**	0.3	**4.1**	0.2	**0.03**	0.00	**5.9**	0.2
GE-3	**8.2**	0.8	**1.7**	0.1	**0.07**	0.01	**3.9**	0.4
GE-4	**8.7**	1.0	**2.3**	0.2	**0.05**	0.01	**3.9**	0.3
GE-5	**37.0**	13.3	**2.8**	0.7	**0.07**	0.01	**8.0**	1.7
GE-6	**176.0**	7.8	**4.8**	0.2	**0.08**	0.01	**15.1**	0.4
J7-1	**170.3**	9.5	**5.1**	0.2	**0.24**	0.02	**18.8**	1.6
J7-2	**161.3**	5.0	**5.1**	0.3	**0.10**	0.04	**17.3**	0.7
J7-3	**172.3**	7.8	**5.3**	0.7	**0.24**	0.01	**17.7**	0.8
J7-4	**155.7**	19.2	**4.7**	0.6	**0.22**	0.03	**16.5**	1.9

Table 5.2 continued. Average concentrations of metal and standard deviations from three parallel samples (mg/kg dw) at the three transects off Ghana (Ghana west, Ghana east, Ghana pipeline) and at the Jubilee site in 2009.

Site	**Cr**		**Hg**		**Zn**	
	Average	ST.DEV	Average	ST.DEV	Average	ST.DEV
GW-1	**9.8**	1.3	**0.002**	0.000	**9.9**	1.8
GW-2	**35.6**	1.6	**0.007**	0.001	**30.9**	1.0
GW-3	**19.9**	3.9	**0.010**	0.003	**21.2**	3.6
GW-4	**58.6**	6.0	**0.009**	0.001	**59.2**	6.0
GW-5	**37.3**	2.8	**0.008**	0.010	**39.3**	4.9
GW-6	**40.8**	2.0	**0.037**	0.001	**41.7**	7.2
GP-1	**30.4**	4.6	**0.004**	0.002	**25.2**	1.5
GP-2	**44.1**	3.5	**0.011**	0.002	**34.3**	1.7
GP-3	**22.4**	1.6	**0.014**	0.002	**23.6**	2.0
GP-4	**34.4**	5.9	**0.011**	0.001	**35.8**	6.3
GP-5	**36.5**	1.6	**0.024**	0.001	**40.0**	3.5
GE-1	**40.5**	2.5	**0.029**	0.003	**32.4**	1.0
GE-2	**33.7**	1.5	**0.026**	0.009	**24.9**	1.4
GE-3	**20.9**	1.4	**0.013**	0.001	**19.6**	1.7
GE-4	**42.6**	5.7	**0.013**	0.002	**46.7**	6.3
GE-5	**51.2**	3.6	**0.021**	0.005	**44.5**	0.6
GE-6	**34.1**	0.7	**0.048**	0.001	**48.3**	1.1
J7-1	**42.6**	1.5	**0.045**	0.001	**49.3**	2.5
J7-2	**43.9**	1.6	**0.030**	0.009	**51.5**	1.7
J7-3	**48.2**	5.6	**0.037**	0.004	**53.0**	2.0
J7-4	**39.6**	3.2	**0.045**	0.007	**46.1**	4.8



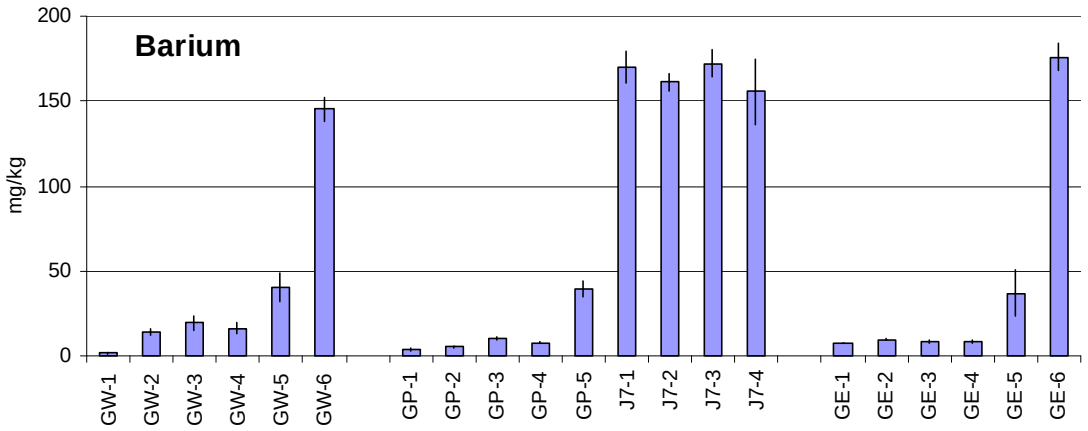
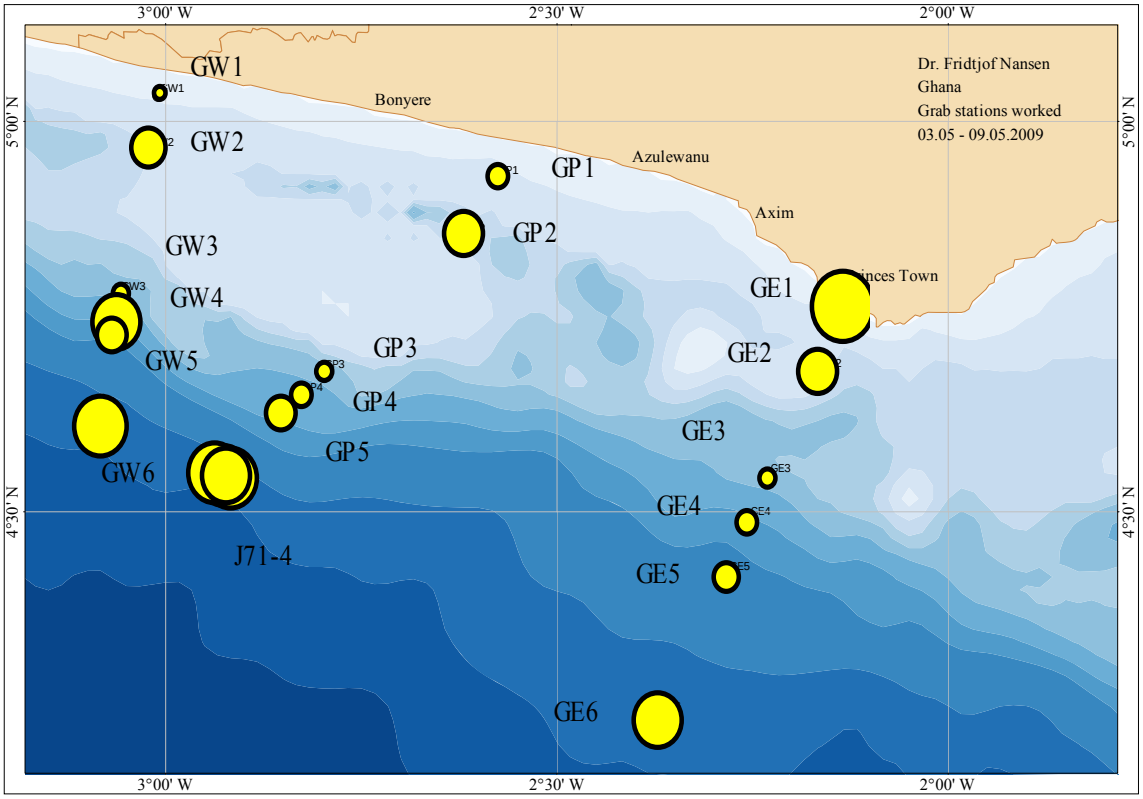


Figure 5.3 Distribution of barium (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and the Jubilee sites (J) in 2009. The different sizes of the circles in the map illustrate the amount of barium.



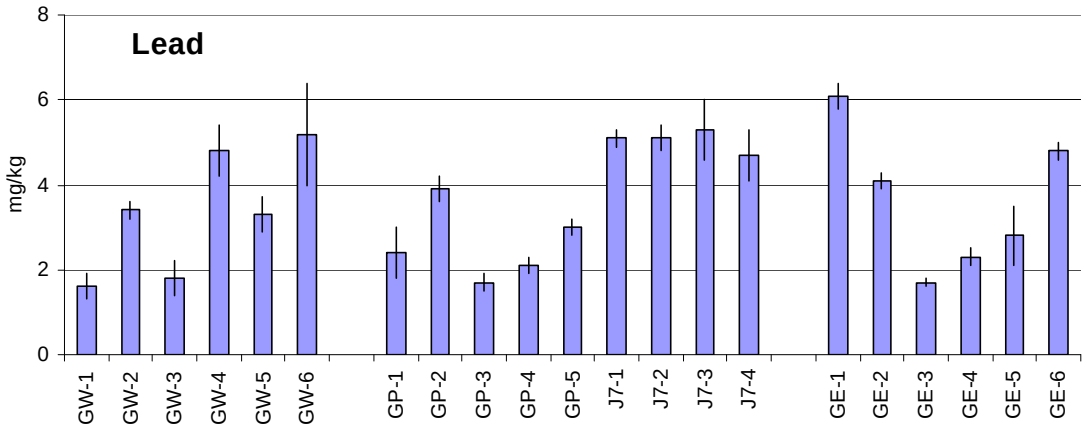
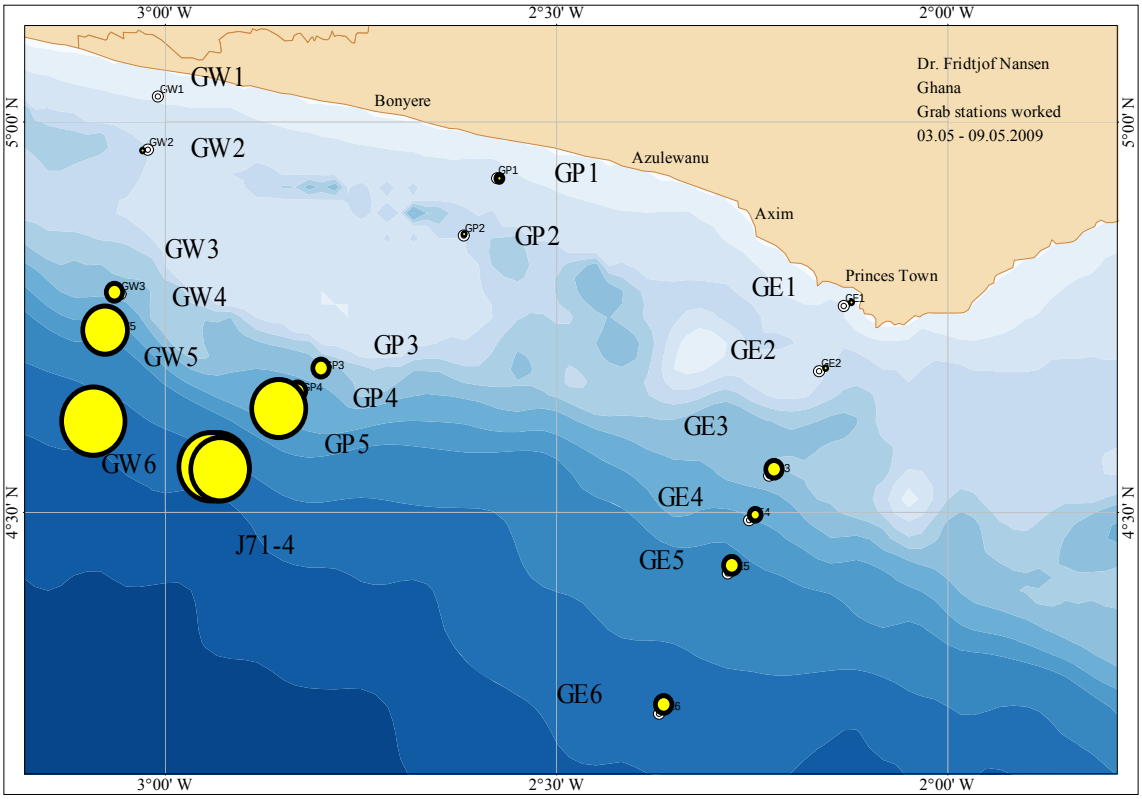


Figure 5.4 Distribution of lead (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and the Jubilee sites (J) in 2009. The different sizes of the circles in the map illustrate the amount of lead.



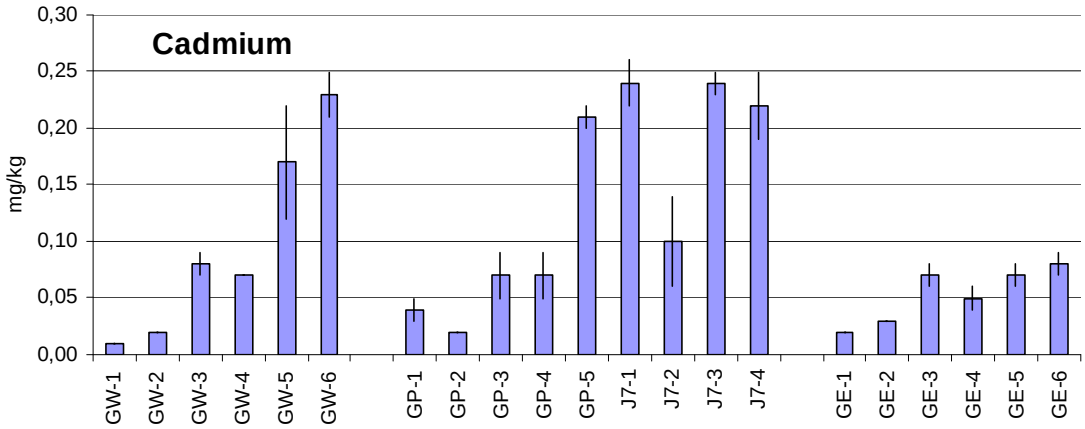


Figure 5.5 Distribution of cadmium (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and the Jubilee sites (J) in 2009. The different sizes of the circles in the map illustrate the amount of cadmium.

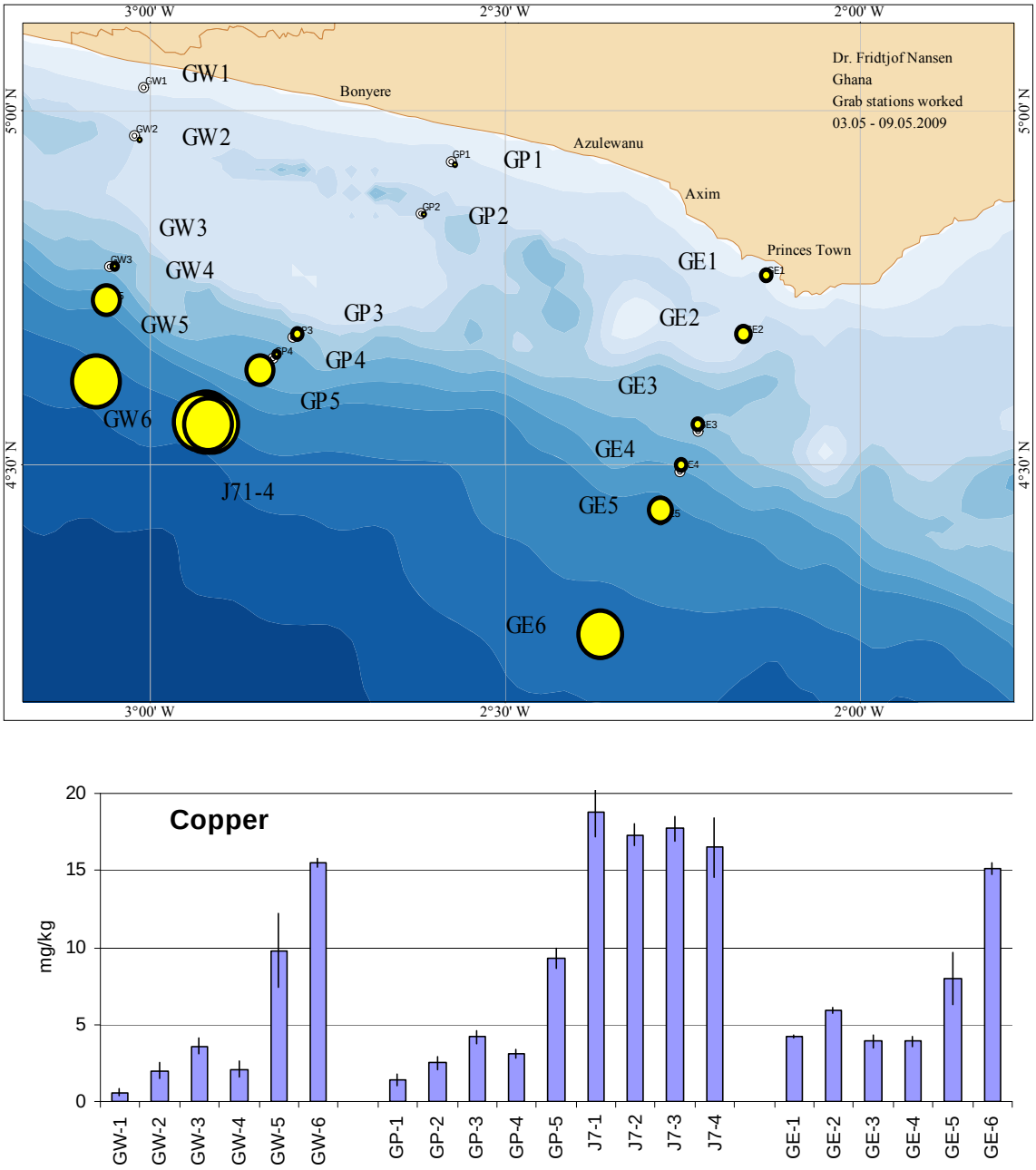
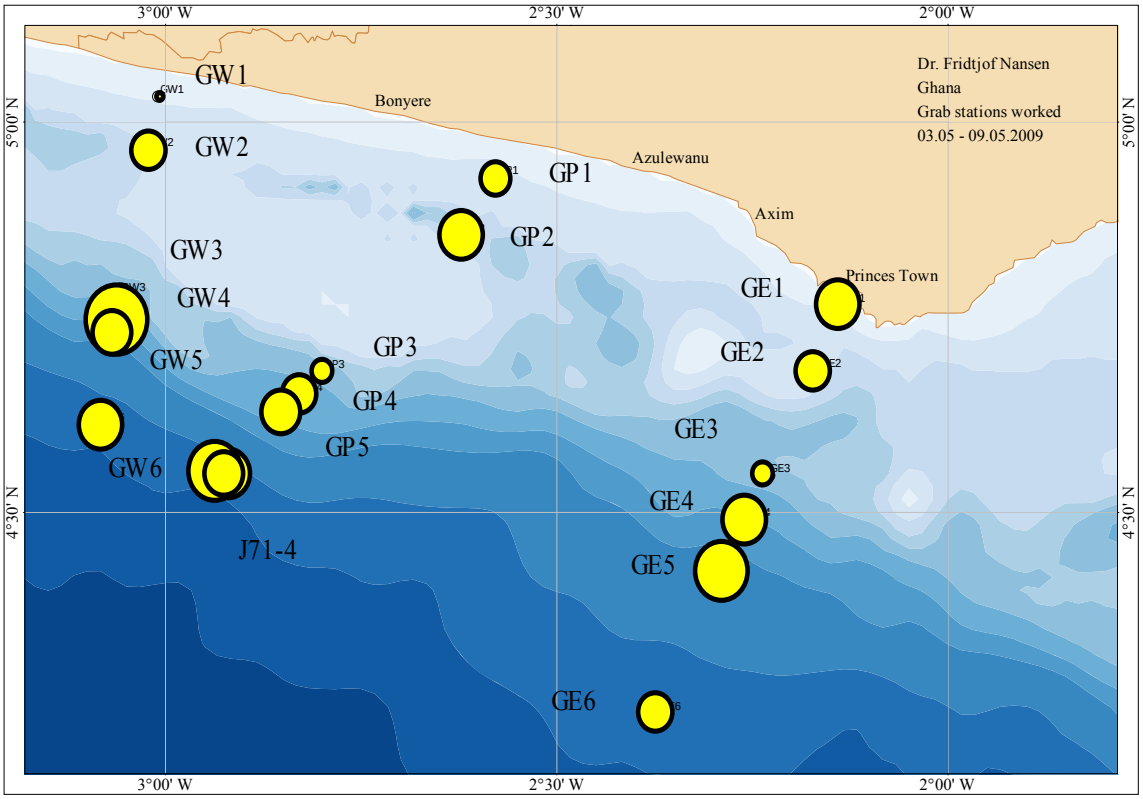


Figure 5.6 Distribution of copper (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and the Jubilee sites (J) in 2009. The different sizes of the circles in the map illustrate the amount of copper.



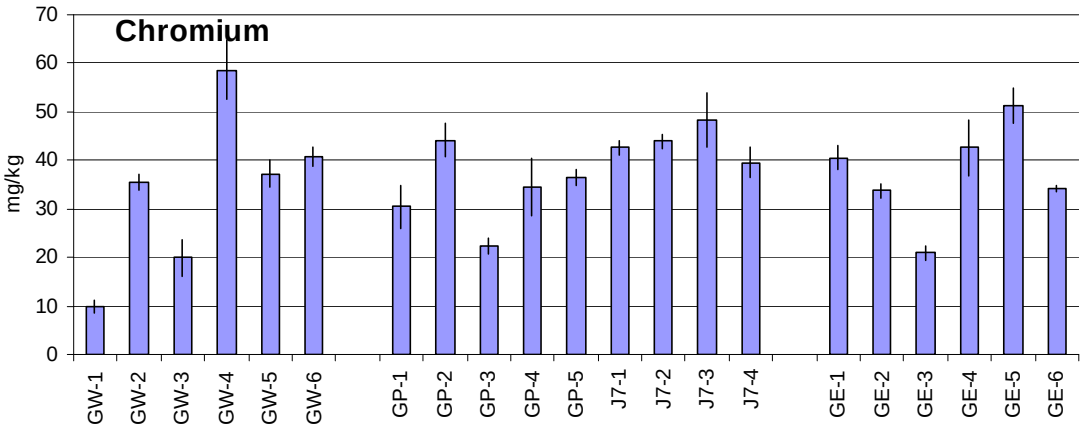
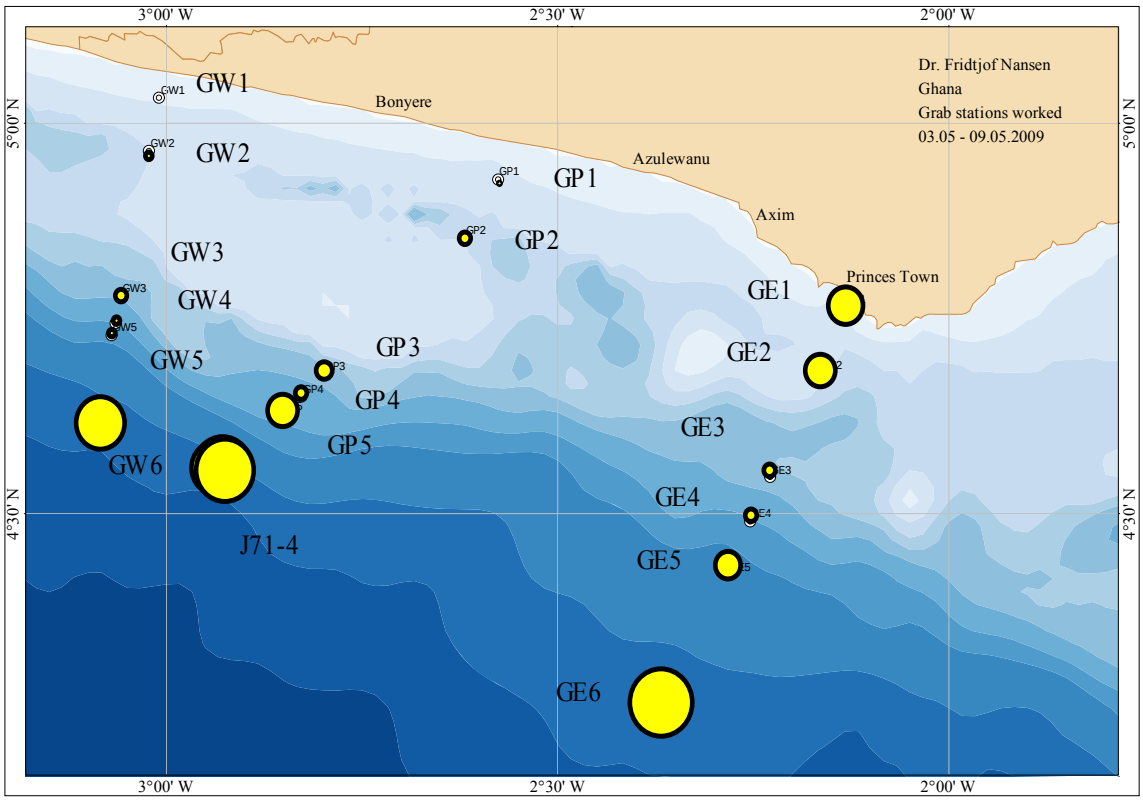


Figure 5.7 Distribution of chromium (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and the Jubilee sites (J) in 2009. The different sizes of the circles in the map illustrate the amount of chromium.



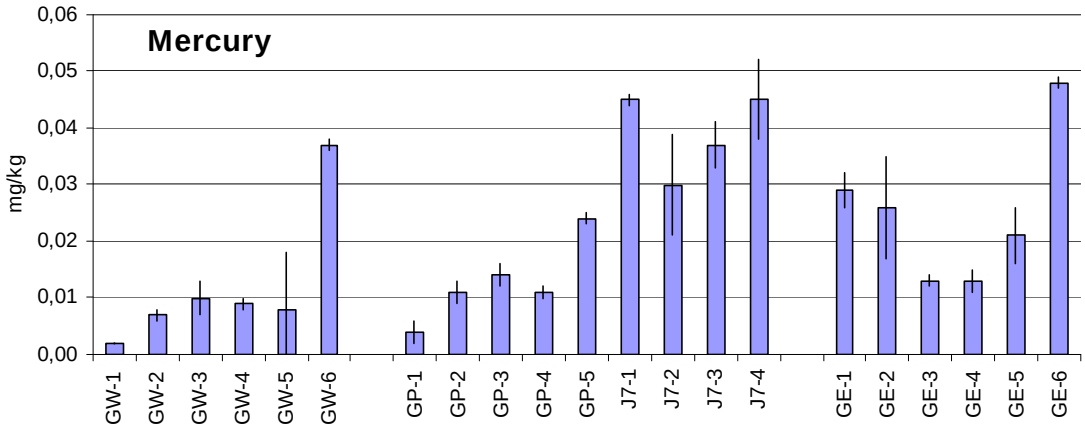
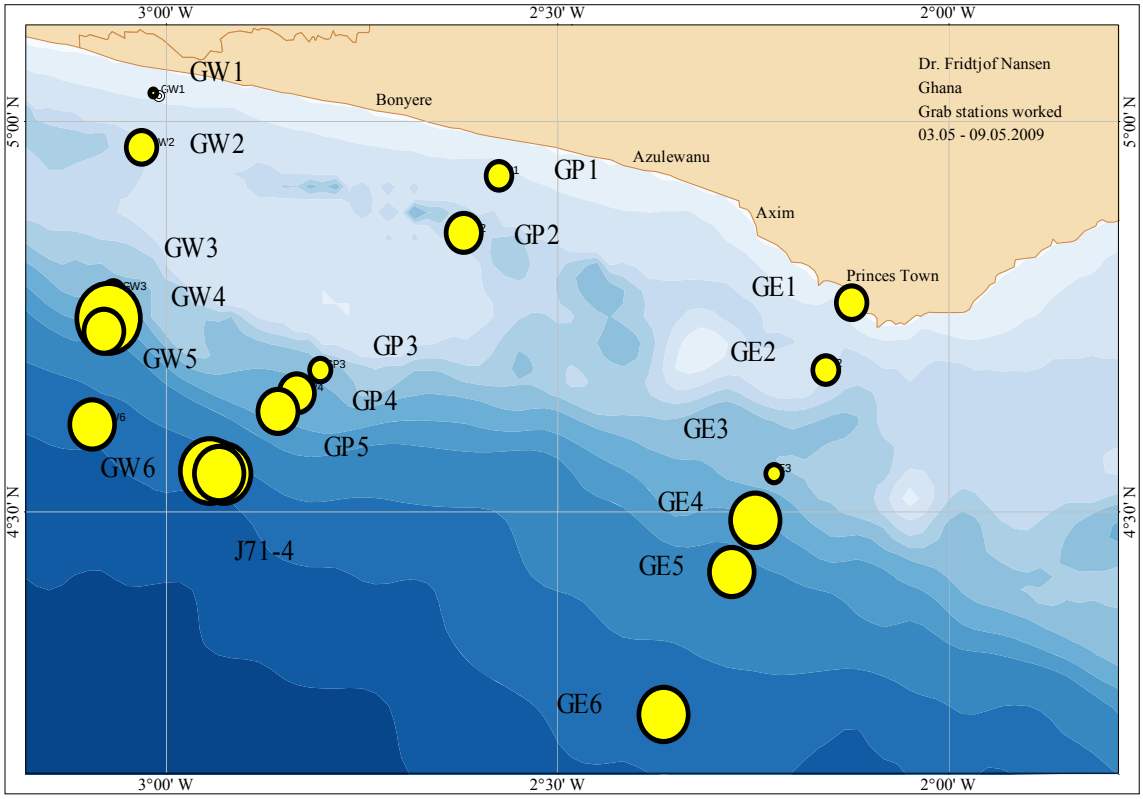


Figure 5.8 Distribution of mercury (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and the Jubilee sites (J) in 2009. The different sizes of the circles in the map illustrate the amount of mercury.



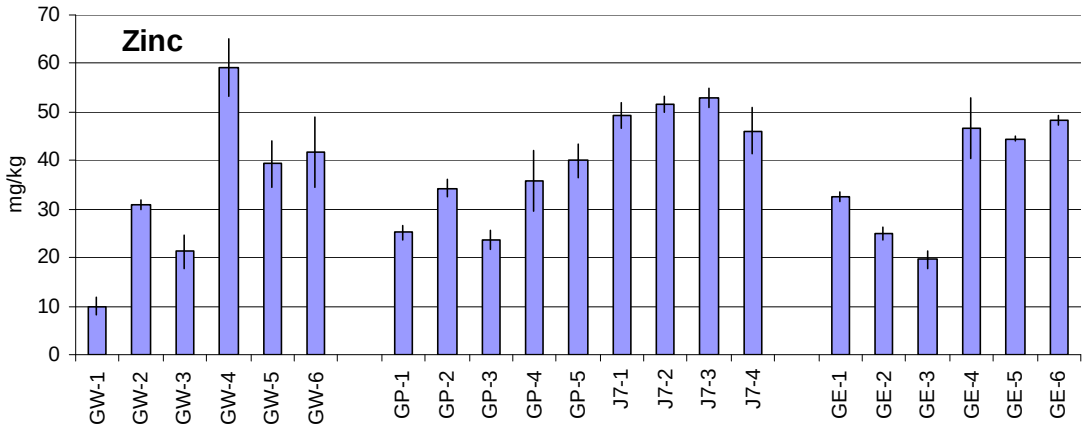


Figure 5.9 Distribution of zinc (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) and the Jubilee sites (J) in 2009. The different sizes of the circles in the map illustrate the amount of zinc.

5.2.2 Hydrocarbon

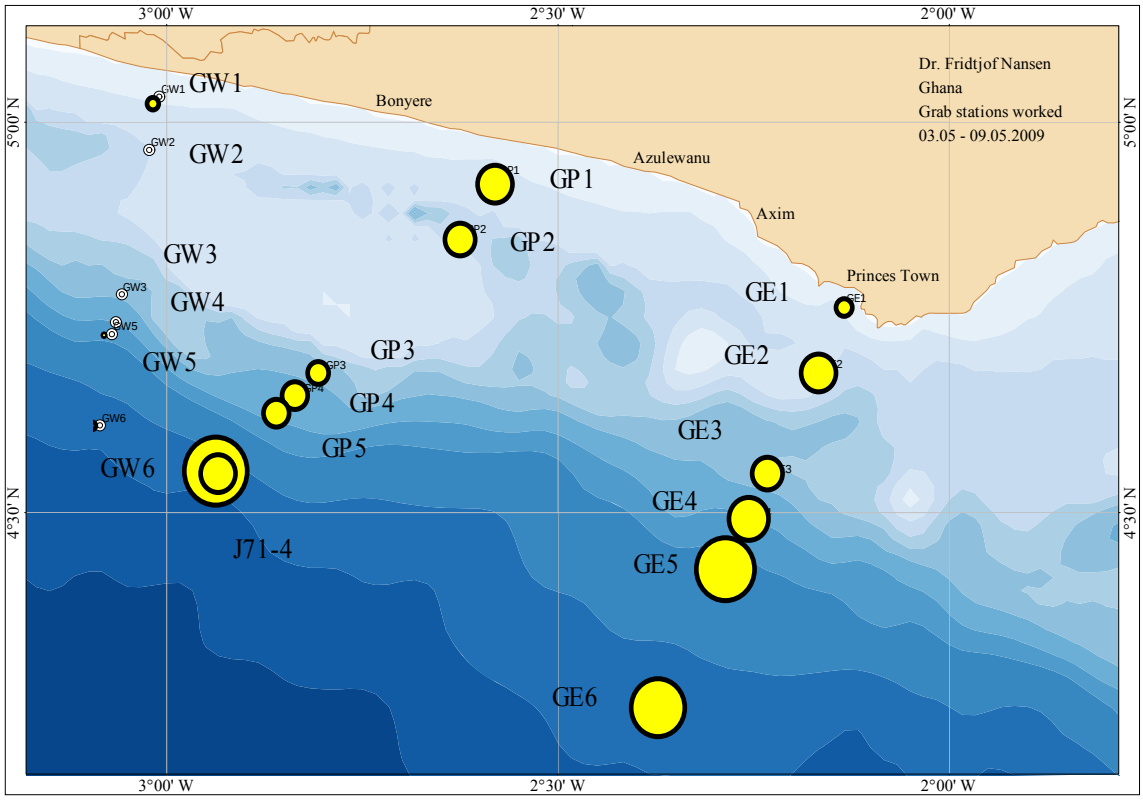
Table 5.3 summarises the results of the hydrocarbon analysis. The complete data set including replicates is presented in Appendix.

The concentrations of hydrocarbons were low at all sites and several compounds of PAH (polyaromatic hydrocarbons) and NPD (naphthalene, phenanthrene and dibanzothiophene) were below the detection limits.

The highest concentration of total hydrocarbon (THC) was found at the site J7-1 which is close to the former drilling site J7. Similar concentrations were detected at the sites GE-5 and GE-6 far from the Jubilee field, and may indicate natural variation in THC concentration. The GW transect is characterized by low concentrations of hydrocarbons.

Table 5.3 Average concentrations and standard deviations of THC (C12-35), PAH16 and NPD (mg/kg dw) at the three transects Ghana west, Ghana east, Ghana pipeline and at the Jubilee site in 2009.

	THC C12-35		**PAH16**		**NPD**	
Site	average	stdev	average	stdev	average	stdev
GW-1	3.3	1.6	0.003	0.001	< 0.001	-
GW-2	<1.0	-	<0.01	-	< 0.001	-
GW-3	<1.0	-	<0.01	-	< 0.001	-
GW-4	<1.0	-	0.004	0.000	< 0.001	-
GW-5	1.5	1.7	0.005	0.001	< 0.001	-
GW-6	2.4	1.6	0.008	0.006	0.003	0.001
GP-1	8.8	0.9	0.002	0.001	< 0.001	-
GP-2	7.5	0.4	0.004	0.001	< 0.001	-
GP-3	5.7	0.2	<0.01	-	< 0.001	-
GP-4	6.8	0.1	<0.01	-	< 0.001	-
GP-5	6.2	0.2	0.005	0.000	< 0.001	-
GE-1	4.1	0.1	0.009	0.001	0.002	0.000
GE-2	8.5	1.3	0.010	0.005	0.008	0.001
GE-3	7.8	1.2	<0.01	-	< 0.001	-
GE-4	9.7	0.3	0.005	0.001	< 0.001	-
GE-5	13.7	1.5	0.004	0.004	< 0.001	-
GE-6	13.0	1.0	0.006	0.002	0.004	0.000
J7-1	14.7	0.6	0.008	0.001	0.003	0.001
J7-2	5.3	0.2	0.008	0.001	0.001	0.001
J7-3	2.1	1.4	<0.01	-	< 0.001	-
J7-4	8.8	0.9	0.010	0.002	0.003	0.001



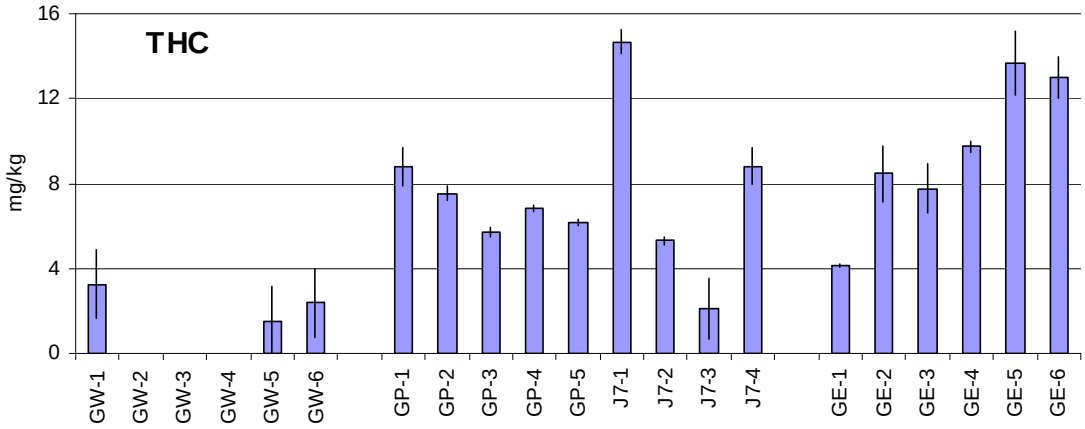
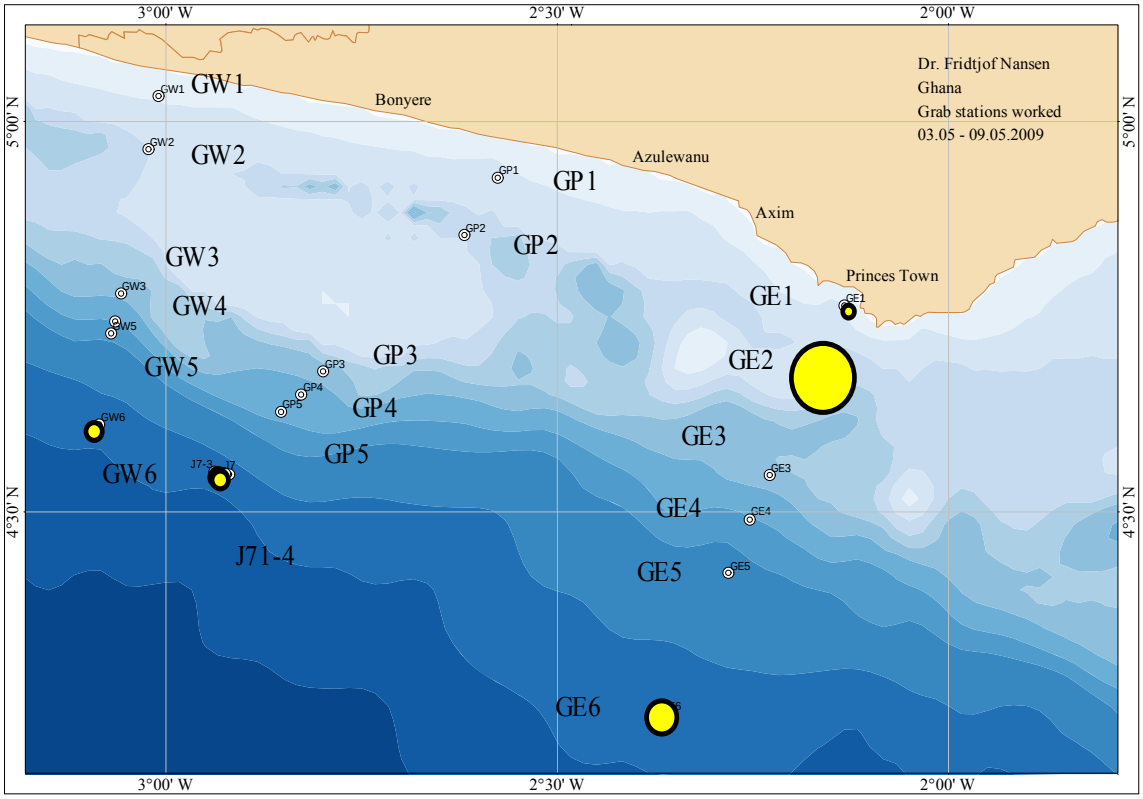


Figure 5.10. Distribution of THC (C12-35) (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) including the Jubilee sites (J) in 2009. Missing data are lower than detection limit. The different sizes of the circles in the map illustrate the amount of THC.



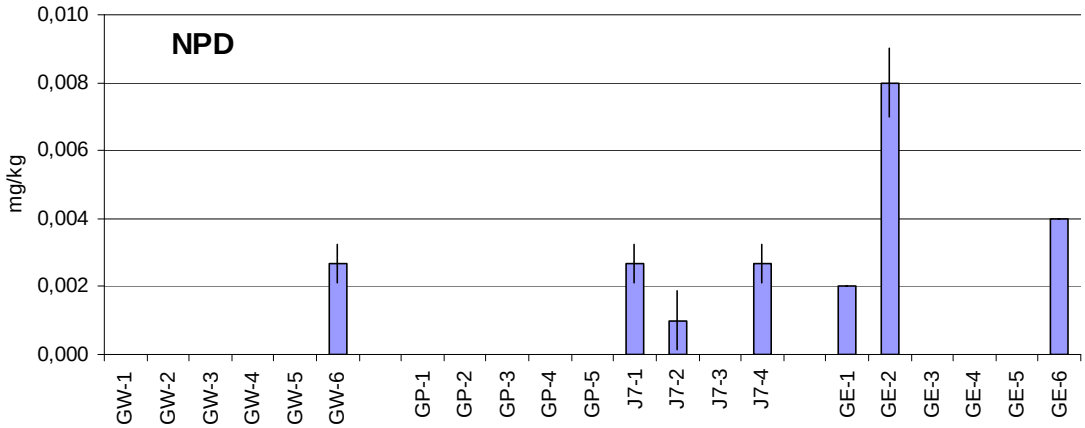
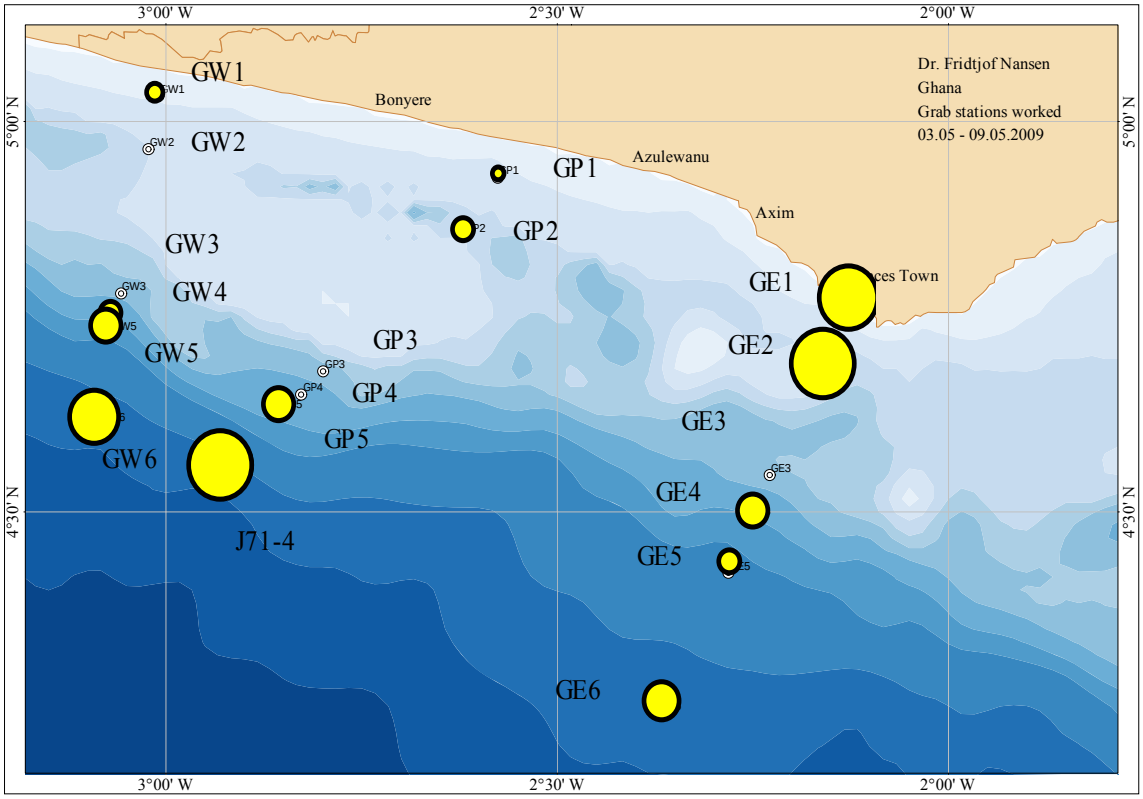


Figure 5.11. Distribution of NPD (sum Naphtalene, Phenanthren and Dibenzothiophene) (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) including the Jubilee sites (J) in 2009. Missing data are below detection limit. The different sizes of the circles in the map illustrate the amount of sum NPD.



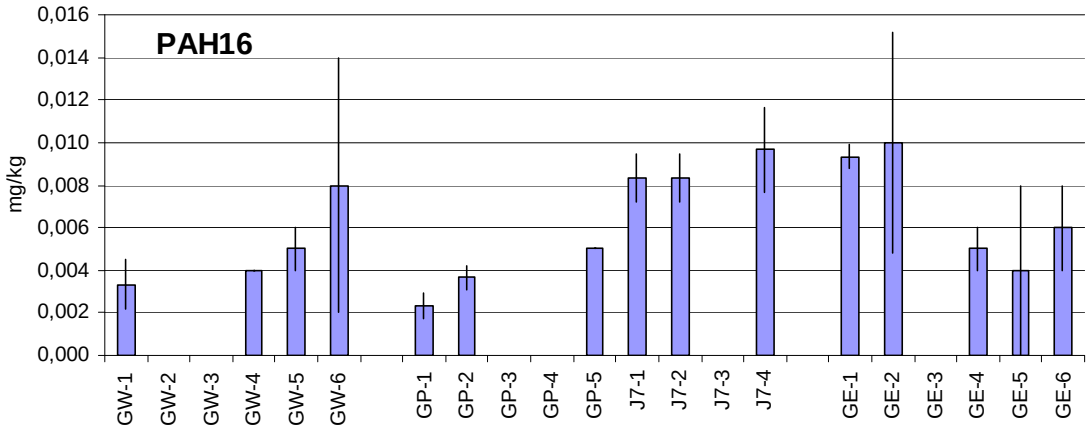


Figure 5.12. Distribution of PAH16 (average and stdev) along the transects of Ghana west (GW), Ghana east (GE), Ghana pipeline (GP) including the Jubilee sites (J) in 2009. Missing data are below detection limit. The different sizes of the circles in the map illustrate the amount of sum PAH16.

5.2.3 Biology

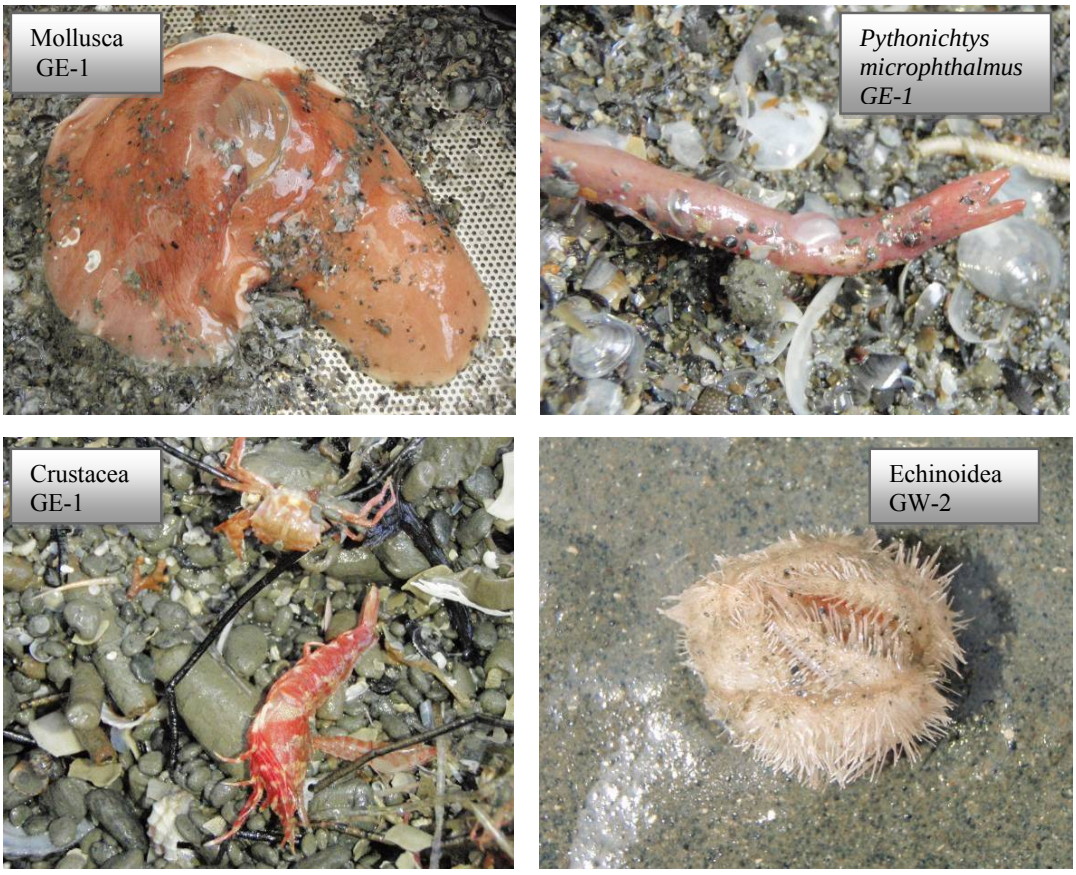


Plate 3. Some of the benthic fauna observed at the sampling sites.

A summary of number of individuals and taxa within the main taxonomic groups is presented in Table 5.4. A complete species list is available in the Appendix. Sites along the Ghana pipeline transect contained the highest number of individuals (2244) and taxa (227). Ghana west and Ghana east had numbers comparable to Ghana pipeline. The deep stations at the Jubilee field had the lowest number of individuals and taxa, with 117 individuals and 49 taxa. Compared to the other deep water stations however it does not differ significantly. The Annelids is the main taxonomic group in all investigated areas, with around 50 and 60 percent of all individuals and taxa.

The horizontal distribution of number of individuals and taxa is presented in Figure 5.12 and 5.13 and in Table 5.5. All sites follow a typical depth related species density for individuals and also to some extent for taxa. The species diversity index (H') and evenness (J) do not differ much between the sites and have satisfactory values at all sites (Figure 5.15). J7-2 had the lowest diversity while the highest was found at GP-2.

The ten most abundant species/groups for each site are presented in Table 5.6-5.9. Although polychaetes were more frequent, amphipods, sipunculids and bivalves were represented as the most abundant species or group at one or more site. No species or groups were numerous enough to dominate a site, with the exception of the sipunculid *Aspidosiphon* sp. at GE-2. However, it was not represented among the ten most common species in any of the other sites. It is therefore most likely an effect of local variations.

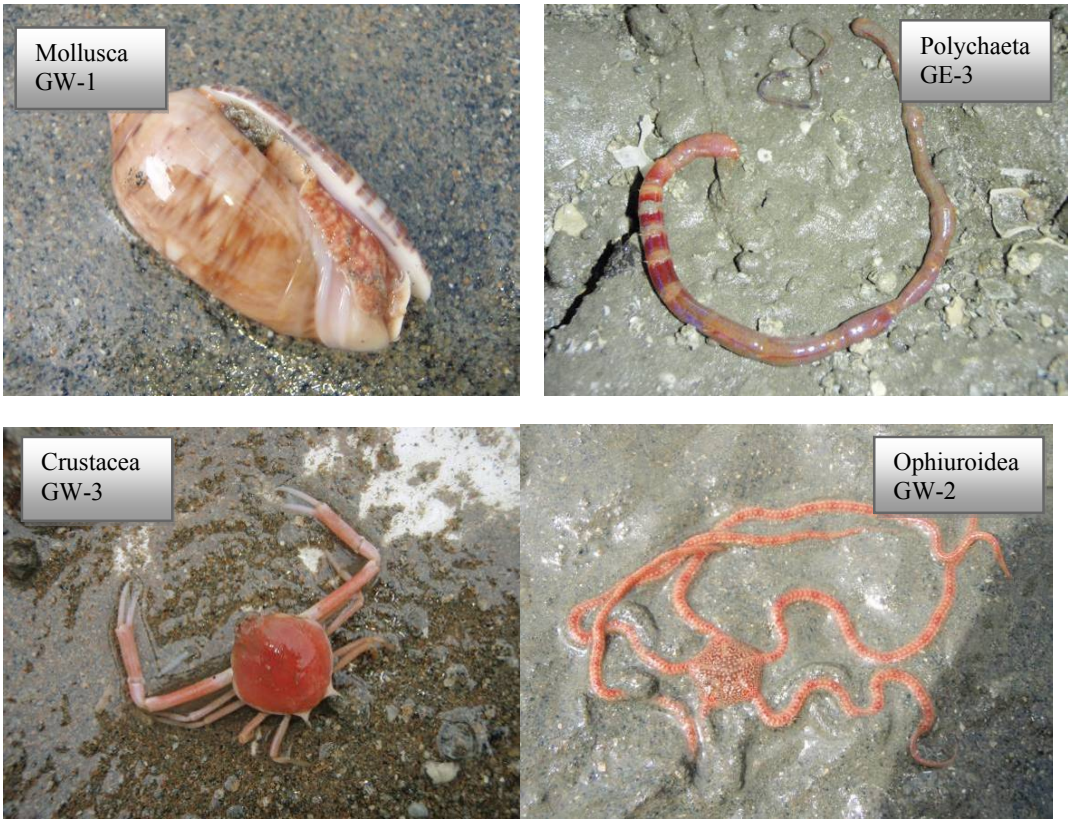


Plate 4. Some of the benthic fauna observed at the sampling sites.

Distribution of taxa in geometrical classes is presented in Figure 5.16. The amount of species with few individuals varied, but mostly between shallow and deeper sites. Generally the curves are similar between the transects and the curves indicate good environmental condition at all sites.

Results of the multivariate analyses are given in the dendrogram (Figure 5.17) and the MDS plot (Figure 5.18). In the cluster analyses, all sampling sites were linked together with at 18 % similarity. A clear effect of depth was seen as GE-6 and GW-6 were linked at 42 %, GP-5, GW-5 and GE-5 at 49 %, GE-4, GP-4 and GW-4 at 51 % and GE-3, GP-3 and GW-3 were linked at 57 %. The shallower stations, GW, GP and GE 1 and 2 were more mixed and contained a similarity of 38 %. The results of the MDS analysis support the findings in the cluster analysis, although the shallowest sites are not as easily separated.

The correlation between distribution of bottom fauna and the chemical and geological data was tested with a RDA-analysis, in the program Canoco. A pre-treatment indicated a non linear distribution of the data and a CCA analysis with Monte Carlo forward selection was therefore utilized. The results indicated that depth had the greatest impact on the composition of bottom fauna ($p=0.002$), followed by NPD ($p=0.012$) and TOM ($p=0.004$) (Figure 5.18). Allthough concentrations of NPD correlated with patterns of bottom fauna distribution, the concentrations were probably too low to have a noteworthy effect.

The bottom fauna of all sites investigated is fairly undisturbed and most likely unaffected by human activity.

An additional set of biological samples is being processed by Lloyd Cyril Allotey and his students. These samples were sieved trough a mech sice 0,5 mm sieve. Also a duplicate set of chemical samples were sent to EPA for their laboratory partners to analyse. The results from these analyses (biological and chemical) will be presented together with the results from the 2010 survey or in a separate publication.

Table 5.4. Distribution of individuals and taxa within the main taxonomic groups from the Ghana pipeline, Ghana west, Ghana east transects and the Jubilee field.

Ghana pipeline	**Number of**		**Number of**	
Main taxonomic groups	**individuals**	**%**	**taxa**	**%**
Annelida	1251	56	114	50
Arthropoda	517	23	44	19
Mollusca	189	8	43	19
Echinodermata	128	6	13	6
Diverse groups	159	7	13	6
Total	2244	100	227	100

Ghana west	**Number of**		**Number of**	
Main taxonomic groups	**individuals**	**%**	**taxa**	**%**
Annelida	1088	61	104	52
Arthropoda	340	19	29	15
Mollusca	122	7	37	19
Echinodermata	78	4	16	8
Diverse groups	166	9	13	7
Total	1794	100	199	100

Ghana east	**Number of**		**Number of**	
Main taxonomic groups	**individuals**	**%**	**taxa**	**%**
Annelida	1046	54	104	53
Arthropoda	217	11	30	15
Mollusca	292	15	43	22
Echinodermata	57	3	11	6
Diverse groups	337	17	10	5
Total	1949	100	198	100

Jubilee	**Number of**		**Number of**	
Main taxonomic groups	**individuals**	**%**	**taxa**	**%**
Annelida	60	51	26	53
Arthropoda	9	8	6	12
Mollusca	25	21	10	20
Echinodermata	10	9	3	6
Diverse groups	13	11	4	8
Total	117	100	49	100

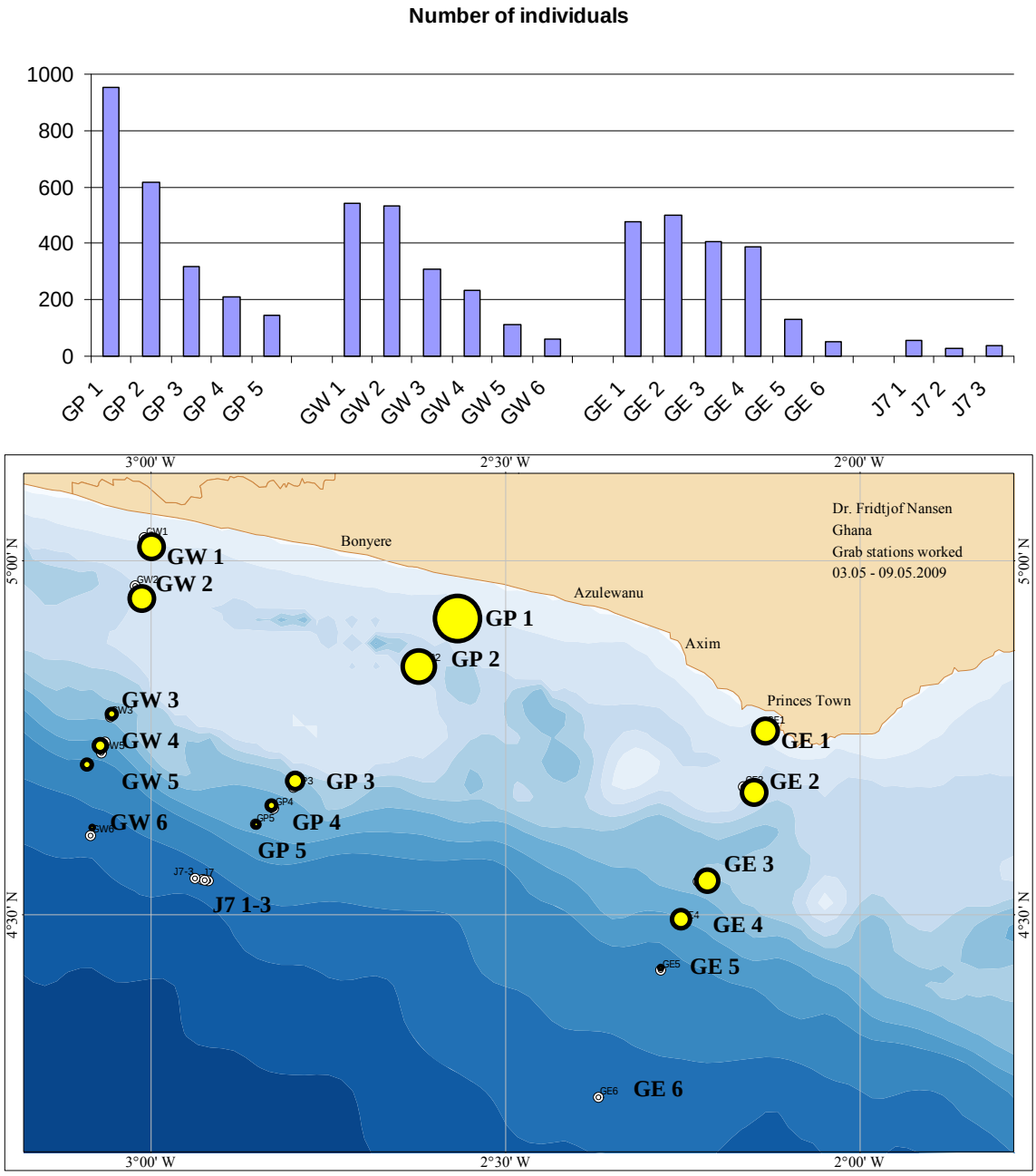


Figure 5.13 Number of individuals along the three transects Ghana west, Ghana east, Ghana pipeline and at the Jubilee field in 2009. The different sizes of the circles in the map illustrate the amount of individuals.

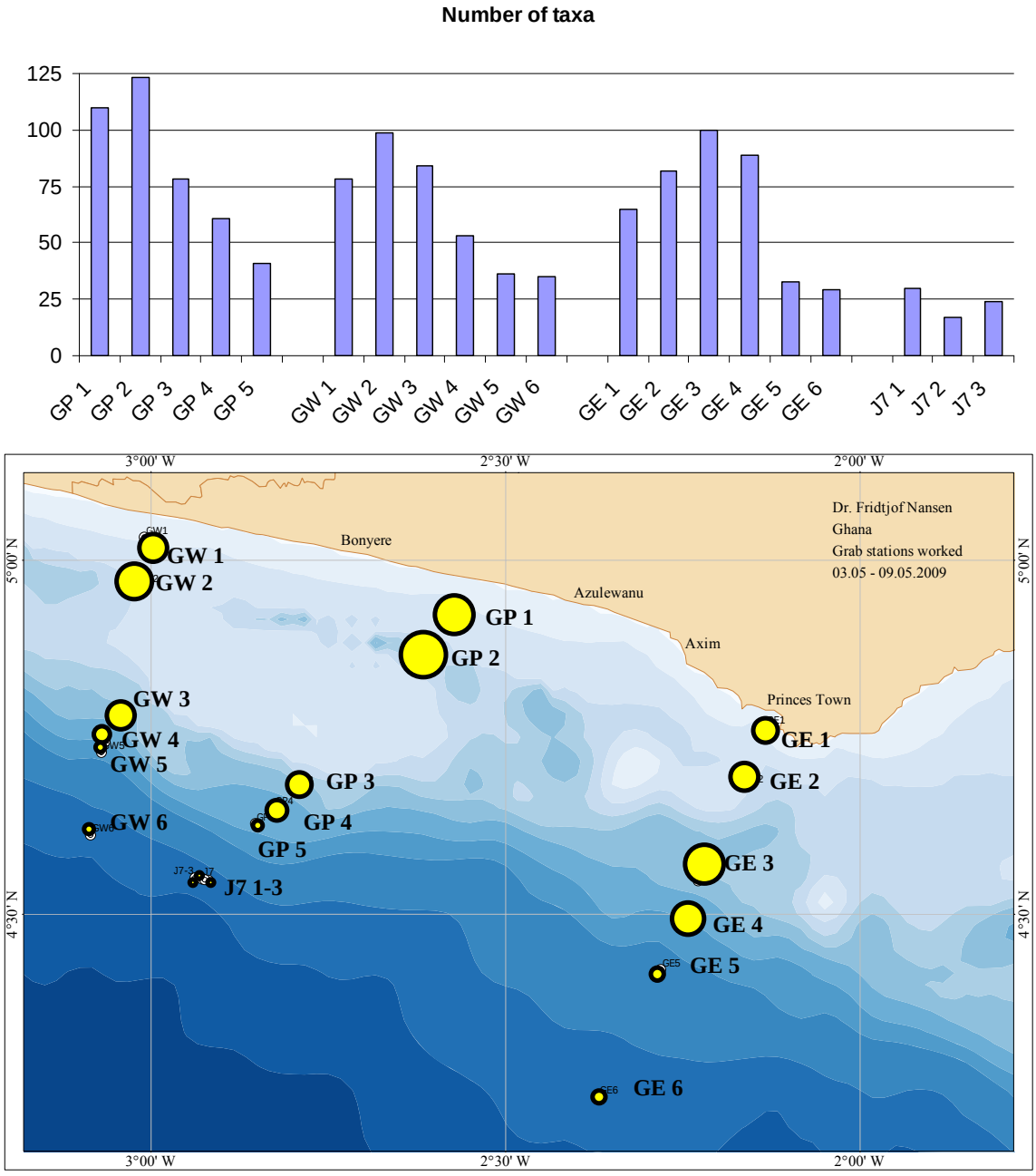


Figure 5.14 Number of taxa along the three transects Ghana west, Ghana east, Ghana pipeline and at the Jubilee field in 2009. The different sizes of the circles in the map illustrate the amount of taxa.

Table 5.5. Number of individuals, taxa and selected community indices for each site (0.5 m^2) at Ghana pipeline (GP), Ghana west (GW), Ghana east (GE) and the Jubilee field.

Site	Number of individuals	Number of taxa	Diversity H'	Evenness J
GP 1	**955**	110	5.44	0.80
GP 2	617	**123**	**6.20**	0.89
GP 3	317	78	5.12	0.81
GP 4	212	61	4.98	0.84
GP 5	143	41	4.78	0.89
GW 1	543	78	5.41	0.86
GW 2	533	99	5.80	0.88
GW 3	310	84	5.50	0.86
GW 4	233	53	4.59	0.80
GW 5	112	36	4.66	0.90
GW 6	63	35	4.77	0.93
GE 1	476	65	5.09	0.85
GE 2	499	82	4.92	**0.77**
GE 3	406	100	5.73	0.86
GE 4	388	89	5.47	0.84
GE 5	129	33	4.22	0.84
GE 6	51	29	4.62	0.95
J7 1	54	30	4.59	0.93
J7 2	**27**	**17**	**3.91**	**0.96**
J7 3	36	24	4.25	0.93

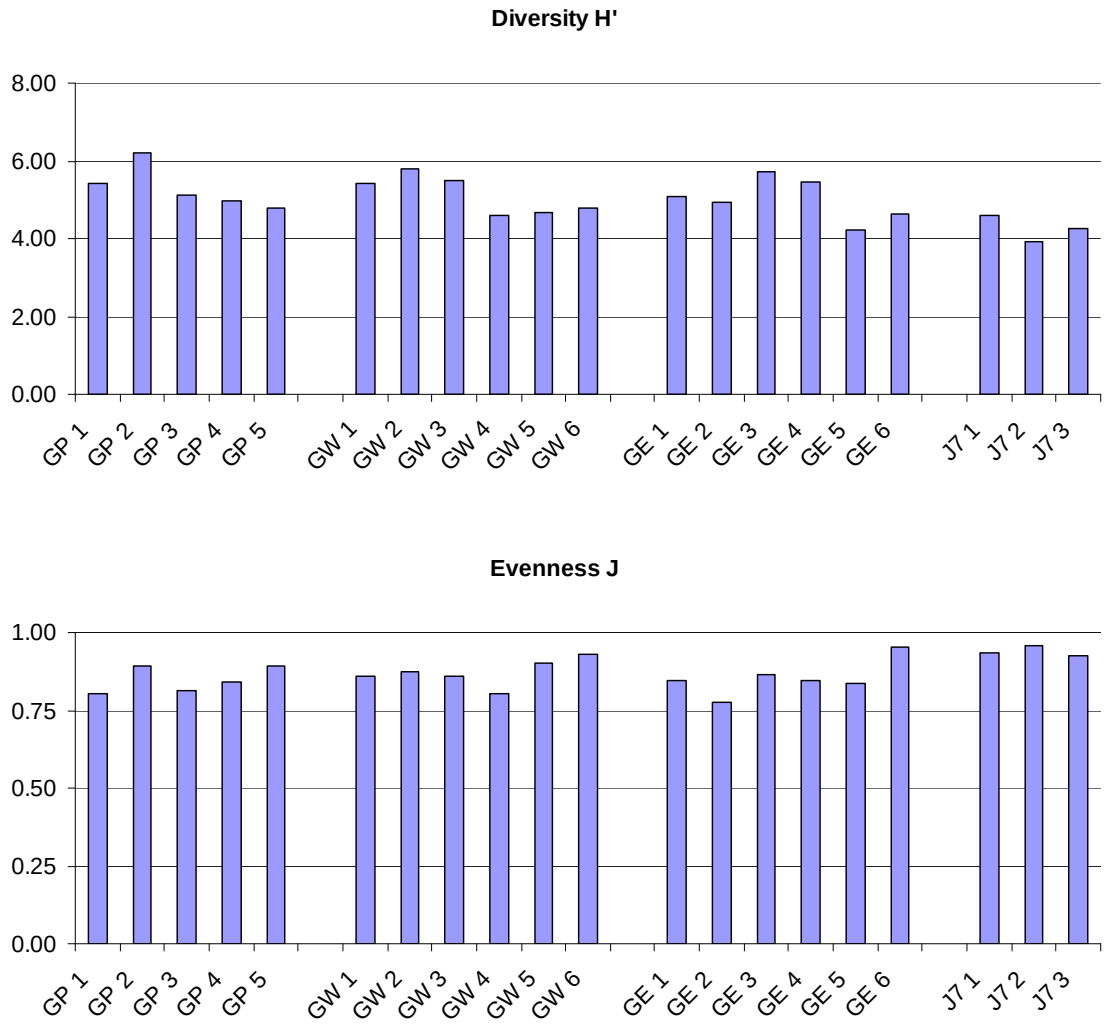


Figure 5.15. Diversity indexes and evenness at the Stations along Ghana pipeline, Ghana west, Ghana east and on the Jubilee field.

Table 5.6 Number of individuals and relative abundance for the most abundant taxa at the sampling stations along the Ghana pipeline.

GP 1	Number of individuals	%	Cum. %
Ampelisca sp.I	155	16.2	16.2
Cf. *Euclymene* sp.	69	7.2	23.5
Isolda pulchella	68	7.1	30.6
Ampelisca sp.II	46	4.8	35.4
Lumbrineris sp.	37	3.9	39.3
Terebellides stroemi	35	3.7	42.9
Aphelochaeta sp.	30	3.1	46.1
Cf. *Scoloplos* sp	24	2.5	48.6
Nemertiai indet.	19	2.0	50.6
Goniada sp.	19	2.0	52.6

GP 2	Number of individuals	%	Cum. %
Ampelisca sp.I	33	5.3	5.3
Amphioplus aurensis	32	5.2	10.5
Ampelisca sp.II	31	5.0	15.6
Amphipholis nudipora	24	3.9	19.4
Prionospio sp.	18	2.9	22.4
Notomastus latericeus	15	2.4	24.8
Magelona cincta	15	2.4	27.2
Scintilla sp.	15	2.4	29.7
Paguridae indet.	14	2.3	31.9
Amphilimna olivacea	14	2.3	34.2

GP 3	Number of individuals	%	Cum. %
Prionospio sp.	62	19.6	19.6
Lumbrineris sp.	26	8.2	27.8
Onchnesoma steenstrupi	23	7.3	35.0
Ampelisca sp.I	13	4.1	39.1
Aphelochaeta sp.	12	3.8	42.9
Magelona capensis	12	3.8	46.7
Paguridae indet.	10	3.2	49.8
Paralacydonia paradoxa	10	3.2	53.0
Nemertini indet.	8	2.5	55.5
Heteromastus filiformis	7	2.2	57.7

GP 4	Number of individuals	%	Cum. %
Onchnesoma steenstrupi	42	19.8	19.8
Paradiopatra cf. fiordica	14	6.6	26.4
Aphelochaeta sp.	13	6.1	32.5
Amphicteis gunneri	12	5.7	38.2
Ampelisca sp.I	10	4.7	42.9
Notomastus latericeus	9	4.2	47.2
Isolda pulchella	8	3.8	50.9
Notomastus aberans	6	2.8	53.8
Melinna sp	5	2.4	56.1
Cf. *Jasmineira* sp.	5	2.4	58.5

GP 5	Number of individuals	%	Cum. %
Magelona capensis	14	9.8	9.8
Myriochele sp.III	14	9.8	19.6
Abra sp	10	7.0	26.6
Prionospio sp.	9	6.3	32.9
Cf. *Golfingia* sp.	8	5.6	38.5
Paradiopatra cf. fiordica	7	4.9	43.4
Aricidea longobranchiata	7	4.9	48.3
Capitellidae indet.	7	4.9	53.1
Aphelochaeta sp.	5	3.5	56.6
Aricidea sp I	5	3.5	60.1
Thyasira sp.II	5	3.5	63.6
Apseudes acutifrons	5	3.5	67.1
Cf. *Trochochaeta multisetosa*	5	3.5	70.6

Table 5.7 Number of individuals and relative abundance for the most abundant taxa at the sampling stations along the transect Ghana west.

GW 1	Number of individuals	%	Cum. %
Prionospio sp.	35	6.4	6.4
Isolda pulchella	32	5.9	12.3
Ampelisca sp.II	32	5.9	18.2
Epidiopatra hupferiana	32	5.9	24.1
Cf. *Urothoe* sp. I	31	5.7	29.8
Ampelisca sp.I	28	5.2	35.0
Cf. *Paramphinome jeffreysii*	19	3.5	38.5
Glycera alba	17	3.1	41.6
Cf. *Scoloplos* sp	16	2.9	44.6
Goniada sp.	16	2.9	47.5
Oligochaeta indet.	16	2.9	50.5

GW 2	Number of individuals	%	Cum. %
Ampelisca sp.I	36	6.8	6.8
Prionospio sp.	34	6.4	13.1
Isolda pulchella	27	5.1	18.2
Aricidea sp I	26	4.9	23.1
Terebellides stroemi	23	4.3	27.4
Brachyura indet	22	4.1	31.5
Cf. *Galathea* sp.	21	3.9	35.5
Aphelochaeta sp.	17	3.2	38.6
cf. *Scintilla* sp.	16	3.0	41.7
Amphipholis nudipora	13	2.4	44.1

GW 3	Number of individuals	%	Cum. %
Prionospio sp.	36	11.6	11.6
Onchnesoma steenstrupi	25	8.1	19.7
Lumbrineris sp.	18	5.8	25.5
Amphicteis gunneri	17	5.5	31.0
Eunice sp.	17	5.5	36.5
Paralacydonia paradoxa	12	3.9	40.3
Cf. Golfingia sp.	9	2.9	43.2
Ampelisca sp.I	8	2.6	45.8
Aphelochaeta sp.	8	2.6	48.4
Paguridae indet.	8	2.6	51.0

GW 4	Number of individuals	%	Cum. %
Onchnesoma steenstrupi	61	26.2	26.2
Amphicteis gunneri	17	7.3	33.5
Paradiopatra cf. fiordica	13	5.6	39.1
Aphelochaeta sp.	12	5.2	44.2
Notomastus aberans	12	5.2	49.4
Ampharetidae indet sp.I	9	3.9	53.2
Amphioplus aciculatus	9	3.9	57.1
Cf. Ampharete sp juv	8	3.4	60.5
Ampelisca sp.I	5	2.1	62.7
Nemertini indet.	5	2.1	64.8

GW 5	Number of individuals	%	Cum. %
Magelona capensis	16	14.3	14.3
Onchnesoma steenstrupi	8	7.1	21.4
Cf. *Euclymene* sp.	8	7.1	28.6
Paradiopatra cf. fiordica	7	6.3	34.8
Cf. *Trochochaeta multisetosa*	6	5.4	40.2
Aphelochaeta sp.	5	4.5	44.6
Prionospio sp.	5	4.5	49.1
Aricidea sp I	5	4.5	53.6
Aricidea longobranchiata	5	4.5	58.0
Myriochele sp.III	4	3.6	61.6
Maldane sp.	4	3.6	65.2
Cf. *Eriopisa* sp.	4	3.6	68.8

GW 6	Number of individuals	%	Cum. %
Thyasira cf. ferruginea	10	15.9	15.9
Cf. *Euclymene* sp.	4	6.3	22.2
Prionospio sp.	4	6.3	28.6
Aphelochaeta sp.	3	4.8	33.3
Nemertini indet.	2	3.2	36.5
Glyphohesione klatti	2	3.2	39.7
Heteromastus filiformis	2	3.2	42.9
Myriochele sp.II	2	3.2	46.0
Levinsenia gracilis	2	3.2	49.2
Loandalia sp.	2	3.2	52.4
Sternaspis scutata	2	3.2	55.6
Amphipoda indet.	2	3.2	58.7
Cf. *Onchnesoma steenstrupi*	2	3.2	61.9
Thyasira cf. eumyaria	2	3.2	65.1
Pilargis papillata	2	3.2	68.3

Table 5.8 Number of individuals and relative abundance for the most abundant taxa at the sampling stations along the transect Ghana west.

GE 1	Number of individuals	%	Cum. %
Onchnesoma steenstrupi	69	14.5	14.5
Cf. *Scoloplos* sp	48	10.1	24.6
Heteromastus filiformis	28	5.9	30.5
Abra sp	24	5.0	35.5
Levinsenia gracilis	22	4.6	40.1
Amphipholis nudipora	19	4.0	44.1
Magelona cincta	15	3.2	47.3
cf. *Pitar* sp.	15	3.2	50.4
Nemertini indet.	13	2.7	53.2
Tellinidae indet	12	2.5	55.7

GE 2	Number of individuals	%	Cum. %
Aspidosiphon sp	113	22.6	22.6
Terebellides stroemi	36	7.2	29.9
Spiochaetopterus typicus	30	6.0	35.9
Aglaophamus sp.	25	5.0	40.9
Maldanidae indet sp.I	24	4.8	45.7
Lumbrineris sp.	21	4.2	49.9
Sternaspis scutata	21	4.2	54.1
Dentalium sp.	20	4.0	58.1
Ampelisca sp.II	18	3.6	61.7
Diopatra sp	11	2.2	63.9

GE 3	Number of individuals	%	Cum. %
Thyasira cf. ferruginea	45	11.1	11.1
Lumbrineris sp.	28	6.9	18.0
Prionospio sp.	22	5.4	23.4
Nematonereis hebes	22	5.4	28.8
Aphelochaeta sp.	15	3.7	32.5
Onchnesoma steenstrupi	13	3.2	35.7
Aglaophamus sp.	11	2.7	38.4
Eunice sp.	10	2.5	40.9
Paralacydonia paradoxa	10	2.5	43.3
Cumacea indet. sp.VI	10	2.5	45.8

GE 4	Number of individuals	%	Cum. %
Onchnesoma steenstrupi	42	10.8	10.8
Paradiopatra cf. fiordica	30	7.7	18.6
Ampelisca sp.I	25	6.4	25.0
Aphelochaeta sp.	20	5.2	30.2
Cf. *Ampharete* sp juv	15	3.9	34.0
Paralacydonia paradoxa	14	3.6	37.6
Nemertini indet.	14	3.6	41.2
Prionospio sp.	13	3.4	44.6
Amphicteis gunneri	11	2.8	47.4
Heteromastus filiformis	11	2.8	50.3
Aricidea longobranchiata	11	2.8	53.1

GE 5	Number of individuals	%	Cum. %
Prionospio sp.	22	17.1	17.1
Onchnesoma steenstrupi	18	14.0	31.0
Magelona capensis	15	11.6	42.6
Myriochele sp.III	9	7.0	49.6
Cf. *Trochochaeta multisetosa*	8	6.2	55.8
Capitellidae indet.	7	5.4	61.2
Paradiopatra cf. fiordica	6	4.7	65.9
Aricidea sp I	4	3.1	69.0
Ampelisca sp.I	3	2.3	71.3
Aphelochaeta sp.	3	2.3	73.6
Aricidea longobranchiata	3	2.3	76.0
Thyasira sp.II	3	2.3	78.3

GE 6	Number of individuals	%	Cum. %
Prionospio sp.	5	9.8	9.8
Onchnesoma steenstrupi	5	9.8	19.6
Spiochaetopterus typicus	3	5.9	25.5
Spiophanes soederstroemi	3	5.9	31.4
Golfingia sp.	3	5.9	37.3
Levinsenia gracilis	2	3.9	41.2
Cf. *Euclymene* sp.	2	3.9	45.1
Sternaspis scutata	2	3.9	49.0
Cf. Yoldia acuminata	2	3.9	52.9
Irregularia indet. Juv	2	3.9	56.9
cf. Oedicerotidae indet.	2	3.9	60.8
Aricidea sp II	2	3.9	64.7
Asellota indet.	2	3.9	68.6

Table 5.9 Number of individuals and relative abundance for the most abundant taxa at the sampling stations along on the Jubilee field.

J7 1	Number of individuals	%	Cum. %
Thyasira cf. ferruginea	7	13.0	13.0
Cf. *Onchnesoma steenstrupi*	5	9.3	22.2
Spiochaetopterus typicus	3	5.6	27.8
Caprellidae indet.	3	5.6	33.3
Aricidea sp II	3	5.6	38.9
Thyasira cf. eumyaria	3	5.6	44.4
Echinoidea indet.	3	5.6	50.0
Aphelochaeta sp.	2	3.7	53.7
Cf. *Eriopisa* sp.	2	3.7	57.4
Myriochele sp.II	2	3.7	61.1
Drilonereis sp.	2	3.7	64.8

J7 2	Number of individuals	%	Cum. %
A*phelochaeta* sp.	4	14.8	14.8
Aricidea sp I	3	11.1	25.9
Cf. *Golfingia* sp.	2	7.4	33.3
Caudofoveata indet.	2	7.4	40.7
Holothuroidea indet.	2	7.4	48.1
Capitellidae indet.	2	7.4	55.6
Myriochele sp.	2	7.4	63.0
Thyasira cf. ferruginea	1	3.7	66.7
Cf. Onchnesoma steenstrupi	1	3.7	70.4
Aricidea sp II	1	3.7	74.1
Thyasira cf. eumyaria	1	3.7	77.8
Echinoidea indet.	1	3.7	81.5
Lumbrineris sp.	1	3.7	85.2
Terebellidae indet.	1	3.7	88.9
Aricidea longobranchiata	1	3.7	92.6
Onuphis quadricuspis	1	3.7	96.3
Nereididae indet.	1	3.7	100.0

J7 3	Number of individuals	%	Cum. %
Aricidea sp II	6	16.7	16.7
Aricidea sp I	5	13.9	30.6
Capitellidae indet.	2	5.6	36.1
Echinoidea indet.	2	5.6	41.7
Thyasira sp.IV	2	5.6	47.2
Aphelochaeta sp.	1	2.8	50.0
Cf. *Golfingia* sp.	1	2.8	52.8
Thyasira cf. ferruginea	1	2.8	55.6
Cf. Onchnesoma steenstrupi	1	2.8	58.3
Terebellidae indet.	1	2.8	61.1
Maldane sp.	1	2.8	63.9
Cf. Yoldia acuminata	1	2.8	66.7
Abra sp	1	2.8	69.4
Nemertini indet.	1	2.8	72.2
Glyphohesione klatti	1	2.8	75.0
Ampelisca sp.I	1	2.8	77.8
Aglaophamus sp.	1	2.8	80.6
Anthuroidea indet.sp. III	1	2.8	83.3
Sipuncula indet.	1	2.8	86.1
Cf. *Ceratocephale loveni*	1	2.8	88.9
Spiochaetopterus cf. typicus	1	2.8	91.7
Maldanidae indet sp.II	1	2.8	94.4
Maldanidae indet sp.III	1	2.8	97.2
cf. *Echinocyamus* sp	1	2.8	100.0

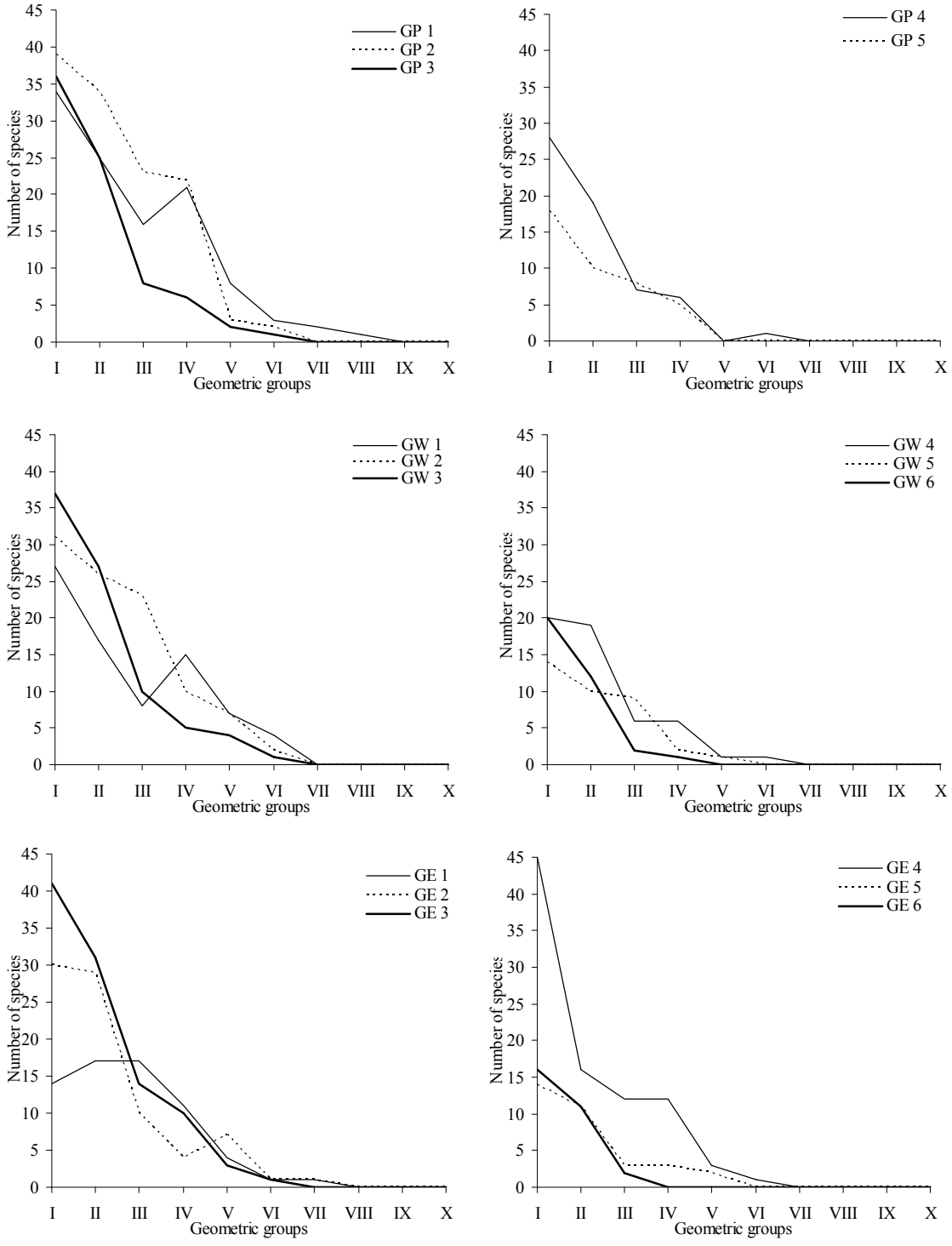


Figure 5.16 Distribution of taxa in geometrical classes for the sites along the transects Ghana pipeline, Ghana west, Ghana east and on the Jubilee field.

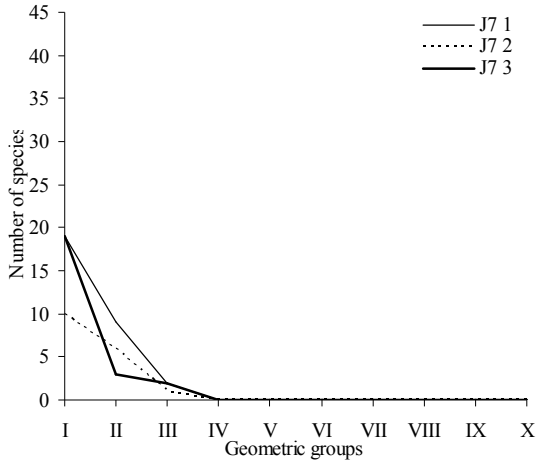


Figure 5.16 continued Distribution of taxa in geometrical classes for the sites along the transects of Ghana pipeline, Ghana west, Ghana east and on the Jubilee field.

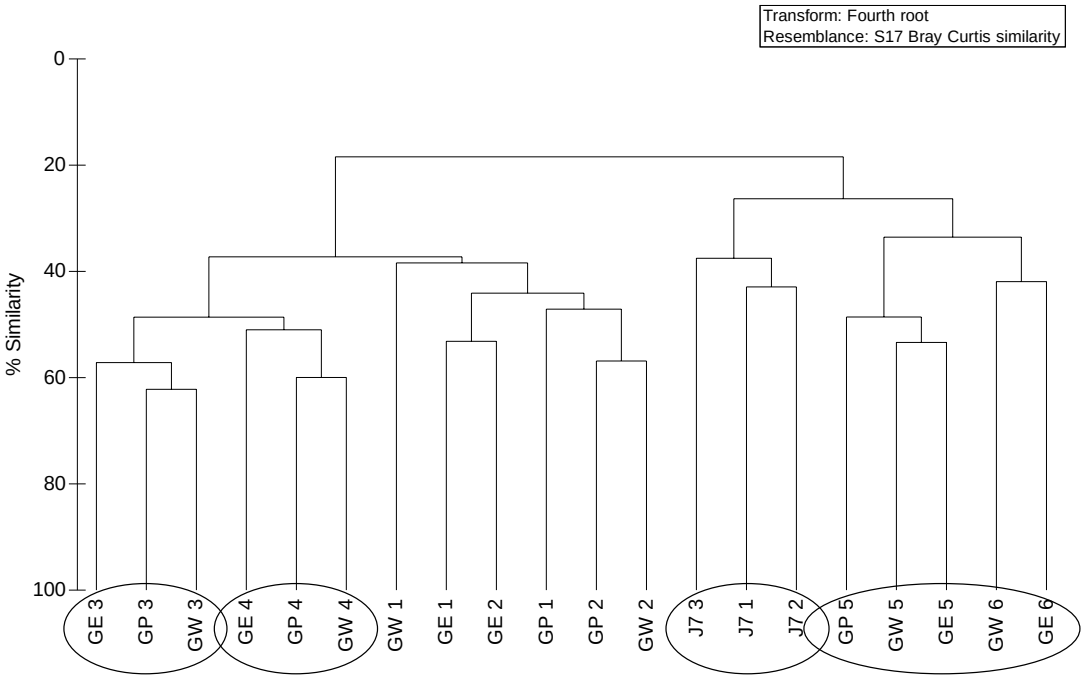


Figure 5.17 Dendrogram showing the similarity between fauna from sampling sites along the transects of Ghana pipeline, Ghana west, Ghana east and on the Jubilee field.

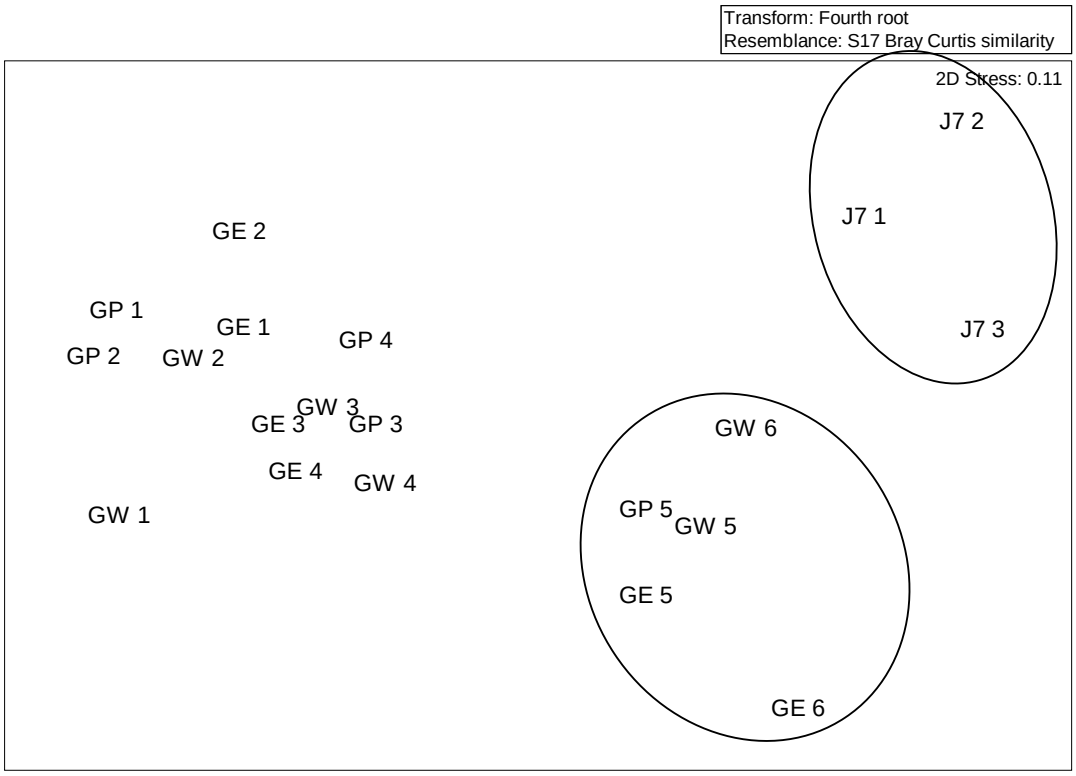


Figure 5.18 A two-dimensional plot of the MDS analyses of the fauna at Ghana pipeline, Ghana west, Ghana east and on the Jubilee field.

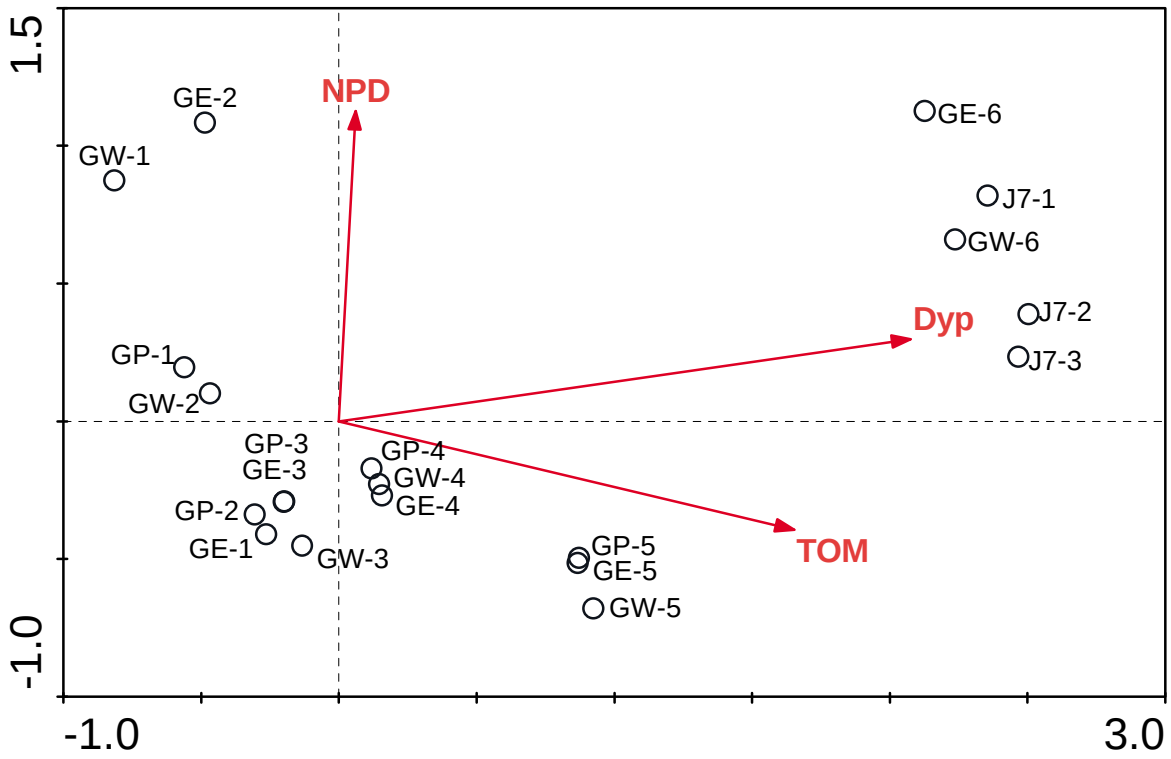


Figure 5.19 CCA analyses of the fauna at Ghana pipeline, Ghana west, Ghana east and the Jubilee field. The first axis explains 37.4 % of the distribution of bottom fauna, while the second axis explains 20.7 %.

6. SUMMARY

The coastal zone of Ghana may be divided into three geomorphologic zones: West Coast, Central coast and East coast. The investigation in 2009 was concentrated in the West Coast. The offshore oil exploration and exploitation have just started in Ghana. The Jubilee Field, the first oilfield to be developed in Ghana, is located in the deepest part of the investigated area.

The investigation included sediment sampling for analysis of grain size, chemical content and benthic fauna The sampling stations were spread out on three transects at predefined depths (aprox. 25 m, 50 m, 100 m, 250, 500 m and 1200 m depth). These sites may be used as a reference stations in future surveys. The sampling was executed according to the OSPAR guidelines for sediment monitoring in offshore oil production areas. The sediment sampling was carried out by the crew from Ghana under the supervision of the accredited laboratory Section of Applied Environmental Research at UNI Research.

CTD profiles were deployed at selected sediment sampling stations. The determined parameters include temperature, conductivity, dissolved oxygen and fluorescence. The investigation also include multibeam seabed mapping. The multibeam survey covered an area between the border of the Ivory Coast and the Jubilee field. During the survey, local scientists were trained in the sampling methodology and equipment operation.

The temperature distribution exhibits conditions characteristic to late spring, prior to the onset of the upwelling season. The thermocline was depressed to a 30 m depth. The data suggest a downwelling. At the offshore end, the vertical structure of the water column exhibits a salinity maximum, $S > 36$ and a drop in oxygen concentration < 3 ml l^{-1}, located just below the thermocline.

The sea bed was dominated by very fine grained sediment in the deepest part of the investigated area. Shallower sites were dominated by more sandy sediment. The content of total organic matter (TOM) correspond to the content of pelite, with higher TOM content in the deepest part compared to the more shallow part of the investigated area.

Most of the metals show higher concentration in the fine grained sediment in the deepest part of the investigated area. This correspond to the particle size of the sediment, smaller particles have higher affinity to chemical compounds. The concentrations of metals were generally low. The result will be a good reference for future monitoring survey to detect contamination.

The concentration of hydrocarbons was low at all sites and indicates the background value in the area.

The benthic fauna was generally undisturbed and fairly heterogenic at all investigated sites. The factor having the greatest impact on the distribution of bottom fauna was depth.

Altogether, the results indicate a benthic environment of good quality and that this survey is well suited as background material for future comparisons.

7. REFERENCES

Anon 2009. Requirements for Environmental Monitoring of the Petroleum Activities on the Ghanaian Continental Shelf. Second Draft December 2009.

Blott SJ, Pye K. 2001. Gradistat: a grain size distribution and statistics package for the analysis of unconsolidated sediments. *Earth Surface Processes and Landforms* 26, 1237-1248.

Bray JR, Curtis JT. 1957. An ordination of the upland forest communities of Southern Wisconsin. - *Ecological Monographs* 27:325-349.

Buchanan JB. 1984. Sediment analysis. Pp. 41-65 in: N.A. Holme & A.D. McIntyre (eds). *Methods for the study of marine benthos*. Blackwell Scientific Publications, Oxford.

ter Braak C.F., Smilauer P. 1997. Canoco for Windows 4.5. Biometrics – Plant Research International, Wageningen, Netherlands.

Field, JG., KR. Clarke, & R.M. Warwick 1982. A practical strategy for analysing multispecies distribution patterns. - *Marine Ecology Progress Series* 8:37-52.

Folk RL, Ward WC. 1957. Brazos river bar: A study in the significance of grain size parameters. *Journal of sedimentary petrology* 27: 3-26.

Gray JS, Mirza FB. 1979. A possible method for the detection of pollution-induced disturbance on marine benthic communities. - *Marine Pollution Bulletin* 10:142-146.

OSPAR 2006. OSPAR convention for the protection of the marine environment of the north-east atlantic. Harmonised reporting format to compile environmental monitoring data and information related to offshore oil and gas activities. Reference number 2006-07.

Pearson TH, Gray JS, Johannessen PJ. 1983. Objective selection of sensitive species indicative of pollution-induced change in bentic communities. 2. Data analyses. - *Marine Ecology Progress Series* 12:237-255.

Petroleumstilsynet (Ptil), Statens forurensningstilsyn (SFT), Sosial- og helsedirektoratet (SHdir), 2006. Forskrift om utføring av aktiviteter i petroleumsvirksomheten (Aktivitetsforskriften). Vedlegg 1: Krav til miljøovervåking av petroleumsvirksomheten på norsk kontinentalsokkel 2: Sedimentovervåkning.

Pielou EC. 1966. The measurement of species diversity in different types of biological collections. - *Journal of Theoretical Biology* 13:131-144.

Shannon CE, Weaver W. 1949. *The mathematical theory of communication.* - University of Illinois Press, Urbana. 117 s.

Renaud PE, Jensen T, Wassbotten I, Mannvik HP, Botnen H. 2008. Offshore sediment monitoring on the Norwegian shelf. A regional approach 1996-2006. Akvaplan-niva report no 3487-003. 95 s.

8. LIST OF ABBREVIATIONS

Ba	Barium
Cd	Cadmium
Cu	Copper
CTD	Conductivity, Temperature and Density
DGPS	Differential Global Positioning System
ES_{100}	Expected number of species in a 100 specimens sample
Fe	Iron
GC/FID	Gas chromatography with flame ionization detector
GC/MS	Gas chromatography with mass selective detector
GPS	Global Positioning System
H'	Shannon-Wiener diversity
Hg	Mercury
IMR	Institute of Marine Research
J	Pielou's measure of evenness
MDS	Multidimensional scaling
NPD	Naphthalene, Phenathrene/Anthracene, Dibenzothiophene and their C_1-C_3 homologues
NS	Norwegian Standard
PAH	Polycyclic Aromatic Hydrocarbons, including NPDs and 3-6 ring aromatics
Pb	Lead
SAM	Section of applied environmental research
THC	Total Hydrocarbon Content
TOM	Total Organic Material
UCC	University of Cape Coast
Uni Reseach	University Science of Bergen
Zn	Zinc

9. APPENDIX

Appendix Table 1. Selected data from meteorological observations.

Date	Time	lon	lat	Depth	Water temp	Air temp	Truewind speed	Truewind dir	Rel humidity	Airpressure
03.05.09	18:06:59	0.011171667	5.632836667	8.842	27.9	27.5	6.9	183.47	72	1007.6
04.05.09	00:00:59	-0.683393333	5.087743333	32.63	27.8	27.3	7.62	248.3	78	1008.3
04.05.09	06:00:00	-1.615228333	4.699955	46.072	28.1	26.6	2.57	331.02	82	1008.1
04.05.09	12:00:00	-2.165368333	4.681315	50.872	28.2	29.2	2.41	194.96	70	1009.7
04.05.09	18:01:59	-2.227861667	4.54594	99.225	28.6	27.7	15.38	176.65	79	1008.1
05.05.09	00:01:59	-2.281746667	4.421618333	502.82	28.4	28.1	4.69	217.7	77	1009.5
05.05.09	05:59:59	-2.369408333	4.241998333	1190.324	28.3	28.1	5.55	277.37	76	1009
05.05.09	12:00:00	-2.37703	4.249285	1180.515	28.2	24.3	8.43	263.41	100	1010.7
05.05.09	18:00:01	-2.79263	4.592596667	643.279	28.3	27.8	9.07	199.03	82	1008.7
06.05.09	00:00:00	-2.821123333	4.649965	238.051	28.1	27.7	17.29	184.83	81	1010.2
06.05.09	06:00:00	-3.077166667	4.731443333	495.898	28.1	27.3	10.19	215.28	83	1009.2
06.05.09	11:59:59	-3.058688333	4.78095	100.831	27.9	25.6	10.84	281.58	96	1010.9
06.05.09	18:00:00	-3.046335	4.848766667	76.949	28.1	25.8	4.84	197.69	86	1008.9
07.05.09	00:01:59	-3.08095	4.61307	1201.672	28	26.3	6.63	263.3	84	1011.3
07.05.09	06:00:00	-2.862976667	4.661966667	230.601	27.9	26	10.46	233.75	87	1010
07.05.09	12:00:01	-2.584561667	4.917405	33.577	27.9	25.2	23.16	254.98	87	1011.4
07.05.09	18:00:01	-2.928255	4.549028333	1277.465	27.8	26.5	18.32	264.17	81	1010.2
08.05.09	00:00:00	-2.9285	4.548976667	1277.281	27.8	27.3	13.98	269.15	77	1011
08.05.09	06:00:00	-2.919211667	4.547795	1321.412	27.7	27.5	17.81	242.16	75	1008.8
08.05.09	12:00:00	-2.936908333	4.55133	1267.927	27.8	27.1	15.1	307.61	80	1010.9
08.05.09	17:59:59	-2.925116667	4.549511667	1276.556	27.8	27.3	6.34	234.79	78	1009.4
09.05.09	00:00:01	-1.813031667	4.617246667	54.479	27.5	27.4	13.21	227.95	80	1011.5
09.05.09	06:00:00	-0.709446667	5.110893333	32.586	27.6	26	6.55	331.25	96	1009.2

Appendix table 2. Sediment caracteristics at all Ghana sites, 2009.

Station	Sorting	Skewness	Kurtosis	Median (□)	Gravel	Sand	Pelite	Medium gravel	Fine gravel	V. fine gravel	V. coarse sand	Coarse sand	Medium sand	Fine sand	V. fine sand	TOM
GW-1	1.269	-0.061	1.120	0.562	11.4%	87.7%	0.9%	0.3%	2.4%	8.7%	17.6%	37.3%	24.5%	7.1%	1.2%	1.5%
GW-2	1.938	0.147	1.288	3.236	0.7%	75.5%	23.8%	0.0%	0.3%	0.4%	0.9%	4.7%	20.6%	14.8%	34.4%	3.5%
GW-3	2.634	0.159	1.067	2.227	6.3%	69.6%	24.0%	0.6%	2.0%	3.7%	10.0%	13.7%	15.7%	18.8%	11.4%	6.12 %
GW-4	1.792	0.447	1.665	1.872	0.7%	82.9%	16.4%	0.0%	0.0%	0.7%	3.8%	11.3%	39.2%	22.4%	6.2%	6.0%
GW-5	1.556	-0.046	0.802	5.572	0.0%	17.6%	82.4%	0.0%	0.0%	0.0%	0.1%	0.2%	1.7%	2.9%	12.7%	11.5%
GW-6	1.266	0.000	0.738	5.934	0.0%	3.2%	96.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	2.9%	13.09 %
GE-1	2.142	0.043	0.721	4.349	0.1%	45.1%	54.8%	0.0%	0.0%	0.1%	0.3%	1.7%	11.3%	21.2%	10.7%	7.4%
GE-2	1.253	0.000	0.738	5.955	0.1%	2.1%	97.8%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.5%	1.1%	7.6%
GE-3	2.622	0.306	0.891	2.000	3.5%	69.2%	27.3%	0.0%	1.2%	2.3%	10.8%	17.8%	17.9%	15.1%	7.5%	5.3%
GE-4	2.051	0.279	1.288	2.530	1.0%	77.5%	21.5%	0.0%	0.1%	0.9%	3.9%	9.0%	21.2%	28.0%	15.3%	6.2%
GE-5	2.111	0.053	0.713	4.369	0.0%	44.9%	55.1%	0.0%	0.0%	0.0%	0.0%	0.2%	12.1%	21.2%	11.5%	10.1%
GE-6	1.244	0.000	0.738	5.969	0.0%	1.5%	98.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.5%	0.9%	11.81 %
GP-1	1.138	-0.114	2.252	3.369	0.0%	89.6%	10.4%	0.0%	0.0%	0.0%	0.2%	1.0%	11.7%	13.4%	63.2%	3.1%
GP-2	2.324	0.086	1.181	3.171	3.2%	68.7%	28.1%	0.4%	0.5%	2.3%	3.9%	6.2%	16.3%	15.9%	26.5%	5.2%
GP-3	1.846	0.249	1.465	3.388	0.9%	71.9%	27.2%	0.0%	0.2%	0.7%	1.4%	3.0%	7.8%	22.1%	37.5%	5.3%
GP-4	2.022	0.326	1.396	1.184	2.8%	84.4%	12.8%	0.0%	0.4%	2.4%	17.6%	24.7%	26.5%	10.2%	5.4%	5.7%
GP-5	1.733	-0.063	0.824	5.342	0.0%	24.8%	75.2%	0.0%	0.0%	0.0%	0.0%	0.1%	2.6%	6.0%	16.1%	10.0%
J7-1	1.240	0.000	0.738	5.977	0.0%	1.2%	98.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.7%	12.5%
J7-2	1.240	0.000	0.738	5.977	0.0%	1.2%	98.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.8%	13.0%
J7-3	1.240	0.000	0.738	5.976	0.0%	1.2%	98.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.8%	12.9%
J7-4	1.237	0.000	0.738	5.982	0.0%	0.9%	99.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.6%	13.05 %

Appendix table 3. Concentrations of metals (in mg/kg d.w.) and dry weight (%) from all samples at the sites Ghana west, Ghana east, Ghana pipeline and Jubilee petroleum site, 2009.

Site	Sample nr	Barium, Ba	Lead, Pb	Cadmium, Cd	Copper, Cu	Chromium, Cr	Mercury, Hg	Zinc, Zn	Dry weight
GW-1	1	1.7	1.4	0.006	0.33	11.1	0.002	8.7	83.6
GW-1	2	2	1.9	0.008	0.7	9.7	0.002	9	80.2
GW-1	3	1.4	1.6	0.008	0.68	8.5	0.002	12	79.6
GW-2	1	13.2	3.5	0.023	2.4	37.4	0.007	32	76
GW-2	2	16.8	3.2	0.017	2.1	34.3	0.008	30.2	75.3
GW-2	3	12.7	3.5	0.016	1.4	35.1	0.006	30.5	79.1
GW-3	1	14.8	1.4	0.067	3.1	15.7	0.007	17.4	69
GW-3	2	22.1	2.1	0.086	4	23.4	0.013	24.6	65.1
GW-3	3	21.7	2	0.084	3.6	20.5	0.011	21.7	67.4
GW-4	1	12.6	5.3	0.07	1.6	62	0.008	58.1	70.1
GW-4	2	17.8	5.1	0.072	2	62.2	0.01	65.6	69.9
GW-4	3	18.6	4.1	0.072	2.6	51.7	0.008	53.8	68.1
GW-5	1	31	2.9	0.113	7.1	34.3	0.02	34.8	61.1
GW-5	2	44.5	3.5	0.184	10.8	37.8	0.002	38.6	53.4
GW-5	3	45.6	3.6	0.205	11.5	39.8	0.002	44.5	50
GW-6	1	139	4.5	0.229	15.3	39.5	0.037	45.2	52.3
GW-6	2	144	4.5	0.211	15.5	39.8	0.037	46.5	51.6
GW-6	3	153	6.5	0.255	15.8	43.1	0.038	33.4	51.2

Appendix table 3 continued. Concentrations of metals (in mg/kg d.w.) and dry weight (%) from all samples at the sites Ghana west, Ghana east, Ghana pipeline and Jubilee petroleum site, 2009.

Site	Sample nr	Barium, Ba	Lead, Pb	Cadmium, Cd	Copper, Cu	Chromium, Cr	Mercury, Hg	Zinc, Zn	Dry weight
GE-1	1	7.3	6.1	0.024	4.1	42.3	0.025	31.7	69.4
GE-1	2	7.3	5.9	0.022	4.3	41.6	0.031	31.9	68.8
GE-1	3	7.5	6.4	0.028	4.3	37.6	0.03	33.5	65.5
GE-2	1	9.6	4.1	0.023	6	32.4	0.036	24	63.4
GE-2	2	10.2	4.2	0.031	5.9	35.3	0.021	26.6	65
GE-2	3	9.6	3.9	0.032	5.7	33.3	0.021	24.2	65
GE-3	1	7.5	1.8	0.074	4	21.9	0.013	18.3	69.3
GE-3	2	8.1	1.6	0.06	3.5	19.3	0.012	19	74
GE-3	3	9	1.7	0.068	4.3	21.4	0.014	21.6	68
GE-4	1	9.1	2.4	0.062	4.1	48.6	0.014	51.5	63.2
GE-4	2	9.4	2.4	0.057	4	42	0.014	49	62.2
GE-4	3	7.6	2	0.041	3.5	37.2	0.011	39.6	64.2
GE-5	1	52.3	3.6	0.082	10	47.3	0.026	45.1	53.6
GE-5	2	30	2.5	0.06	7.2	52	0.021	43.9	57.3
GE-5	3	28.7	2.4	0.081	6.9	54.4	0.017	44.5	61
GE-6	1	185	5	0.077	15.5	34.8	0.047	49.6	49
GE-6	2	171	4.9	0.064	15.1	34.1	0.048	47.8	48.5
GE-6	3	172	4.6	0.091	14.8	33.4	0.049	47.6	48.2

Appendix table 3 continued. Concentrations of metals (in mg/kg d.w.) and dry weight (%) from all samples at the sites Ghana west, Ghana east, Ghana pipeline and Jubilee petroleum site, 2009.

Site	Sample nr	Barium, Ba	Lead, Pb	Cadmium, Cd	Copper, Cu	Chromium, Cr	Mercury, Hg	Zinc, Zn	Dry weight
GP-1	1	2.8	1.9	0.023	0.98	27.6	0.003	25.5	78.1
GP-1	2	4.2	3	0.046	1.4	35.7	0.004	26.5	67.2
GP-1	3	4.5	2.4	0.044	1.8	27.9	0.006	23.5	74.6
GP-2	1	5.4	4.1	0.023	2.4	42.8	0.011	35	74.8
GP-2	2	4.4	3.6	0.018	2.2	41.4	0.01	32.3	76.1
GP-2	3	5.9	3.9	0.026	2.9	48	0.013	35.5	74.5
GP-3	1	9.5	1.6	0.063	3.9	20.6	0.013	21.3	66.9
GP-3	2	10.3	1.7	0.058	4.1	23.5	0.013	24.8	64.8
GP-3	3	11.2	1.9	0.098	4.6	23	0.016	24.8	68.1
GP-4	1	7.8	1.9	0.087	2.8	27.7	0.011	29.1	67.6
GP-4	2	8.7	2.3	0.08	3.1	38.8	0.012	41.6	69.9
GP-4	3	7.1	2.2	0.05	3.3	36.6	0.01	36.8	71.2
GP-5	1	34.4	2.8	0.202	8.6	38.3	0.023	43.9	51.8
GP-5	2	40.6	3.2	0.210	9.3	36.2	0.025	39	51.1
GP-5	3	43.6	3	0.222	9.9	35.1	0.024	37.1	50.4

Appendix table 3 continued. Concentrations of metals (in mg/kg d.w.) and dry weight (%) from all samples at the sites Ghana west, Ghana east, Ghana pipeline and Jubilee petroleum site, 2009.

Site	Sample nr	Barium, Ba	Lead, Pb	Cadmium, Cd	Copper, Cu	Chromium, Cr	Mercury, Hg	Zinc, Zn	Dry weight
J7-1	1	181	5.3	0.262	18.7	44.3	0.046	52.2	49.7
J7-1	2	167	5	0.234	17.2	41.5	0.045	47.9	49.9
J7-1	3	163	4.9	0.236	20.4	41.9	0.044	47.7	49.7
J7-2	1	156	4.9	0.152	16.5	42.1	0.038	49.7	49.2
J7-2	2	166	5.4	0.076	17.8	44.4	0.032	53	41.1
J7-2	3	162	5	0.079	17.6	45.1	0.021	51.8	42.7
J7-3	1	181	6.1	0.248	18.7	54.6	0.033	55.3	49.3
J7-3	2	166	4.8	0.229	17.3	44.6	0.039	52.1	48.9
J7-3	3	170	5	0.231	17.2	45.3	0.04	51.7	50.6
J7-4	1	135	4	0.184	14.5	36.6	0.039	41	51.6
J7-4	2	173	5.1	0.23	18.2	42.9	0.044	50.5	50.7
J7-4	3	159	5	0.231	16.9	39.4	0.053	46.9	50

Appendix table 4. Concentrations of NPDs and THC 12-35 (in mg/kg d.w.) and dry weight (%) from all samples at the sites Ghana west, Ghana east, Ghana pipeline and Jubilee petroleum site, 2009.

Site	Sample nr	Nafthalene	Naftalen -C1	Naftalen -C2	Naftalen -C3	Phenan-threne	Phenantren -C1	Phenantren -C2	Phenantren -C3	Dibenzo-thiophen	Dibenzo-thiophen-C1	Dibenzo-thiophen-C2	Dibenzo-thiophen-C3		THC C12-35
GW-1	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		3.9
GW-1	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		1.4
GW-1	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		4.5
GW-2	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-4	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-4	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-4	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-5	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-5	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-5	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		3.4
GW-6	1	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		3.1
GW-6	2	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
GW-6	3	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		3.5

Site	Sample nr	Nafthalene	Naftalen -C1	Naftalen -C2	Naftalen -C3	Phenan-threne	Phenantren -C1	Phenantren -C2	Phenantren -C3	Dibenzo-thiophen	Dibenzo-thiophen-C1	Dibenzo-thiophen-C2	Dibenzo-thiophen-C3		THC C12-35
GE-1	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		4.2
GE-1	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		4.1
GE-1	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		4.1
GE-2	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.004	0.002	< 0.001	< 0.001	< 0.001	< 0.001		7.7
GE-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.004	0.003	< 0.001	< 0.001	< 0.001	< 0.001		10
GE-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.003	0.002	< 0.001	< 0.001	< 0.001	< 0.001		7.7
GE-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		9.1
GE-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		7.3
GE-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6.9
GE-4	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		9.5
GE-4	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		10
GE-4	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		9.7
GE-5	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		15
GE-5	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		14
GE-5	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		12
GE-6	1	0.004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		13
GE-6	2	0.004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		12
GE-6	3	0.004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		14

Site	Sample nr	Nafthalene	Naftalen -C1	Naftalen -C2	Naftalen -C3	Phenan-threne	Phenantren -C1	Phenantren -C2	Phenantren -C3	Dibenzo-thiophen	Dibenzo-thiophen-C1	Dibenzo-thiophen-C2	Dibenzo-thiophen-C3		THC C12-35
GP-1	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		7.9
GP-1	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		9.7
GP-1	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		8.8
GP-2	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		7.9
GP-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		7.5
GP-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		7.2
GP-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6
GP-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		5.6
GP-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		5.6
GP-4	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6.9
GP-4	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6.9
GP-4	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6.7
GP-5	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6.2
GP-5	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6.3
GP-5	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		6

Site	Sample nr	Nafthalene	Naftalen -C1	Naftalen -C2	Naftalen -C3	Phenan-threne	Phenantren -C1	Phenantren -C2	Phenantren -C3	Dibenzo-thiophen	Dibenzo-thiophen-C1	Dibenzo-thiophen-C2	Dibenzo-thiophen-C3		THC C12-35
J7-1	1	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		15
J7-1	2	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		14
J7-1	3	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		15
J7-2	1	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		5.1
J7-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		5.4
J7-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		5.4
J7-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		2.6
J7-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		<1.0
J7-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		3.2
J7-4	1	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		7.9
J7-4	2	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		8.9
J7-4	3	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		9.6

Appendix table 5. Concentrations of PAH16 (mg/kg d.w.) and dry weight (%) from all samples at the sites Ghana west, Ghana east, Ghana pipeline and Jubilee petroleum site, 2009.

Site	Sample nr.	Acen-aphthene	Acen-Aphth-ylene	Anth-racene	Benzo (g,h,i) perylene	Benzo(a) anthracene	Benzo(a) pyrene	Chry-sene	Dibenzo (a,h) Anthracene	Fluor-anthene	Fluorene	Indeno (1,2,3-cd) pyrene	Nafth-alene	Phen-anthrene	Pyrene	Benzo(b,k) fluoranthene	PAH(16)
GW-1	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	**0.002**
GW-1	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GW-1	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GW-2	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-4	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GW-4	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GW-4	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GW-5	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-5	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GW-5	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GW-6	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	0.003	< 0.001	0.003	< 0.001	**0.008**
GW-6	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	**0.002**
GW-6	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	< 0.001	0.003	< 0.001	0.007	< 0.001	**0.014**

Site	Sample nr.	Acen-aphthene	Acen-Aphth-ylene	Anth-racene	Benzo (g,h,i) perylene	Benzo(a) anthracene	Benzo(a) pyrene	Chry-sene	Dibenzo (a,h) Anthracene	Fluor-anthene	Fluorene	Indeno (1,2,3-cd) pyrene	Nafth-alene	Phen-anthrene	Pyrene	Benzo(b,k) fluoranthene	PAH(16)
GE-1	1	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.009**
GE-1	2	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	**0.009**
GE-1	3	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	0.006	< 0.001	**0.010**
GE-2	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.004	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.003	**0.013**
GE-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.004	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.003	**0.013**
GE-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	**0.004**
GE-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GE-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GE-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GE-4	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GE-4	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GE-4	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	**0.005**
GE-5	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GE-5	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.006	< 0.001	**0.008**
GE-5	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GE-6	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	< 0.001	< 0.001	**0.004**
GE-6	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	< 0.001	< 0.001	**0.004**
GE-6	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	< 0.001	< 0.001	**0.004**

Site	Sample nr.	Acen-aphthene	Acen-Aphth-ylene	Anth-racene	Benzo (g,h,i) perylene	Benzo(a) anthracene	Benzo(a) pyrene	Chry-sene	Dibenzo (a,h) Anthracene	Fluor-anthene	Fluorene	Indeno (1,2,3-cd) pyrene	Nafth-alene	Phen-anthrene	Pyrene	Benzo(b,k) fluoranthene	PAH(16)
GP-1	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	**0.002**
GP-1	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	**0.003**
GP-1	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	**0.002**
GP-2	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GP-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	**0.003**
GP-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	**0.004**
GP-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GP-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GP-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GP-4	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GP-4	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GP-4	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
GP-5	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	**0.005**
GP-5	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	**0.005**
GP-5	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	**0.005**

Site	Sample nr.	Acen-aphthene	Acen-Aphth-ylene	Anth-racene	Benzo (g,h,i) perylene	Benzo(a) anthracene	Benzo(a) pyrene	Chry-sene	Dibenzo (a,h) Anthracene	Fluor-anthene	Fluorene	Indeno (1,2,3-cd) pyrene	Nafth-alene	Phen-anthrene	Pyrene	Benzo(b,k) fluoranthene	PAH(16)
J7-1	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	0.002	< 0.001	0.005	< 0.001	**0.009**
J7-1	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	0.003	< 0.001	0.002	< 0.001	**0.007**
J7-1	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	0.003	< 0.001	0.004	< 0.001	**0.009**
J7-2	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	0.002	< 0.001	0.002	< 0.001	**0.007**
J7-2	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	0.006	< 0.001	**0.009**
J7-2	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	0.006	< 0.001	**0.009**
J7-3	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
J7-3	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
J7-3	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**<0.01**
J7-4	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	0.002	< 0.001	0.004	< 0.001	**0.008**
J7-4	2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	0.003	< 0.001	0.004	< 0.001	**0.010**
J7-4	3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	0.003	< 0.001	0.005	< 0.001	**0.011**

Appendix Table 6. Conversion of sediment sample depth to volume (litre).

Sediment depth (cm)	Distance from the lid to the sediment surface (cm)	Volume (litre)
21.0	0	20.8
20.0	1	19.5
19.0	2	18.3
18.0	3	17.0
17.0	4	15.8
16.0	5	14.5
15.0	6	13.3
14.0	7	12.1
13.0	8	11.0
12.0	9	9.8
11.0	10	8.7
10.0	11	7.6
9.0	12	6.5
8.0	13	5.5
7.0	14	4.6
6.0	15	3.6
5.0	16	2.8
4.0	17	2.0
3.0	18	1.3
2.0	19	0.7
1.0	20	0.3

Appendix table 7. Species list.

Uni Research AS
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BENTHOS SPECIES LIST

Employer: Institute of Marine Research (IMR)
Project nr. 803241
Sampling location: Ghana coastline
Date of sampling: 04-07.05.2009
Responsible for sampling: Uni Research, SAM
The species are identified by: Øyvind Stokland, Marine Bunndyr AS

Method: The material is collected and sorted in accordance with Norsk Standard NS 9423 and intern standard regulations.

Information about marking in the species list:
For each station, the number of grab sample is given and in which one the species were found.

/ in the table means a partition between adults and juveniles (example: 4/2 means 4 adults and 2 juveniles).

cf. before genus means that the genus and species are uncertain.

cf. between genus and species means that the genus is certain, but the species is unsure.

***** in the first column means describes species or groups being left out from analyses.

Other information:
The table starts on the next page and continuous over 76 pages.

The species list shall not be copied incomplete without a written approval from SAM.

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**			1			2				
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet				1			1		1	
	Anthozoa										
	Anthozoa indet										
	Hexacorallia	2									
	Cf. Cerianthus lloydii	1									
	Edwardsiidae indet.	1		1							1
	PLATYHELMINTHES										
	Platyhelminthes indet							1			
	NEMERTINI										
	Nemertini indet.	5	7	2	4	1	2	3	2	1	2
*	NEMATODA										
*	Nematoda indet										1
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.										
	Paramphinome jeffreysii										
	Cf. Paramphinome jeffreysii										
	Chloeia inermis									1	
	Aphroditidae										
	Aphrodita alta										1
	Acoetidae										
	Cf. Eupanthalis kinbergi										
	Polynoidae										
	Polynoidae indet.			2		1					
	Sigalionidae										
	Pholoe sp										
	Sigalionidae sp. I			2	2						
	Sigalionidae sp. II										
	Psammolyce sp							2		2	1
	Sthenolepis sp.										
	cf. Sthenolepis sp.										
	Cf. Leanira hystricis										
	Sthenelais limicola		1	1							
	Pisionidae										
	Pisione africana										
	Phyllodocidae										
	Phyllodocidae indet.										
	Phyllodoce sp. I		2		2			1		1	
	Phyllodoce sp. II							2			
	Phyllodoce sp. III										
	Phyllodoce sp. IV										
	Eulalia sp.										
	Chrysopetalidae										
	Chrysopetalidae indet.										
	Pilargidae										
	Loandalia sp.										
	Glyphohesione klatti										
	Pilargis papillata										
	Paralacydoniidae										
	Paralacydonia paradoxa						4	2	1	3	1

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
Sample number	4	5	6	7	8	4	5	6	7	8
Hesionidae										
Cf. Gyptis capensis										
Cf. Gyptis cf. capensis					1					
Gyptis cf. capensis						1				
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.								1	1	
Cf. Syllis cornuta										
Nereididae										
Nereididae indet.			3			2		1	1	
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.										
Nephtyidae										
Aglaophamus sp.						6	1	3	2	
Nephtys sp.	1	2	6	7						
Sphaerodoridae										
Glyceridae										
Glycera alba	1		1	2	1		1			1
Glycera sp.										
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana	2	1	1	1	3	3	1	1	2	2
Goniada sp.	0/2	0/6	0/7	0/4		2		2		1
Goniada sp. I										
Goniada congoensis										
Goniada cf. congoensis										
Ophioglycera eximia					4					
Oenonidae										
Drilonereis sp.		2	4	2						
Onuphidae										
Diopatra sp	1					1	1			1
Hyalinoecia tubicola										
Hyalinoecia bilineata				1		2	2	1		
Nothria conchylega						2		2		2
Paradiopatra cf. fiordica										
Paradiopatra fiordica										
Onuphis eremita		2	5	6						
Onuphis quadricuspis										
Epidiopatra hupferiana				2			1			
Eunicidae										
Eunice sp.		2	6	3		3	4	1	1	3
Nematonereis hebes										1
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.	2	7	20	7	1	1	4		2	
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida						1				
Cf. Scoloplos sp	10	4	4	4	2	2	4		3	2
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.				2					1	1
Pseudopolydora sp.										
Prionospio pinnata		5	6	3						
Prionospio malmgreni										

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
Sample number	4	5	6	7	8	4	5	6	7	8
Prionospio sp.		1				7	3	1	5	2
Scolelepis sp.				1						
Spiophanes bombyx			5	4		1				
Spiophanes soederstroemi	1	1								
Cf. Dispio sp.			2	1						
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens				1						
Trochochaetidae										
Cf. Trochochaeta multisetosa										
Chaetopteridae										
Chaetopteridae indet			1	1						
Spiochaetopterus typicus		1					1			
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis										
Magelona cincta	1	3	1			4	2	1	4	4
Magelona papillicorenis					1					
Magelona sp.										
Maldanidae										
Maldanidae indet sp.I				1						
Maldanidae indet sp.II										
Maldanidae indet sp.III										
Maldanidae indet sp.V										
Praxillella gracilis										
Cf. Euclymene sp.	11	23	23	12						
Maldane decorata		3	4	2			1		1	
Maldane sp.										
Rhodine cf. loveni										
Sabaco atlantideus		4								
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli		3	9	5		4	4		1	1
Aricidea sp I										
Aricidea sp II										
Aricidea sp III										
Aricidea longobranchiata	3	5	5	3			1		2	
Levinsenia gracilis										
Paraonis sp.			1				2		1	
cf. Paradoneis lyra	3									
Cirratulidae										
Aphelochaeta sp.	4	4	18	4		6	2		3	1
Chaetozone sp.		1	1	6					1	
Dodecaceria sp.										
Cossuridae										
Cossura coasta										
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.						1	1			
Pherusa sp.				1			1		1	2
Opheliidae										
Opheliidae indet. Juv			0/1							
Ophelia sp. Juv						0/1				
Ophelina acuminata							1			
Ophelina cf. cylindricaudata										
Ophelina sp.						1				
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum										

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
Sample number	4	5	6	7	8	4	5	6	7	8
Capitellidae										
Capitellidae indet.										
Capitellidae sp.I										
Capitella capitata						1				
Heteromastus filiformis	3	2	6	2		3	1			
Notomastus aberans		3				2	1			1
Notomastus latericeus	1	2	4	3		3	6	4		2
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni						1	2	1		
Myriochele sp.										
Myriochele sp.I						1	1			
Myriochele sp.II										
Myriochele sp.III										
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata		4	2	1		2	1		2	3
Pectinariidae										
Pectinaria sp.										
Ampharetidae										
Ampharetidae indet sp.I		2	3	5						1
Ampharetidae indet sp.III										
Ampharetidae indet. Sp.II										
Ampharetidae indet sp. III										
Ampharetidae indet. Juv										
Ampharetidae indet. Juv Sp.II							0/4	0/1		0/2
Amphicteis gunneri							1			2
Cf. Ampharete sp juv		0/3	0/6	0/2		0/2			0/1	
Cf. Anobothrus gracilis										
Isolda pulchella	12	7	30	18	1	3	5	3	1	1
Melinna sp										
Sabellidae										
Sabellidae indet.									1	
Sabellidae juv indet.			0/1							
Cf. Sabellastarte sp.									1	
Euchone incolor										
Cf. Jasmineira elegans				2			1	2	1	
Cf. Jasmineira sp.										
Sabellariidae										
Lygdamis cf. muratus						2				
Terebellidae										
Pista unibranchia		2	1	1						
Laphania sp.								1		1
Cf. Laphania sp.								1		1
Cf. Amaeana sp.										
Terebellidae indet.	1			1		1				
Terebellidae indet juv					0/1					
Lysialla ubianensis										
Cf. Lysialla ubianensis		2								
Trichobranchidae										
Terebellides stroemi	1	3	17	13	1	6	1		1	1
Trichobranchus glacialis		1	1	1						
Serpulidae										
Cf. Hydroides sp										
Oligochaeta										
Oligochaeta indet.										
Hirudinea										
ECHIURA										
Echiura indet.			1							

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
	Sample number	4	5	6	7	8	4	5	6	7	8
	SIPUNCULA										
	Sipuncula indet.	1									
	Sipunculidae indet										
	Golfingia sp.							1	1		
	Cf. Golfingia sp.				2		2				
	Aspidosiphon sp					1	1				
	Onchnesoma steenstrupi	2	2	7			1	2	2	1	
	Cf. Onchnesoma steenstrupi										
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet						1	1			
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I		1	1							
*	Ostracoda indet. Sp.II								1	1	
*	Ostracoda indet. Sp.III							1			
*	Ostracoda indet. Sp.IV		1								
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.						1				
	Cumacea										
	Cumacea indet. Sp. I				2		1				
	Cumacea indet. Sp. II				1						
	Cumacea indet sp.III						1	3			2
	Cumacea indet sp.IV				1					2	
	Cumacea indet. sp.V										1
	Cumacea indet. sp.VI										
	Cumacea indet sp.VII										
	Iphinoe sp		1	1	2						
	Cf. Leucon sp.										
	Diastylis sp.									1	2
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.						1				
	Apseudes acutifrons	2	2	3	2				1		1
	Isopoda										
	Flabellifera indet.					1					
	Asellota indet.										
	Anthuroidea indet. Sp.	1	2		1						
	Anthuroidea indet. Sp.I								1	2	2
	Anthuroidea indet. Sp.II							1			
	Anthuroidea indet.sp. III										
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.										2
	Amphipoda indet. Sp.I					1					
	Amphipoda indet. Sp.II					11					
	Amphipoda indet. Sp.III							1	1		
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.						1				
	Caprellidae indet.							4			
	Ampelisca sp.I	23	49	33	50		4	1		14	14
	Ampelisca sp.II		15	7	24		11	9	10	1	
	Ampelisca sp.III				1						

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
	Sample number	4	5	6	7	8	4	5	6	7	8
	Cf. Liljeborgiidae indet.	1		2			1				
	Stegosephalidae indet										
	Cf. Cressidae indet.								5		
	Cf. Photidae indet		1		2	1	3	3			2
	Lysianassidae indet.				2						
	Lysianassidae indet. Sp.I										
	Lysianassidae indet. Sp.II						2	1		1	1
	Lysianassidae indet. Sp.III									3	
	Cf. Eriopisa sp.										
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.										
	Cf. Harpinia sp.		2		1			1	1		1
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.		3	2							
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II						1				
	Urothoe cf sp.		3	2							
*	**Euphausiacea**										
	Decapoda										
*	Decapoda juv indet (larve)						0/1	0/3	0/1		0/1
	Brachyura indet	3		3	5	1		2		4	2
	Brachyura indet sp. I										1
	Callianassidae indet	3	4	7	4		3	2			
	Cf. Galathea sp.						1	1	1	2	2
	Cf. Munida sp.										
	Paguridae indet.	4	1	1	1	2	7	3	1		3
*	**Malacostraca**										
*	Malacostraca indet.	15	3	5	6		6	7	3	3	3
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										1
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.										
	Polyplacophora										
	Gastropoda										
	Gastropoda indet						1				
	Prosobranchia indet		1	1	0/1	1		1			1
	Neogastropoda indet										
	Cancellariidae indet										
	Trochindae indet										
	Turridae indet										
	Eulimidae indet			1			3				
	Naticidae indet.							1			3
	Naticidae indet.		1								
	cf. Skeneidae indet.										
	cf. Epitoniidae indet										
	Conidae indet										
	Nassariidae indet.										
	Opistobranchia indet.										
	Bivalvia										
	Bivalvia indet.				1		1				
	Bivalvia indet. Juv							0/1	0/1		
	Similipecten similis							1	1		
	Mytelidae juv indet			0/1							
	Cardiidea indet			1							
	Scintilla sp.						6	4		2	3
	cf. Scintilla sp.		2	8	1						
	Thyasiridae indet.1			2							

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
	Sample number	4	5	6	7	8	4	5	6	7	8
	Thyasiridae indet sp.I										
	Thyasira cf. eumyaria										
	Thyasira cf. ferruginea										
	Thyasira sp.										
	Thyasira sp.I						1				
	Thyasira sp.II										
	Thyasira sp.III										
	Thyasira sp.IV										
	Cf. Striarca lactea			1				1		1	
	Nucula sp.						4	1	1	1	1
	Nuculoma sp.										
	Nuculana sp										
	Nuculana wolffi	9									
	cf. Nuculana wolffi										
	Cf. Yoldia acuminata										
	Yoldiella sp.										
	Mytilidae indet.										
	Cf. Modiolus sp.						1				
	Lucinidae indet										
	cf. Myrtea cf. spinifera										
	Mendicula cf. ferruginosa										
	Aloidis cf. striatissima		1	1							
	Erycinacea indet										
	Montacutidae indet.						1	1		1	
	Cf. Mysella bidentata										
	Ensis sp.			1	2		1				
	cf. Phaxas pellucidus										
	Tellinidae indet										
	Tellinidae indet juv										
	Tellina sp.	2	2	2	5						
	cf. Donax sp.										
	Gari sp.										
	Abra sp		2		1		1	1		1	2
	Veneridae indet juv										
	cf. Lioconcha sp			5	2		2	1			
	Pitar sp.										
	cf. Pitar sp.	2	3			1					
	Timoclea sp.						1				1
	cf. Corbula gibba							1		1	1
	Cuspidaria sp.						1				
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.	1									
	Dentalium sp.				1						
	Cadulus sp.										
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.										
*	BRYOZOA										
*	Bryozoa indet.										
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv						0/1				
	Ophiuroidea										
	Ophiuroidea indet. I										
*	Ophiuroidea indet. Juv	0/1	0/5	0/5	0/11		0/26	0/1	0/4	0/3	
	Ophiopsila guineensis		1								

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP 1	GP 1	GP 1	GP 1	GP 1	GP 2	GP 2	GP 2	GP 2	GP 2
	Sample number	4	5	6	7	8	4	5	6	7	8
	Ophiophragmus acutispina										
	Amphipholis nudipora	1	2	4	2			8	11	3	2
	Amphilimna olivacea						1	3	1	6	3
	Cf. Ophiura grubei										
	Ophiura cf. grubei						1				
	Ophiactis lymani										
	Amphioplus aciculatus				1		5	1	2	1	
	Amphioplus aurensis						6	4	7	4	11
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.							1	2	2	
	Irregularia indet.									1	
	Irregularia indet. Juv										
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.										
	Holothuroidea indet. Sp.I								1		
	Holothuroidea indet. Sp.II							6		2	1
*	POGONOPHORA										
*	Pogonophora indet.				1						
	ENTEROPNEUSTA										
	Enteropneusta indet.				1		1				
*	CHAETOGNATHA										
*	Chaetognatha indet.	1						1			
	ASCIDIACEA										
	Ascidiacea indet.						4	2		1	5
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.				1						
*	Pisces indet. Egg						2				
*	Egg (fra diverse arter)						1				
*	VARIA										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**									1	
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet								2		
	Anthozoa										
	Anthozoa indet										
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.										
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.	1	4	1	1	1	2				
*	NEMATODA										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Nematoda indet								1		
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.		1							1	
	Paramphinome jeffreysii			1	1						2
	Cf. Paramphinome jeffreysii										
	Chloeia inermis										
	Aphroditidae										
	Aphrodita alta										
	Acoetidae										
	Cf. Eupanthalis kinbergi										
	Polynoidae										
	Polynoidae indet.			1	1				1		
	Sigalionidae										
	Pholoe sp										
	Sigalionidae sp. I	1									
	Sigalionidae sp. II								1		
	Psammolyce sp										
	Sthenolepis sp.		1								
	cf. Sthenolepis sp.										
	Cf. Leanira hystricis										
	Sthenelais limicola										
	Pisionidae										
	Pisione africana										
	Phyllodocidae										
	Phyllodocidae indet.										
	Phyllodoce sp. I	1		1							1
	Phyllodoce sp. II										
	Phyllodoce sp. III										
	Phyllodoce sp. IV						1				
	Eulalia sp.										
	Chrysopetalidae										
	Chrysopetalidae indet.								1		
	Pilargidae										
	Loandalia sp.										
	Glyphohesione klatti		1								
	Pilargis papillata										
	Paralacydoniidae										
	Paralacydonia paradoxa	1	4	4		1					
	Hesionidae										
	Cf. Gyptis capensis										1
	Cf. Gyptis cf. capensis										
	Gyptis cf. capensis										
	Syllidae										
	Syllidae indet.										
	cf. Eusyllis blomstrandi										
	Cf. Pionosyllis sp.										
	Cf. Syllis cornuta		2								
	Nereididae										
	Nereididae indet.										
	Cf. Ceratocephale loveni										
	Cf. Ceratocephale sp.										
	Nephtyidae										
	Aglaophamus sp.	2			1	1					
	Nephtys sp.								1	1	1
	Sphaerodoridae										
	Glyceridae										

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
Sample number	4	5	6	7	8	4	5	6	7	8
Glycera alba						1	1	1		1
Glycera sp.										
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana										1
Goniada sp.										
Goniada sp. I										
Goniada congoensis	1		2							
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.		2			1					1
Onuphidae										
Diopatra sp										
Hyalinoecia tubicola										
Hyalinoecia bilineata										
Nothria conchylega		1	1		1			1		
Paradiopatra cf. fiordica	1					1	2	4	3	4
Paradiopatra fiordica										
Onuphis eremita			4	2						
Onuphis quadricuspis										2
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.	4		1		1				1	
Nematonereis hebes				1						
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.	7	5	4	6	4					1
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida										
Cf. Scoloplos sp										
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.		1								
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										
Prionospio sp.	9	10	16	8	19	1		1	1	1
Scolelepis sp.	1									
Spiophanes bombyx										
Spiophanes soederstroemi			1							
Cf. Dispio sp.										
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa										
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus	1			1				1	1	
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis	4	1	2	2	3					
Magelona cincta										
Magelona papillicorenis										

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
Sample number	4	5	6	7	8	4	5	6	7	8
Magelona sp.										
Maldanidae										
Maldanidae indet sp.I										
Maldanidae indet sp.II										
Maldanidae indet sp.III										
Maldanidae indet sp.V										
Praxillella gracilis										
Cf. Euclymene sp.	1	1			1			1		
Maldane decorata										
Maldane sp.		1								
Rhodine cf. loveni										
Sabaco atlantideus										
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli			1					1		
Aricidea sp I	2	2		1						2
Aricidea sp II										
Aricidea sp III										
Aricidea longobranchiata			1	1					1	1
Levinsenia gracilis		2			1					
Paraonis sp.										
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.	4	5	1	1	1	2	2	7	2	
Chaetozone sp.										
Dodecaceria sp.										
Cossuridae										
Cossura coasta									1	
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.										
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata		2								
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum			2							
Capitellidae										
Capitellidae indet.										
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis	6	1								
Notomastus aberans		1		1		1		1	4	
Notomastus latericeus	1		1	1		3	2	3		1
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I		2								
Myriochele sp.II			1						1	
Myriochele sp.III	1									
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata										
Pectinariidae										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Pectinaria sp.										
	Ampharetidae										
	Ampharetidae indet sp.I	1					1	1			
	Ampharetidae indet sp.III										
	Ampharetidae indet. Sp.II								3		
	Ampharetidae indet sp. III										
	Ampharetidae indet. Juv										
	Ampharetidae indet. Juv Sp.II										
	Amphicteis gunneri	2			3	1	5		6	1	
	Cf. Ampharete sp juv	0/2	0/1	0/1		0/1	0/1		0/1	0/1	0/1
	Cf. Anobothrus gracilis										
	Isolda pulchella				2	1	4		1	3	
	Melinna sp							1		1	3
	Sabellidae										
	Sabellidae indet.				2					2	
	Sabellidae juv indet.										
	Cf. Sabellastarte sp.										
	Euchone incolor	1							2		
	Cf. Jasmineira elegans										
	Cf. Jasmineira sp.						2			1	2
	Sabellariidae										
	Lygdamis cf. muratus										
	Terebellidae										
	Pista unibranchia						1		1		
	Laphania sp.										
	Cf. Laphania sp.										
	Cf. Amaeana sp.										
	Terebellidae indet.			1							
	Terebellidae indet juv										
	Lysialla ubianensis		1								
	Cf. Lysialla ubianensis										
	Trichobranchidae										
	Terebellides stroemi									1	
	Trichobranchus glacialis										
	Serpulidae										
	Cf. Hydroides sp										
	Oligochaeta										
	Oligochaeta indet.										
	Hirudinea										
	ECHIURA										
	Echiura indet.										
	SIPUNCULA										
	Sipuncula indet.										
	Sipunculidae indet										
	Golfingia sp.						1	1			
	Cf. Golfingia sp.				1					1	
	Aspidosiphon sp		1								
	Onchnesoma steenstrupi	5	12	4		2	15	8	9		10
	Cf. Onchnesoma steenstrupi										
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet										
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I										
*	Ostracoda indet. Sp.II				1						

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Ostracoda indet. Sp.III										
*	Ostracoda indet. Sp.IV										
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.										
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II										
	Cumacea indet sp.III										
	Cumacea indet sp.IV										
	Cumacea indet. sp.V	1									
	Cumacea indet. sp.VI										
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.										
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										
	Apseudes acutifrons										
	Isopoda										
	Flabellifera indet.				1						
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II					1					
	Anthuroidea indet.sp. III					1					
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.	1									
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.			1							
	Cf. Metopidae/Stenthoidae indet.								1		
	Caprellidae indet.										
	Ampelisca sp.I	3	5	2	3		2		5	3	
	Ampelisca sp.II					2					
	Ampelisca sp.III										
	Cf. Liljeborgiidae indet.										
	Stegosephalidae indet			1							
	Cf. Cressidae indet.										
	Cf. Photidae indet										
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I										
	Lysianassidae indet. Sp.II			1							
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.										
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.										
	Cf. Harpinia sp.										
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Decapoda										
*	Decapoda juv indet (larve)										
	Brachyura indet	1						1	1	1	
	Brachyura indet sp. I										
	Callianassidae indet										
	Cf. Galathea sp.		1								
	Cf. Munida sp.										
	Paguridae indet.	5	2	1	2						
*	**Malacostraca**										
*	Malacostraca indet.			2	1			1			
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.										
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet										
	Neogastropoda indet				1						
	Cancellariidae indet										
	Trochindae indet										
	Turridae indet										
	Eulimidae indet		1								
	Naticidae indet.						1				
	Naticidae indet.										
	cf. Skeneidae indet.										
	cf. Epitoniidae indet		1								
	Conidae indet										
	Nassariidae indet.										
	Opistobranchia indet.										
	Bivalvia										
	Bivalvia indet.								1		
	Bivalvia indet. Juv										
	Similipecten similis										
	Mytelidae juv indet										
	Cardiidea indet										
	Scintilla sp.										
	cf. Scintilla sp.										
	Thyasiridae indet.1										
	Thyasiridae indet sp.I										
	Thyasira cf. eumyaria										
	Thyasira cf. ferruginea		1	1					3		
	Thyasira sp.										
	Thyasira sp.I										
	Thyasira sp.II	1	4	1							
	Thyasira sp.III				1				1		
	Thyasira sp.IV										
	Cf. Striarca lactea										
	Nucula sp.										
	Nuculoma sp.			2		1					
	Nuculana sp			2							1
	Nuculana wolffi										
	cf. Nuculana wolffi										
	Cf. Yoldia acuminata										
	Yoldiella sp.										
	Mytilidae indet.								1		
	Cf. Modiolus sp.										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Lucinidae indet				1						
	cf. Myrtea cf. spinifera										
	Mendicula cf. ferruginosa										1
	Aloidis cf. striatissima										
	Erycinacea indet										
	Montacutidae indet.										
	Cf. Mysella bidentata										
	Ensis sp.										
	cf. Phaxas pellucidus										
	Tellinidae indet										
	Tellinidae indet juv										
	Tellina sp.		2		1			1			
	cf. Donax sp.										
	Gari sp.										
	Abra sp		1				1				1
	Veneridae indet juv										
	cf. Lioconcha sp									1	
	Pitar sp.										
	cf. Pitar sp.										
	Timoclea sp.										
	cf. Corbula gibba										
	Cuspidaria sp.										
	Cuspidaria sp. Juv								0/2		0/1
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.			1	1		1		1		
	Cadulus sp.		1						1		
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.								2		2
*	BRYOZOA										
*	Bryozoa indet.								1		
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I										
*	Ophiuroidea indet. Juv		0/1								
	Ophiopsila guineensis										
	Ophiophragmus acutispina										
	Amphipholis nudipora	2	1								
	Amphilimna olivacea										
	Cf. Ophiura grubei										
	Ophiura cf. grubei										
	Ophiactis lymani										
	Amphioplus aciculatus						1				2
	Amphioplus aurensis										
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.										
	Irregularia indet.										
	Irregularia indet. Juv										
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.										
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GP-3	GP-3	GP-3	GP-3	GP-3	GP-4	GP-4	GP-4	GP-4	GP-4
	Sample number	4	5	6	7	8	4	5	6	7	8
*	POGONOPHORA										
*	Pogonophora indet.										
	ENTEROPNEUSTA										
	Enteropneusta indet.										
*	CHAETOGNATHA										
*	Chaetognatha indet.										
	ASCIDIACEA										
	Ascidiacea indet.										
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.										
*	Pisces indet. Egg										
*	Egg (fra diverse arter)										
*	VARIA										

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**										
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet										
	Anthozoa										
	Anthozoa indet										
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.										
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.	1		1	1						
*	NEMATODA										
*	Nematoda indet									1	
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.										
	Paramphinome jeffreysii										
	Cf. Paramphinome jeffreysii							1			
	Chloeia inermis										
	Aphroditidae										
	Aphrodita alta										
	Acoetidae										
	Cf. Eupanthalis kinbergi										
	Polynoidae										
	Polynoidae indet.										
	Sigalionidae										
	Pholoe sp										
	Sigalionidae sp. I										

Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
Sample number	4	5	6	7	8	4	5	6	7	8
Sigalionidae sp. II	1									
Psammolyce sp										
Sthenolepis sp.										
cf. Sthenolepis sp.										
Cf. Leanira hystricis										
Sthenelais limicola										
Pisionidae										
Pisione africana										
Phyllodocidae										
Phyllodocidae indet.										
Phyllodoce sp. I										
Phyllodoce sp. II										
Phyllodoce sp. III										
Phyllodoce sp. IV										
Eulalia sp.										
Chrysopetalidae										
Chrysopetalidae indet.										
Pilargidae										
Loandalia sp.										
Glyphohesione klatti			1	2						
Pilargis papillata										
Paralacydoniidae										
Paralacydonia paradoxa										
Hesionidae										
Cf. Gyptis capensis										
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.										
Cf. Syllis cornuta										
Nereididae										
Nereididae indet.										
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.										
Nephtyidae										
Aglaophamus sp.										
Nephtys sp.	1									
Sphaerodoridae										
Glyceridae										
Glycera alba										
Glycera sp.					2	1				
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana										
Goniada sp.										
Goniada sp. I										
Goniada congoensis										
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.							1		1	
Onuphidae										
Diopatra sp										
Hyalinoecia tubicola		1								
Hyalinoecia bilineata										
Nothria conchylega										
Paradiopatra cf. fiordica	1	1	1	1	3					

Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
Sample number	4	5	6	7	8	4	5	6	7	8
Paradiopatra fiordica										
Onuphis eremita										
Onuphis quadricuspis				1						
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.										
Nematonereis hebes										
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.									1	
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida										
Cf. Scoloplos sp	1			2						
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.										
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										
Prionospio sp.	1	4	1		3		1			
Scolelepis sp.										
Spiophanes bombyx										
Spiophanes soederstroemi	1							1		
Cf. Dispio sp.										
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa	2		1		2					
Chaetopteridae										
Chaetopteridae indet	1									
Spiochaetopterus typicus							3			
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis		2	4	4	4					
Magelona cincta										
Magelona papillicorenis										
Magelona sp.	1									
Maldanidae										
Maldanidae indet sp.I										
Maldanidae indet sp.II										
Maldanidae indet sp.III										
Maldanidae indet sp.V										
Praxillella gracilis										
Cf. Euclymene sp.		1	1							
Maldane decorata										
Maldane sp.										1
Rhodine cf. loveni										
Sabaco atlantideus										
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli										
Aricidea sp I	3		2							
Aricidea sp II									1	2
Aricidea sp III										

Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
Sample number	4	5	6	7	8	4	5	6	7	8
Aricidea longobranchiata	1	4	1	1						
Levinsenia gracilis					2					
Paraonis sp.										
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.	1			1	3		1		1	
Chaetozone sp.										
Dodecaceria sp.										
Cossuridae										
Cossura coasta										
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.										
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata										
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum			1							
Capitellidae										
Capitellidae indet.		1	1	3	2					
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis		1								
Notomastus aberans										
Notomastus latericeus										
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I										
Myriochele sp.II		1				1		1		
Myriochele sp.III			8	2	4					
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata							1			
Pectinariidae										
Pectinaria sp.										
Ampharetidae										
Ampharetidae indet sp.I										
Ampharetidae indet sp.III										
Ampharetidae indet. Sp.II										
Ampharetidae indet sp. III										
Ampharetidae indet. Juv									0/1	
Ampharetidae indet. Juv Sp.II										
Amphicteis gunneri										
Cf. Ampharete sp juv										
Cf. Anobothrus gracilis										
Isolda pulchella										
Melinna sp										
Sabellidae										
Sabellidae indet.										
Sabellidae juv indet.										
Cf. Sabellastarte sp.										
Euchone incolor										

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
	Sample number	4	5	6	7	8	4	5	6	7	8
	Cf. Jasmineira elegans										
	Cf. Jasmineira sp.										
	Sabellariidae										
	Lygdamis cf. muratus										
	Terebellidae										
	Pista unibranchia										
	Laphania sp.										
	Cf. Laphania sp.										
	Cf. Amaeana sp.										
	Terebellidae indet.							1			
	Terebellidae indet juv										
	Lysialla ubianensis										
	Cf. Lysialla ubianensis										
	Trichobranchidae										
	Terebellides stroemi		2								
	Trichobranchus glacialis										
	Serpulidae										
	Cf. Hydroides sp										
	Oligochaeta										
	Oligochaeta indet.										
	Hirudinea										
	ECHIURA										
	Echiura indet.										
	SIPUNCULA										
	Sipuncula indet.										
	Sipunculidae indet										
	Golfingia sp.										
	Cf. Golfingia sp.	1	5		1	1		1			
	Aspidosiphon sp										
	Onchnesoma steenstrupi										
	Cf. Onchnesoma steenstrupi			1					1	2	2
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet	1							2	1	1
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I										
*	Ostracoda indet. Sp.II										
*	Ostracoda indet. Sp.III										
*	Ostracoda indet. Sp.IV										
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.										
	Cumacea										
	Cumacea indet. Sp. I						1				
	Cumacea indet. Sp. II										
	Cumacea indet sp.III										
	Cumacea indet sp.IV										
	Cumacea indet. sp.V										
	Cumacea indet. sp.VI										
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.										
	Diastylis sp. I										
	Diastylis sp. II										

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
	Sample number	4	5	6	7	8	4	5	6	7	8
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										
	Apseudes acutifrons	1	2		2						
	Isopoda										
	Flabellifera indet.										
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II										
	Anthuroidea indet.sp. III										
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.										
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III	1			1						
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.										
	Caprellidae indet.								2		1
	Ampelisca sp.I		1								
	Ampelisca sp.II										
	Ampelisca sp.III										
	Cf. Liljeborgiidae indet.										
	Stegosephalidae indet										
	Cf. Cressidae indet.										
	Cf. Photidae indet										
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I										
	Lysianassidae indet. Sp.II										
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.		1		1						2
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.					1					
	Cf. Harpinia sp.							1			
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										
*	Decapoda juv indet (larve)						0/1				
	Brachyura indet										
	Brachyura indet sp. I										
	Callianassidae indet										
	Cf. Galathea sp.										
	Cf. Munida sp.	1	1	1							
	Paguridae indet.										
*	**Malacostraca**										
*	Malacostraca indet.										1
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.							1			
	Polyplacophora										
	Gastropoda										

Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
Sample number	4	5	6	7	8	4	5	6	7	8
Gastropoda indet										
Prosobranchia indet						1				
Neogastropoda indet										
Cancellariidae indet										
Trochindae indet										
Turridae indet										
Eulimidae indet										
Naticidae indet.										
Naticidae indet.										
cf. Skeneidae indet.										
cf. Epitoniidae indet										
Conidae indet										
Nassariidae indet.				1						
Opistobranchia indet.										
Bivalvia										
Bivalvia indet.										
Bivalvia indet. Juv										
Similipecten similis										
Mytelidae juv indet										
Cardiidea indet										
Scintilla sp.										
cf. Scintilla sp.										
Thyasiridae indet.1										
Thyasiridae indet sp.I										
Thyasira cf. eumyaria								1	2	
Thyasira cf. ferruginea					1	1	4		2	
Thyasira sp.							1			
Thyasira sp.I										
Thyasira sp.II	2			2	1					
Thyasira sp.III	1									
Thyasira sp.IV										
Cf. Striarca lactea										
Nucula sp.										
Nuculoma sp.										
Nuculana sp										
Nuculana wolffi										
cf. Nuculana wolffi										
Cf. Yoldia acuminata						1				
Yoldiella sp.										
Mytilidae indet.										
Cf. Modiolus sp.										
Lucinidae indet										
cf. Myrtea cf. spinifera										
Mendicula cf. ferruginosa					1					
Aloidis cf. striatissima										
Erycinacea indet										
Montacutidae indet.										
Cf. Mysella bidentata										
Ensis sp.										
cf. Phaxas pellucidus										
Tellinidae indet										
Tellinidae indet juv										
Tellina sp.										
cf. Donax sp.										
Gari sp.										
Abra sp		3	2	1	4					
Veneridae indet juv										
cf. Lioconcha sp										
Pitar sp.										

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GP-5	GP-5	GP-5	GP-5	GP-5	J7-1	J7-1	J7-1	J7-1	J7-1
	Sample number	4	5	6	7	8	4	5	6	7	8
	cf. Pitar sp.										
	Timoclea sp.										
	cf. Corbula gibba										
	Cuspidaria sp.						1				
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.										1
	Cadulus sp.										
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.										
*	BRYOZOA										
*	Bryozoa indet.										
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I	1									
*	Ophiuroidea indet. Juv										
	Ophiopsila guineensis										
	Ophiophragmus acutispina										
	Amphipholis nudipora										
	Amphilimna olivacea										
	Cf. Ophiura grubei										
	Ophiura cf. grubei										
	Ophiactis lymani										
	Amphioplus aciculatus										
	Amphioplus aurensis										
	Echinoidea										
	Echinoidea indet.						1	1		1	
	Regularia indet.										
	Irregularia indet.										
	Irregularia indet. Juv										
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.										1
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II										
*	POGONOPHORA										
*	Pogonophora indet.	1	1		1	1	1	1	1	1	
	ENTEROPNEUSTA										
	Enteropneusta indet.										
*	CHAETOGNATHA										
*	Chaetognatha indet.										
	ASCIDIACEA										
	Ascidiacea indet.										
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.						1				
*	Pisces indet. Egg										
*	Egg (fra diverse arter)										
*	VARIA										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**						1				
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet										
	Anthozoa										
	Anthozoa indet										
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.										
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.										1
*	NEMATODA										
*	Nematoda indet										
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.										
	Paramphinome jeffreysii										
	Cf. Paramphinome jeffreysii										
	Chloeia inermis										
	Aphroditidae										
	Aphrodita alta										
	Acoetidae										
	Cf. Eupanthalis kinbergi										
	Polynoidae										
	Polynoidae indet.										
	Sigalionidae										
	Pholoe sp										
	Sigalionidae sp. I										
	Sigalionidae sp. II										
	Psammolyce sp										
	Sthenolepis sp.										
	cf. Sthenolepis sp.										
	Cf. Leanira hystricis										
	Sthenelais limicola										
	Pisionidae										
	Pisione africana										
	Phyllodocidae										
	Phyllodocidae indet.										
	Phyllodoce sp. I										
	Phyllodoce sp. II										
	Phyllodoce sp. III										
	Phyllodoce sp. IV										
	Eulalia sp.										
	Chrysopetalidae										
	Chrysopetalidae indet.										
	Pilargidae										
	Loandalia sp.										
	Glyphohesione klatti						1				
	Pilargis papillata										
	Paralacydoniidae										
	Paralacydonia paradoxa										

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
Sample number	4	5	6	7	8	4	5	6	7	8
Hesionidae										
Cf. Gyptis capensis										
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.										
Cf. Syllis cornuta										
Nereididae										
Nereididae indet.					1					
Cf. Ceratocephale loveni							1			
Cf. Ceratocephale sp.										
Nephtyidae										
Aglaophamus sp.									1	
Nephtys sp.										
Sphaerodoridae										
Glyceridae										
Glycera alba										
Glycera sp.										
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana										
Goniada sp.										
Goniada sp. I										
Goniada congoensis										
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.										
Onuphidae										
Diopatra sp										
Hyalinoecia tubicola										
Hyalinoecia bilineata										
Nothria conchylega										
Paradiopatra cf. fiordica										
Paradiopatra fiordica										
Onuphis eremita										
Onuphis quadricuspis	1									
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.										
Nematonereis hebes										
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.					1					
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida										
Cf. Scoloplos sp										
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.										
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
Sample number	4	5	6	7	8	4	5	6	7	8
Prionospio sp.										
Scolelepis sp.										
Spiophanes bombyx										
Spiophanes soederstroemi										
Cf. Dispio sp.										
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa										
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus										
Spiochaetopterus cf. typicus						1				
Magelonidae										
Magelona capensis										
Magelona cincta										
Magelona papillicorenis										
Magelona sp.										
Maldanidae										
Maldanidae indet sp.I										
Maldanidae indet sp.II						1				
Maldanidae indet sp.III										1
Maldanidae indet sp.V										
Praxillella gracilis										
Cf. Euclymene sp.										
Maldane decorata										
Maldane sp.										1
Rhodine cf. loveni										
Sabaco atlantideus										
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli										
Aricidea sp I	2	1				2				3
Aricidea sp II	1					2	1		1	2
Aricidea sp III										
Aricidea longobranchiata	1									
Levinsenia gracilis										
Paraonis sp.										
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.	1	2	1							1
Chaetozone sp.										
Dodecaceria sp.										
Cossuridae										
Cossura coasta										
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.										
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata										
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum										

Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
Sample number	4	5	6	7	8	4	5	6	7	8
Capitellidae										
Capitellidae indet.		1	1						1	1
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis										
Notomastus aberans										
Notomastus latericeus										
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.			1		1					
Myriochele sp.I										
Myriochele sp.II										
Myriochele sp.III										
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata										
Pectinariidae										
Pectinaria sp.										
Ampharetidae										
Ampharetidae indet sp.I										
Ampharetidae indet sp.III										
Ampharetidae indet. Sp.II										
Ampharetidae indet sp. III										
Ampharetidae indet. Juv										
Ampharetidae indet. Juv Sp.II										
Amphicteis gunneri										
Cf. Ampharete sp juv										
Cf. Anobothrus gracilis										
Isolda pulchella										
Melinna sp										
Sabellidae										
Sabellidae indet.										
Sabellidae juv indet.										
Cf. Sabellastarte sp.										
Euchone incolor										
Cf. Jasmineira elegans										
Cf. Jasmineira sp.										
Sabellariidae										
Lygdamis cf. muratus										
Terebellidae										
Pista unibranchia										
Laphania sp.										
Cf. Laphania sp.										
Cf. Amaeana sp.										
Terebellidae indet.					1					1
Terebellidae indet juv										
Lysialla ubianensis										
Cf. Lysialla ubianensis										
Trichobranchidae										
Terebellides stroemi										
Trichobranchus glacialis										
Serpulidae										
Cf. Hydroides sp										
Oligochaeta										
Oligochaeta indet.										
Hirudinea										
ECHIURA										
Echiura indet.										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
	Sample number	4	5	6	7	8	4	5	6	7	8
	SIPUNCULA										
	Sipuncula indet.									1	
	Sipunculidae indet										
	Golfingia sp.										
	Cf. Golfingia sp.	1				1				1	
	Aspidosiphon sp										
	Onchnesoma steenstrupi										
	Cf. Onchnesoma steenstrupi			1				1			
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet			1		1					
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I										
*	Ostracoda indet. Sp.II									1	
*	Ostracoda indet. Sp.III			1							1
*	Ostracoda indet. Sp.IV										
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.		1								
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II										
	Cumacea indet sp.III										
	Cumacea indet sp.IV										
	Cumacea indet. sp.V										
	Cumacea indet. sp.VI										
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.										
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										
	Apseudes acutifrons										
	Isopoda										
	Flabellifera indet.										
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II										
	Anthuroidea indet.sp. III									1	
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.										
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.										
	Caprellidae indet.										
	Ampelisca sp.I						1				
	Ampelisca sp.II										
	Ampelisca sp.III										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
	Sample number	4	5	6	7	8	4	5	6	7	8
	Cf. Liljeborgiidae indet.										
	Stegosephalidae indet										
	Cf. Cressidae indet.										
	Cf. Photidae indet										
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I										
	Lysianassidae indet. Sp.II										
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.										
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.										
	Cf. Harpinia sp.										
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										
*	Decapoda juv indet (larve)										
	Brachyura indet										
	Brachyura indet sp. I										
	Callianassidae indet										
	Cf. Galathea sp.										
	Cf. Munida sp.										
	Paguridae indet.										
*	**Malacostraca**										
*	Malacostraca indet.			1							
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.	1	1								
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet										
	Neogastropoda indet										
	Cancellariidae indet										
	Trochindae indet										
	Turridae indet										
	Eulimidae indet										
	Naticidae indet.										
	Naticidae indet.										
	cf. Skeneidae indet.										
	cf. Epitoniidae indet										
	Conidae indet										
	Nassariidae indet.										
	Opistobranchia indet.										
	Bivalvia										
	Bivalvia indet.										
	Bivalvia indet. Juv										
	Similipecten similis										
	Mytelidae juv indet										
	Cardiidea indet										
	Scintilla sp.										
	cf. Scintilla sp.										
	Thyasiridae indet.1										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
	Sample number	4	5	6	7	8	4	5	6	7	8
	Thyasiridae indet sp.I										
	Thyasira cf. eumyaria	1									
	Thyasira cf. ferruginea		1								1
	Thyasira sp.										
	Thyasira sp.I										
	Thyasira sp.II										
	Thyasira sp.III										
	Thyasira sp.IV						1	1			
	Cf. Striarca lactea										
	Nucula sp.										
	Nuculoma sp.										
	Nuculana sp										
	Nuculana wolffi										
	cf. Nuculana wolffi										
	Cf. Yoldia acuminata							1			
	Yoldiella sp.										
	Mytilidae indet.										
	Cf. Modiolus sp.										
	Lucinidae indet										
	cf. Myrtea cf. spinifera										
	Mendicula cf. ferruginosa										
	Aloidis cf. striatissima										
	Erycinacea indet										
	Montacutidae indet.										
	Cf. Mysella bidentata										
	Ensis sp.										
	cf. Phaxas pellucidus										
	Tellinidae indet										
	Tellinidae indet juv										
	Tellina sp.										
	cf. Donax sp.										
	Gari sp.										
	Abra sp									1	
	Veneridae indet juv										
	cf. Lioconcha sp										
	Pitar sp.										
	cf. Pitar sp.										
	Timoclea sp.										
	cf. Corbula gibba										
	Cuspidaria sp.										
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.										
	Cadulus sp.										
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.										
*	BRYOZOA										
*	Bryozoa indet.										
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I										
*	Ophiuroidea indet. Juv										
	Ophiopsila guineensis										

	Date	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	J7-2	J7-2	J7-2	J7-2	J7-2	J7-3	J7-3	J7-3	J7-3	J7-3
	Sample number	4	5	6	7	8	4	5	6	7	8
	Ophiophragmus acutispina										
	Amphipholis nudipora										
	Amphilimna olivacea										
	Cf. Ophiura grubei										
	Ophiura cf. grubei										
	Ophiactis lymani										
	Amphioplus aciculatus										
	Amphioplus aurensis										
	Echinoidea										
	Echinoidea indet.			1					1		1
	Regularia indet.										
	Irregularia indet.										
	Irregularia indet. Juv										
	cf. Echinocyamus sp										1
	Holothuroidea										
	Holothuroidea indet.	1				1					
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II										
*	POGONOPHORA										
*	Pogonophora indet.	1	1	1							
	ENTEROPNEUSTA										
	Enteropneusta indet.										
*	CHAETOGNATHA										
*	Chaetognatha indet.										
	ASCIDIACEA										
	Ascidiacea indet.										
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.										
*	Pisces indet. Egg			1							
*	Egg (fra diverse arter)										
*	VARIA										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**				1						
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet					1		1			
	Anthozoa										
	Anthozoa indet					1					
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.										
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.	1	2	4		5	1	2			4
*	NEMATODA										
*	Nematoda indet			3							

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
Sample number	4	5	6	7	8	4	5	6	7	8
PRIAPULIDA										
ANNELIDA										
Polychaeta										
Amphinomidae										
Amphinomidae indet.										
Paramphinome jeffreysii									1	
Cf. Paramphinome jeffreysii			11	1	7					
Chloeia inermis										
Aphroditidae										
Aphrodita alta										
Acoetidae										
Cf. Eupanthalis kinbergi										
Polynoidae										
Polynoidae indet.						3		1		1
Sigalionidae										
Pholoe sp								1		
Sigalionidae sp. I	2									
Sigalionidae sp. II										
Psammolyce sp										
Sthenolepis sp.										
cf. Sthenolepis sp.										
Cf. Leanira hystricis								1		
Sthenelais limicola		1			1		2			1
Pisionidae										
Pisione africana			2	1	8					
Phyllodocidae										
Phyllodocidae indet.										
Phyllodoce sp. I						1	1			
Phyllodoce sp. II										
Phyllodoce sp. III										
Phyllodoce sp. IV							1			
Eulalia sp.									1	
Chrysopetalidae										
Chrysopetalidae indet.					1					
Pilargidae										
Loandalia sp.			2		1					
Glyphohesione klatti										
Pilargis papillata										
Paralacydoniidae										
Paralacydonia paradoxa						1	1	1		1
Hesionidae										
Cf. Gyptis capensis										
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.					1					
cf. Eusyllis blomstrandi						1	2		1	
Cf. Pionosyllis sp.										
Cf. Syllis cornuta						1			1	
Nereididae										
Nereididae indet.							1			
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.										
Nephtyidae										
Aglaophamus sp.	3	5	4		2	2	2	2	1	
Nephtys sp.						1				
Sphaerodoridae										
Glyceridae										
Glycera alba	5	2	5	2	3			1	1	1

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
Sample number	4	5	6	7	8	4	5	6	7	8
Glycera sp.										
Goniadidae										
Goniadidae indet.		1						1	1	
Glycinde kameruniana	4		4			2		1	1	2
Goniada sp.	1	1	4	1	9					
Goniada sp. I										
Goniada congoensis							1		1	
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.									1	
Onuphidae										
Diopatra sp	1					2				1
Hyalinoecia tubicola										
Hyalinoecia bilineata							1	2		4
Nothria conchylega										
Paradiopatra cf. fiordica										
Paradiopatra fiordica										
Onuphis eremita										
Onuphis quadricuspis										
Epidiopatra hupferiana	25	3	1		3					
Eunicidae										
Eunice sp.			3	3	5		3			1
Nematonereis hebes										
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.	3		5		7	1	1		2	1
Dorvilleidae										
Cf. Ophryotrocha sp.			14							
Orbiniidae										
Orbinia sp.					1					
Phylo foetida										
Cf. Scoloplos sp	12	3			1		1	1	3	1
Heterospionidae										
Spionidae										
Aonides oxycephala			2	1						
Laonice sp.								1	2	
Pseudopolydora sp.	1									
Prionospio pinnata										
Prionospio malmgreni										
Prionospio sp.	26	7	2			2	11	9	6	6
Scolelepis sp.		2								1
Spiophanes bombyx	1		2							
Spiophanes soederstroemi	2		1							
Cf. Dispio sp.										
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa										
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus										
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis										
Magelona cincta						1	2		2	2
Magelona papillicorenis	10							2	1	2
Magelona sp.										

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
Sample number	4	5	6	7	8	4	5	6	7	8
Maldanidae										
Maldanidae indet sp.I										
Maldanidae indet sp.II										
Maldanidae indet sp.III										
Maldanidae indet sp.V										
Praxillella gracilis										
Cf. Euclymene sp.					5					
Maldane decorata										
Maldane sp.										
Rhodine cf. loveni										
Sabaco atlantideus								2		
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli										
Aricidea sp I				1	1	6	6	4	1	9
Aricidea sp II										
Aricidea sp III										
Aricidea longobranchiata						2	4			2
Levinsenia gracilis					1			1		
Paraonis sp.										
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.	9	1		1	2	6	3	5	2	1
Chaetozone sp.	1									
Dodecaceria sp.						1				
Cossuridae										
Cossura coasta										
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.						1		1		
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv			0/2		0/6					
Ophelina acuminata										
Ophelina cf. cylindricaudata										
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum										
Capitellidae										
Capitellidae indet.										
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis	3	1				2	3	2	2	2
Notomastus aberans						1	1			
Notomastus latericeus	1				1		2	3		1
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I	2		3	1	6		2	3		
Myriochele sp.II							2			
Myriochele sp.III										
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata							1			1
Pectinariidae										
Pectinaria sp.										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
	Sample number	4	5	6	7	8	4	5	6	7	8
	Ampharetidae										
	Ampharetidae indet sp.I						2	1		1	1
	Ampharetidae indet sp.III									2	
	Ampharetidae indet. Sp.II										
	Ampharetidae indet sp. III										
	Ampharetidae indet. Juv										
	Ampharetidae indet. Juv Sp.II										
	Amphicteis gunneri			1			3	1		3	2
	Cf. Ampharete sp juv	0/5	0/1			0/4				0/2	
	Cf. Anobothrus gracilis										
	Isolda pulchella	11	4	3		14	5	5	5	6	6
	Melinna sp									1	
	Sabellidae										
	Sabellidae indet.						3		1		2
	Sabellidae juv indet.										
	Cf. Sabellastarte sp.										
	Euchone incolor										
	Cf. Jasmineira elegans										
	Cf. Jasmineira sp.										
	Sabellariidae										
	Lygdamis cf. muratus			1							
	Terebellidae										
	Pista unibranchia			1		1				1	1
	Laphania sp.										
	Cf. Laphania sp.										
	Cf. Amaeana sp.										
	Terebellidae indet.										
	Terebellidae indet juv										
	Lysialla ubianensis										
	Cf. Lysialla ubianensis										
	Trichobranchidae										
	Terebellides stroemi						4	5	5	4	5
	Trichobranchus glacialis					1					
	Serpulidae										
	Cf. Hydroides sp										
	Oligochaeta										
	Oligochaeta indet.			16							
	Hirudinea										
	ECHIURA										
	Echiura indet.										
	SIPUNCULA										
	Sipuncula indet.										
	Sipunculidae indet										
	Golfingia sp.			1				1			
	Cf. Golfingia sp.							1			
	Aspidosiphon sp							1			
	Onchnesoma steenstrupi						2	3	1	2	
	Cf. Onchnesoma steenstrupi										
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet					1					
	Cirripedia										
	Cirripedia indet.	1			1						
*	**Ostracoda**										
*	Ostracoda indet. Sp.I			1							
*	Ostracoda indet. Sp.II							1	1		
*	Ostracoda indet. Sp.III			1		2					

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Ostracoda indet. Sp.IV								1		
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.										
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II		1								
	Cumacea indet sp.III								1		
	Cumacea indet sp.IV										
	Cumacea indet. sp.V			1	1	2	1		1		
	Cumacea indet. sp.VI						2	2			
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.						1		1	1	1
	Diastylis sp.						1				
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										
	Apseudes acutifrons	8								1	1
	Isopoda										
	Flabellifera indet.										
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										1
	Anthuroidea indet. Sp.II	1									
	Anthuroidea indet.sp. III										
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.					1					
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.										
	Caprellidae indet.						1		1		
	Ampelisca sp.I		5	12		11	1	11	11	7	6
	Ampelisca sp.II	24		4		4	7				2
	Ampelisca sp.III			1							
	Cf. Liljeborgiidae indet.										
	Stegosephalidae indet										
	Cf. Cressidae indet.						3	1	3	3	
	Cf. Photidae indet	1		3		4	1	3	5		3
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I	1									
	Lysianassidae indet. Sp.II						4	2		1	
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.										
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.										
	Cf. Harpinia sp.			1		4	1	1			1
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I	4		7		20					
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Decapoda juv indet (larve)			0/1			0/1	0/1	0/2	0/1	0/1
	Brachyura indet						6	10	3	1	2
	Brachyura indet sp. I										
	Callianassidae indet							4	4		
	Cf. Galathea sp.						8	3	6	2	2
	Cf. Munida sp.										
	Paguridae indet.	1	3		2			1			1
*	**Malacostraca**										
*	Malacostraca indet.	6	2				6	7	5	7	9
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.										
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet	2		3		1					
	Neogastropoda indet										
	Cancellariidae indet										
	Trochindae indet	1									
	Turridae indet										
	Eulimidae indet					2					
	Naticidae indet.								1		
	Naticidae indet.										
	cf. Skeneidae indet.							2			
	cf. Epitoniidae indet										
	Conidae indet							1	1		
	Nassariidae indet.										
	Opistobranchia indet.								1		
	Bivalvia										
	Bivalvia indet.										
	Bivalvia indet. Juv										
	Similipecten similis										
	Mytelidae juv indet										
	Cardiidea indet		1								
	Scintilla sp.										
	cf. Scintilla sp.	3					5	3	6	2	
	Thyasiridae indet.1										
	Thyasiridae indet sp.I	1									
	Thyasira cf. eumyaria										
	Thyasira cf. ferruginea										
	Thyasira sp.							1			
	Thyasira sp.I										
	Thyasira sp.II										
	Thyasira sp.III										
	Thyasira sp.IV										
	Cf. Striarca lactea							1			
	Nucula sp.			2		2		2	1		
	Nuculoma sp.										
	Nuculana sp										
	Nuculana wolffi										
	cf. Nuculana wolffi	3	6								
	Cf. Yoldia acuminata										
	Yoldiella sp.										
	Mytilidae indet.										
	Cf. Modiolus sp.						1				
	Lucinidae indet						1				

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
	Sample number	4	5	6	7	8	4	5	6	7	8
	cf. Myrtea cf. spinifera										
	Mendicula cf. ferruginosa										
	Aloidis cf. striatissima	1		1	2						
	Erycinacea indet										
	Montacutidae indet.							1			
	Cf. Mysella bidentata										
	Ensis sp.										
	cf. Phaxas pellucidus										
	Tellinidae indet			1							
	Tellinidae indet juv										
	Tellina sp.	2		1							
	cf. Donax sp.				1	1					
	Gari sp.										
	Abra sp							1	1		
	Veneridae indet juv										
	cf. Lioconcha sp										
	Pitar sp.										
	cf. Pitar sp.										
	Timoclea sp.		1								
	cf. Corbula gibba										
	Cuspidaria sp.										
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.										
	Cadulus sp.	2									
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.										
*	BRYOZOA										
*	Bryozoa indet.							1			
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I	1		1		1					
*	Ophiuroidea indet. Juv						0/13	0/15	0/6		0/3
	Ophiopsila guineensis							1			
	Ophiophragmus acutispina							2	3		
	Amphipholis nudipora						2	2	3		6
	Amphilimna olivacea						2	1		2	2
	Cf. Ophiura grubei										
	Ophiura cf. grubei										1
	Ophiactis lymani								1		1
	Amphioplus aciculatus					1		1			
	Amphioplus aurensis								1	1	2
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.						1	4	1		
	Irregularia indet.						5		1		2
	Irregularia indet. Juv										
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.			1					1		
	Holothuroidea indet. Sp.I									1	
	Holothuroidea indet. Sp.II										
*	POGONOPHORA										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-1	GW-1	GW-1	GW-1	GW-1	GW-2	GW-2	GW-2	GW-2	GW-2
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Pogonophora indet.										
	ENTEROPNEUSTA										
	Enteropneusta indet.			1							
*	CHAETOGNATHA										
*	Chaetognatha indet.										
	ASCIDIACEA										
	Ascidiacea indet.						1				
	CHORDATA										
	Cephalochordata			1							
*	**Pisces**										
*	Pisces indet.										
*	Pisces indet. Egg							2			
*	Egg (fra diverse arter)										
*	VARIA										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet								1		
*	PORIFERA										
*	**Porifera indet**										
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet	1		10	1						1
	Anthozoa										
	Anthozoa indet										
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.				1						
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.	1	2	1	2		3		1	1	
*	NEMATODA										
*	Nematoda indet										
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.				1						
	Paramphinome jeffreysii						1		1		
	Cf. Paramphinome jeffreysii										
	Chloeia inermis										
	Aphroditidae										
	Aphrodita alta	2									
	Acoetidae										
	Cf. Eupanthalis kinbergi										
	Polynoidae										
	Polynoidae indet.				1		1			2	
	Sigalionidae										
	Pholoe sp						1		1		
	Sigalionidae sp. I										
	Sigalionidae sp. II										
	Psammolyce sp										
	Sthenolepis sp.										

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
Sample number	4	5	6	7	8	4	5	6	7	8
cf. Sthenolepis sp.										
Cf. Leanira hystricis										
Sthenelais limicola										
Pisionidae										
Pisione africana										
Phyllodocidae										
Phyllodocidae indet.										
Phyllodoce sp. I	1			1						
Phyllodoce sp. II										
Phyllodoce sp. III			1							
Phyllodoce sp. IV		1				2				
Eulalia sp.										
Chrysopetalidae										
Chrysopetalidae indet.					1					
Pilargidae										
Loandalia sp.										1
Glyphohesione klatti										
Pilargis papillata										
Paralacydoniidae										
Paralacydonia paradoxa		3	7		2				1	
Hesionidae										
Cf. Gyptis capensis			2							
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.										
Cf. Syllis cornuta										
Nereididae										
Nereididae indet.										
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.										
Nephtyidae										
Aglaophamus sp.		1	1	1						
Nephtys sp.								1		
Sphaerodoridae										
Glyceridae										
Glycera alba			2	1						
Glycera sp.										
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana										
Goniada sp.										
Goniada sp. I										
Goniada congoensis				2				1		
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.			1							
Onuphidae										
Diopatra sp										
Hyalinoecia tubicola										
Hyalinoecia bilineata	1				2					
Nothria conchylega		2		1						
Paradiopatra cf. fiordica						2		1	7	3
Paradiopatra fiordica										
Onuphis eremita										
Onuphis quadricuspis									1	

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
Sample number	4	5	6	7	8	4	5	6	7	8
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.	4	6	6		1				1	
Nematonereis hebes	1		1	1						
Marphysa sp				1						
Lumbrineridae										
Lumbrineris sp.	2	2	4	5	5	3		1		
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida										
Cf. Scoloplos sp										1
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.		1		1					1	
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										
Prionospio sp.	7	5	7	11	6	2		1	1	
Scolelepis sp.										
Spiophanes bombyx										
Spiophanes soederstroemi										
Cf. Dispio sp.										
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa										
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus		1			1			1		1
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis	1	2		2	1					2
Magelona cincta									2	2
Magelona papillicorenis										
Magelona sp.										
Maldanidae										
Maldanidae indet sp.I										
Maldanidae indet sp.II										
Maldanidae indet sp.III										
Maldanidae indet sp.V										
Praxillella gracilis										
Cf. Euclymene sp.	1	2		1						1
Maldane decorata										
Maldane sp.										
Rhodine cf. loveni										
Sabaco atlantideus										
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli										1
Aricidea sp I			2					1		2
Aricidea sp II										
Aricidea sp III										
Aricidea longobranchiata	1									
Levinsenia gracilis	1	1	3		1	2				
Paraonis sp.										

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
Sample number	4	5	6	7	8	4	5	6	7	8
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.	1	4		3		4		3	2	3
Chaetozone sp.			1	1						
Dodecaceria sp.									2	
Cossuridae										
Cossura coasta			1			1				2
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.			1		1					
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata		1								
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum			1							
Capitellidae										
Capitellidae indet.										
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis						1		1	1	1
Notomastus aberans	1	2				2		7	3	
Notomastus latericeus		1		1	1	1		1		1
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I		1	2	1	1					
Myriochele sp.II			2		1	1		1	1	
Myriochele sp.III						1		1		1
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata										
Pectinariidae										
Pectinaria sp.				1						
Ampharetidae										
Ampharetidae indet sp.I		1	1		2	2		1	2	4
Ampharetidae indet sp.III										
Ampharetidae indet. Sp.II										
Ampharetidae indet sp. III						1				1
Ampharetidae indet. Juv										
Ampharetidae indet. Juv Sp.II										
Amphicteis gunneri	4	2	3	4	4	3		4	3	7
Cf. Ampharete sp juv		0/1	0/2			0/2		0/1	0/2	0/3
Cf. Anobothrus gracilis		1								
Isolda pulchella		2								
Melinna sp										
Sabellidae										
Sabellidae indet.				1					1	
Sabellidae juv indet.										
Cf. Sabellastarte sp.										
Euchone incolor										
Cf. Jasmineira elegans										
Cf. Jasmineira sp.			1							
Sabellariidae										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Lygdamis cf. muratus										
	Terebellidae										
	Pista unibranchia				1	1	1				
	Laphania sp.										
	Cf. Laphania sp.										
	Cf. Amaeana sp.										
	Terebellidae indet.										
	Terebellidae indet juv										
	Lysialla ubianensis										
	Cf. Lysialla ubianensis										
	Trichobranchidae										
	Terebellides stroemi								2		
	Trichobranchus glacialis										
	Serpulidae										
	Cf. Hydroides sp										
	Oligochaeta										
	Oligochaeta indet.										
	Hirudinea										
	ECHIURA										
	Echiura indet.										
	SIPUNCULA										
	Sipuncula indet.										
	Sipunculidae indet					1					
	Golfingia sp.			1							
	Cf. Golfingia sp.		1	2	2	4	1				2
	Aspidosiphon sp										
	Onchnesoma steenstrupi	5	5	7	7	1	13	7	21	14	6
	Cf. Onchnesoma steenstrupi										
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet										
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I					1					
*	Ostracoda indet. Sp.II										
*	Ostracoda indet. Sp.III		1					1			
*	Ostracoda indet. Sp.IV										
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.										
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II						1				
	Cumacea indet sp.III	1									
	Cumacea indet sp.IV										
	Cumacea indet. sp.V				4	2					
	Cumacea indet. sp.VI					1					
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.										
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Apseudes acutifrons										
	Isopoda										
	Flabellifera indet.			1	1						
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II		1		3						
	Anthuroidea indet.sp. III										
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.										
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.										
	Caprellidae indet.				1						
	Ampelisca sp.I	1	4	1	1	1	1		1	3	
	Ampelisca sp.II	1									
	Ampelisca sp.III										
	Cf. Liljeborgiidae indet.										
	Stegosephalidae indet										
	Cf. Cressidae indet.		1								
	Cf. Photidae indet	1									
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I										
	Lysianassidae indet. Sp.II										
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.										
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.										
	Cf. Harpinia sp.				1						
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.			1							
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										
*	Decapoda juv indet (larve)			0/2	0/3	0/2				0/1	
	Brachyura indet	1	1	1	1	1	1				
	Brachyura indet sp. I										
	Callianassidae indet										
	Cf. Galathea sp.										
	Cf. Munida sp.										
	Paguridae indet.	3	2	2		1					
*	**Malacostraca**										
*	Malacostraca indet.	1	7		2	1					
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.										
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet										
	Neogastropoda indet										

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
Sample number	4	5	6	7	8	4	5	6	7	8
Cancellariidae indet										
Trochindae indet										
Turridae indet										
Eulimidae indet										
Naticidae indet.										
Naticidae indet.										
cf. Skeneidae indet.										
cf. Epitoniidae indet										
Conidae indet					1					
Nassariidae indet.										
Opistobranchia indet.										
Bivalvia										
Bivalvia indet.							1			
Bivalvia indet. Juv										
Similipecten similis										
Mytelidae juv indet										
Cardiidea indet										
Scintilla sp.										
cf. Scintilla sp.										
Thyasiridae indet.1										
Thyasiridae indet sp.I										
Thyasira cf. eumyaria										
Thyasira cf. ferruginea		1	3			1				
Thyasira sp.										
Thyasira sp.I										
Thyasira sp.II	1									
Thyasira sp.III		1		1						
Thyasira sp.IV										
Cf. Striarca lactea										
Nucula sp.										
Nuculoma sp.			2							
Nuculana sp										
Nuculana wolffi										
cf. Nuculana wolffi										
Cf. Yoldia acuminata										
Yoldiella sp.										
Mytilidae indet.										
Cf. Modiolus sp.										
Lucinidae indet				1		1				
cf. Myrtea cf. spinifera										
Mendicula cf. ferruginosa										
Aloidis cf. striatissima										
Erycinacea indet			1	1		1				
Montacutidae indet.										
Cf. Mysella bidentata						1		2		
Ensis sp.										
cf. Phaxas pellucidus										
Tellinidae indet										
Tellinidae indet juv										
Tellina sp.										2
cf. Donax sp.										
Gari sp.										
Abra sp			1							
Veneridae indet juv										
cf. Lioconcha sp										
Pitar sp.										
cf. Pitar sp.										
Timoclea sp.	1									
cf. Corbula gibba										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09
	Stations	GW-3	GW-3	GW-3	GW-3	GW-3	GW-4	GW-4	GW-4	GW-4	GW-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Cuspidaria sp.										
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.	1			2				1		1
	Cadulus sp.				1						
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.								1		
*	BRYOZOA										
*	Bryozoa indet.										
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I		1								
*	Ophiuroidea indet. Juv		0/1	0/1	0/1	0/1					
	Ophiopsila guineensis										
	Ophiophragmus acutispina										
	Amphipholis nudipora			1	2						
	Amphilimna olivacea										
	Cf. Ophiura grubei				1	1					
	Ophiura cf. grubei										
	Ophiactis lymani										
	Amphioplus aciculatus						4	1	2	1	1
	Amphioplus aurensis		1								
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.										
	Irregularia indet.				1						
	Irregularia indet. Juv										
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.					1					
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II										
*	POGONOPHORA										
*	Pogonophora indet.										
	ENTEROPNEUSTA										
	Enteropneusta indet.										
*	CHAETOGNATHA										
*	Chaetognatha indet.	1									
	ASCIDIACEA										
	Ascidiacea indet.	1									
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.										
*	Pisces indet. Egg			1							
*	Egg (fra diverse arter)										
*	VARIA										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet			1							
*	PORIFERA										
*	**Porifera indet**										
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet										
	Anthozoa										
	Anthozoa indet										
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.										
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.		1	1			1				1
*	NEMATODA										
*	Nematoda indet								1		1
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.									1	
	Paramphinome jeffreysii				1						
	Cf. Paramphinome jeffreysii										
	Chloeia inermis										
	Aphroditidae										
	Aphrodita alta										
	Acoetidae										
	Cf. Eupanthalis kinbergi										
	Polynoidae										
	Polynoidae indet.										
	Sigalionidae										
	Pholoe sp										
	Sigalionidae sp. I										
	Sigalionidae sp. II										
	Psammolyce sp										
	Sthenolepis sp.										
	cf. Sthenolepis sp.										
	Cf. Leanira hystricis										
	Sthenelais limicola										
	Pisionidae										
	Pisione africana										
	Phyllodocidae										
	Phyllodocidae indet.					2					
	Phyllodoce sp. I										
	Phyllodoce sp. II										
	Phyllodoce sp. III										
	Phyllodoce sp. IV										
	Eulalia sp.										
	Chrysopetalidae										
	Chrysopetalidae indet.										
	Pilargidae										
	Loandalia sp.										2
	Glyphohesione klatti			1							2
	Pilargis papillata										2
	Paralacydoniidae										
	Paralacydonia paradoxa										

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
Sample number	4	5	6	7	8	4	5	6	7	8
Hesionidae										
Cf. Gyptis capensis										
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.										
Cf. Syllis cornuta										
Nereididae										
Nereididae indet.										
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.										
Nephtyidae										
Aglaophamus sp.		1								1
Nephtys sp.										
Sphaerodoridae										
Glyceridae										
Glycera alba										1
Glycera sp.				1						
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana										
Goniada sp.										
Goniada sp. I										
Goniada congoensis										
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.										
Onuphidae										
Diopatra sp										
Hyalinoecia tubicola										
Hyalinoecia bilineata										
Nothria conchylega										
Paradiopatra cf. fiordica	1	3	2		1					
Paradiopatra fiordica										
Onuphis eremita										
Onuphis quadricuspis				1	1					
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.										
Nematonereis hebes										
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.										
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida										
Cf. Scoloplos sp		1								
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.										
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
Sample number	4	5	6	7	8	4	5	6	7	8
Prionospio sp.	1	2	1	1		1		2		1
Scolelepis sp.										
Spiophanes bombyx										
Spiophanes soederstroemi							1			
Cf. Dispio sp.										
Spiophanes kroeyeri							1			
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa	1	2	1	2						1
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus								1		
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis	6	4	3	3						
Magelona cincta										
Magelona papillicorenis										
Magelona sp.										
Maldanidae										
Maldanidae indet sp.I										
Maldanidae indet sp.II										
Maldanidae indet sp.III			1	1						
Maldanidae indet sp.V										
Praxillella gracilis	1									1
Cf. Euclymene sp.		1	4		3		1	1	1	1
Maldane decorata										
Maldane sp.		2	1		1					
Rhodine cf. loveni										
Sabaco atlantideus										
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli										
Aricidea sp I		4			1			1		
Aricidea sp II								1		
Aricidea sp III										
Aricidea longobranchiata	2	2			1					
Levinsenia gracilis										2
Paraonis sp.										
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.		2	2	1				1		2
Chaetozone sp.										
Dodecaceria sp.										
Cossuridae										
Cossura coasta										
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.										
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata										
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum										

Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
Sample number	4	5	6	7	8	4	5	6	7	8
Capitellidae										
Capitellidae indet.								1		
Capitellidae sp.I	1	1	1							
Capitella capitata										
Heteromastus filiformis										2
Notomastus aberans										
Notomastus latericeus										
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I										
Myriochele sp.II							1		1	
Myriochele sp.III	2		1	1						
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata									1	1
Pectinariidae										
Pectinaria sp.										
Ampharetidae										
Ampharetidae indet sp.I										
Ampharetidae indet sp.III										
Ampharetidae indet. Sp.II										
Ampharetidae indet sp. III										
Ampharetidae indet. Juv										
Ampharetidae indet. Juv Sp.II										
Amphicteis gunneri										
Cf. Ampharete sp juv										
Cf. Anobothrus gracilis										
Isolda pulchella										
Melinna sp										
Sabellidae										
Sabellidae indet.										
Sabellidae juv indet.										
Cf. Sabellastarte sp.										
Euchone incolor										
Cf. Jasmineira elegans										
Cf. Jasmineira sp.										
Sabellariidae										
Lygdamis cf. muratus										
Terebellidae										
Pista unibranchia										
Laphania sp.										
Cf. Laphania sp.										
Cf. Amaeana sp.										
Terebellidae indet.										
Terebellidae indet juv			0/1		0/1					
Lysialla ubianensis										
Cf. Lysialla ubianensis										
Trichobranchidae										
Terebellides stroemi										
Trichobranchus glacialis										
Serpulidae										
Cf. Hydroides sp										
Oligochaeta										
Oligochaeta indet.										
Hirudinea										
ECHIURA										
Echiura indet.				2						

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	SIPUNCULA										
	Sipuncula indet.										
	Sipunculidae indet										
	Golfingia sp.										
	Cf. Golfingia sp.			2							
	Aspidosiphon sp										
	Onchnesoma steenstrupi	1	2	2	2	1					
	Cf. Onchnesoma steenstrupi										2
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet										
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I										
*	Ostracoda indet. Sp.II									1	
*	Ostracoda indet. Sp.III							2			
*	Ostracoda indet. Sp.IV										
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.										
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II										
	Cumacea indet sp.III										
	Cumacea indet sp.IV										
	Cumacea indet. sp.V										
	Cumacea indet. sp.VI										
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.										1
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										
	Apseudes acutifrons					1					
	Isopoda										
	Flabellifera indet.										
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II										
	Anthuroidea indet.sp. III			1	1				1		
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.						1		1		
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.										
	Caprellidae indet.										
	Ampelisca sp.I										
	Ampelisca sp.II										
	Ampelisca sp.III										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	Cf. Liljeborgiidae indet.										
	Stegosephalidae indet										
	Cf. Cressidae indet.							1			
	Cf. Photidae indet										
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I							1			
	Lysianassidae indet. Sp.II										
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.			1	2	1					
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.										
	Cf. Harpinia sp.	1				1	1				
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										
*	Decapoda juv indet (larve)										
	Brachyura indet										
	Brachyura indet sp. I										
	Callianassidae indet										
	Cf. Galathea sp.										
	Cf. Munida sp.										
	Paguridae indet.										
*	**Malacostraca**										
*	Malacostraca indet.							1			
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.				1						
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet										
	Neogastropoda indet										
	Cancellariidae indet										
	Trochindae indet										
	Turridae indet										
	Eulimidae indet										
	Naticidae indet.										
	Naticidae indet.										
	cf. Skeneidae indet.										
	cf. Epitoniidae indet										
	Conidae indet										
	Nassariidae indet.										
	Opistobranchia indet.										
	Bivalvia										
	Bivalvia indet.										
	Bivalvia indet. Juv										
	Similipecten similis										
	Mytelidae juv indet										
	Cardiidea indet										
	Scintilla sp.										
	cf. Scintilla sp.										
	Thyasiridae indet.1										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	Thyasiridae indet sp.I										
	Thyasira cf. eumyaria										2
	Thyasira cf. ferruginea					1	3	1	1	3	2
	Thyasira sp.										
	Thyasira sp.I										
	Thyasira sp.II										
	Thyasira sp.III										
	Thyasira sp.IV										
	Cf. Striarca lactea										
	Nucula sp.										
	Nuculoma sp.										1
	Nuculana sp										
	Nuculana wolffi										
	cf. Nuculana wolffi										
	Cf. Yoldia acuminata						1				
	Yoldiella sp.					1					
	Mytilidae indet.										
	Cf. Modiolus sp.										
	Lucinidae indet										
	cf. Myrtea cf. spinifera										
	Mendicula cf. ferruginosa										
	Aloidis cf. striatissima										
	Erycinacea indet										
	Montacutidae indet.										
	Cf. Mysella bidentata	1									
	Ensis sp.										
	cf. Phaxas pellucidus										
	Tellinidae indet										
	Tellinidae indet juv										
	Tellina sp.										
	cf. Donax sp.										
	Gari sp.										
	Abra sp							1			
	Veneridae indet juv										
	cf. Lioconcha sp										
	Pitar sp.										
	cf. Pitar sp.										
	Timoclea sp.										
	cf. Corbula gibba										
	Cuspidaria sp.			1							
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.										
	Cadulus sp.										
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.										
*	BRYOZOA										
*	Bryozoa indet.										
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I	1					1				
*	Ophiuroidea indet. Juv							0/1			
	Ophiopsila guineensis										

	Date	06.05.09	06.05.09	06.05.09	06.05.09	06.05.09	07.05.09	07.05.09	07.05.09	07.05.09	07.05.09
	Stations	GW-5	GW-5	GW-5	GW-5	GW-5	GW-6	GW-6	GW-6	GW-6	GW-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	Ophiophragmus acutispina										
	Amphipholis nudipora										
	Amphilimna olivacea										
	Cf. Ophiura grubei										
	Ophiura cf. grubei										
	Ophiactis lymani										
	Amphioplus aciculatus										
	Amphioplus aurensis										
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.										
	Irregularia indet.										
	Irregularia indet. Juv										
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.										
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II										
*	POGONOPHORA										
*	Pogonophora indet.	1	1	1							1
	ENTEROPNEUSTA										
	Enteropneusta indet.										
*	CHAETOGNATHA										
*	Chaetognatha indet.										
	ASCIDIACEA										
	Ascidiacea indet.										
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.										
*	Pisces indet. Egg										
*	Egg (fra diverse arter)										
*	VARIA										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
	Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**										1
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet										
	Anthozoa										
	Anthozoa indet						1			1	2
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.	4	1		1			1		1	
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.	4	2	2	3	2				3	1
*	NEMATODA										
*	Nematoda indet										

Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
Sample number	4	5	6	7	8	4	5	6	7	8
PRIAPULIDA										
ANNELIDA										
Polychaeta										
Amphinomidae										
Amphinomidae indet.										1
Paramphinome jeffreysii										1
Cf. Paramphinome jeffreysii										
Chloeia inermis										
Aphroditidae										
Aphrodita alta										1
Acoetidae										
Cf. Eupanthalis kinbergi								1		
Polynoidae										
Polynoidae indet.	1	3			2	1				
Sigalionidae										
Pholoe sp										
Sigalionidae sp. I										
Sigalionidae sp. II										
Psammolyce sp										
Sthenolepis sp.										
cf. Sthenolepis sp.										
Cf. Leanira hystricis	1		1	1				2		
Sthenelais limicola							1	1	1	1
Pisionidae										
Pisione africana										
Phyllodocidae										
Phyllodocidae indet.										
Phyllodoce sp. I										
Phyllodoce sp. II										
Phyllodoce sp. III										
Phyllodoce sp. IV										
Eulalia sp.										
Chrysopetalidae										
Chrysopetalidae indet.										
Pilargidae										
Loandalia sp.	1	1		3						
Glyphohesione klatti										
Pilargis papillata										
Paralacydoniidae										
Paralacydonia paradoxa										
Hesionidae										
Cf. Gyptis capensis										
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.										
Cf. Syllis cornuta										
Nereididae										
Nereididae indet.		1	1						1	
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.										
Nephtyidae										
Aglaophamus sp.	3	3		3	2	4	4	6	5	6
Nephtys sp.										
Sphaerodoridae										
Glyceridae										
Glycera alba		3		1	2	1				

Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
Sample number	4	5	6	7	8	4	5	6	7	8
Glycera sp.										
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana									1	
Goniada sp.		1								
Goniada sp. I							1			
Goniada congoensis										
Goniada cf. congoensis							1			
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.						1	2			
Onuphidae										
Diopatra sp	1	2	2	2			2	4	2	3
Hyalinoecia tubicola										
Hyalinoecia bilineata										
Nothria conchylega										
Paradiopatra cf. fiordica										
Paradiopatra fiordica										
Onuphis eremita										
Onuphis quadricuspis							1	1	1	
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.										
Nematonereis hebes										
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.	1	2	2	1	1	1	4	4	5	7
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.							1			
Phylo foetida										
Cf. Scoloplos sp	8	10	4	3	23				3	
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.		2	1	1						
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										
Prionospio sp.		1		3			1			
Scolelepis sp.										
Spiophanes bombyx										
Spiophanes soederstroemi										
Cf. Dispio sp.										
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa						1	1			
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus						13	6	6	5	
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis		3								
Magelona cincta	1	3	2	9						
Magelona papillicorenis										
Magelona sp.										

Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
Sample number	4	5	6	7	8	4	5	6	7	8
Maldanidae										
Maldanidae indet sp.I						5	10	3	3	3
Maldanidae indet sp.II										
Maldanidae indet sp.III			1							
Maldanidae indet sp.V										
Praxillella gracilis							1			2
Cf. Euclymene sp.		1		2	1		1			1
Maldane decorata										
Maldane sp.										
Rhodine cf. loveni										
Sabaco atlantideus									2	
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli		2								
Aricidea sp I	2			1	2	1		1	1	
Aricidea sp II										
Aricidea sp III										
Aricidea longobranchiata	4	1	1	3	2					
Levinsenia gracilis	4	6		2	10					
Paraonis sp.										
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.		3		2	3	4	1		1	
Chaetozone sp.								1		
Dodecaceria sp.										
Cossuridae										
Cossura coasta			1							1
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.							1			
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata										
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum										
Capitellidae										
Capitellidae indet.										
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis	8	4	1	9	6				1	1
Notomastus aberans				1						
Notomastus latericeus	1	1	1	3	2	1			2	
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I										
Myriochele sp.II										
Myriochele sp.III									1	
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata				2		3	4	4	6	4
Pectinariidae										
Pectinaria sp.						1				1

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
	Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
	Sample number	4	5	6	7	8	4	5	6	7	8
	Ampharetidae										
	Ampharetidae indet sp.I										
	Ampharetidae indet sp.III										
	Ampharetidae indet. Sp.II										
	Ampharetidae indet sp. III										
	Ampharetidae indet. Juv										
	Ampharetidae indet. Juv Sp.II										
	Amphicteis gunneri				1						
	Cf. Ampharete sp juv				0/1						
	Cf. Anobothrus gracilis										
	Isolda pulchella	1			1	1	1	1			1
	Melinna sp				1						
	Sabellidae										
	Sabellidae indet.										
	Sabellidae juv indet.										
	Cf. Sabellastarte sp.										
	Euchone incolor										
	Cf. Jasmineira elegans										
	Cf. Jasmineira sp.										
	Sabellariidae										
	Lygdamis cf. muratus										
	Terebellidae										
	Pista unibranchia		1		1						
	Laphania sp.										
	Cf. Laphania sp.										
	Cf. Amaeana sp.										
	Terebellidae indet.										
	Terebellidae indet juv				0/1						
	Lysialla ubianensis									1	
	Cf. Lysialla ubianensis										
	Trichobranchidae										
	Terebellides stroemi	4	2	1	2	2	3	11	9	4	9
	Trichobranchus glacialis										
	Serpulidae										
	Cf. Hydroides sp							1			
	Oligochaeta										
	Oligochaeta indet.										
	Hirudinea										
	ECHIURA										
	Echiura indet.					2					
	SIPUNCULA										
	Sipuncula indet.										
	Sipunculidae indet										
	Golfingia sp.										
	Cf. Golfingia sp.			2					1	1	1
	Aspidosiphon sp	1			1			29	26	38	20
	Onchnesoma steenstrupi	6	27	5	18	13					
	Cf. Onchnesoma steenstrupi										
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet										1
	Cirripedia										
	Cirripedia indet.						7				
*	**Ostracoda**										
*	Ostracoda indet. Sp.I				1	1					
*	Ostracoda indet. Sp.II										
*	Ostracoda indet. Sp.III										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
	Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Ostracoda indet. Sp.IV										
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.					1				1	
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II										
	Cumacea indet sp.III										
	Cumacea indet sp.IV										
	Cumacea indet. sp.V										
	Cumacea indet. sp.VI										
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.										
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										
	Apseudes acutifrons								1		
	Isopoda										
	Flabellifera indet.										
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II										
	Anthuroidea indet.sp. III										
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.										
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.							1			
	Caprellidae indet.										
	Ampelisca sp.I	1	3		1		1				1
	Ampelisca sp.II	1				4		3	8	3	4
	Ampelisca sp.III										
	Cf. Liljeborgiidae indet.			1	1			1	1		1
	Stegosephalidae indet										
	Cf. Cressidae indet.										
	Cf. Photidae indet			3	5	1	2			1	
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I										
	Lysianassidae indet. Sp.II										
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.										
	Oedicerotidae indet.		1								
	cf. Oedicerotidae indet.										1
	Cf. Harpinia sp.										
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
	Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Decapoda juv indet (larve)			0/1				0/3		0/1	
	Brachyura indet			2		1	1	1	1	3	1
	Brachyura indet sp. I										
	Callianassidae indet	1	2		3	1			2	3	
	Cf. Galathea sp.							1			
	Cf. Munida sp.										
	Paguridae indet.		1					1	2		1
*	**Malacostraca**										
*	Malacostraca indet.	5		1	2	2	1	8	4	7	6
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.										
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet			1		2		1			1
	Neogastropoda indet										
	Cancellariidae indet										
	Trochindae indet										
	Turridae indet						1				
	Eulimidae indet										
	Naticidae indet.									1	
	Naticidae indet.										
	cf. Skeneidae indet.									1	
	cf. Epitoniidae indet										
	Conidae indet										
	Nassariidae indet.										
	Opistobranchia indet.								2		
	Bivalvia										
	Bivalvia indet.										
	Bivalvia indet. Juv										
	Similipecten similis										
	Mytelidae juv indet										
	Cardiidea indet	1			1	2	1			1	1
	Scintilla sp.										
	cf. Scintilla sp.	2			3	4	1		1		1
	Thyasiridae indet.1										
	Thyasiridae indet sp.I										
	Thyasira cf. eumyaria										
	Thyasira cf. ferruginea										
	Thyasira sp.										
	Thyasira sp.I								1		
	Thyasira sp.II										
	Thyasira sp.III										
	Thyasira sp.IV										
	Cf. Striarca lactea		2	2	1					2	
	Nucula sp.							2	1	5	1
	Nuculoma sp.										
	Nuculana sp		1		1						3
	Nuculana wolffi										
	cf. Nuculana wolffi										
	Cf. Yoldia acuminata									5	1
	Yoldiella sp.										
	Mytilidae indet.										
	Cf. Modiolus sp.					1	1				
	Lucinidae indet										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
	Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
	Sample number	4	5	6	7	8	4	5	6	7	8
	cf. Myrtea cf. spinifera										
	Mendicula cf. ferruginosa										
	Aloidis cf. striatissima	1	1		1						
	Erycinacea indet										
	Montacutidae indet.										
	Cf. Mysella bidentata										
	Ensis sp.										
	cf. Phaxas pellucidus									2	1
	Tellinidae indet	1	4	1	3	3			1	1	
	Tellinidae indet juv										
	Tellina sp.				2	3					
	cf. Donax sp.										
	Gari sp.	1									
	Abra sp	2	7	1	2	12			1	3	5
	Veneridae indet juv	0/1									
	cf. Lioconcha sp							1			
	Pitar sp.	1									
	cf. Pitar sp.	3	1	6	2	3	1		2		2
	Timoclea sp.										
	cf. Corbula gibba										
	Cuspidaria sp.										
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.	1	1	1				1	5	9	5
	Cadulus sp.										
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.										
*	BRYOZOA										
*	Bryozoa indet.										
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I										
*	Ophiuroidea indet. Juv				0/1				0/1		0/2
	Ophiopsila guineensis										
	Ophiophragmus acutispina	1	1							2	
	Amphipholis nudipora	6	5	2	1	5	1	2	1	1	3
	Amphilimna olivacea										
	Cf. Ophiura grubei										
	Ophiura cf. grubei										
	Ophiactis lymani	1	1			2			1		
	Amphioplus aciculatus										
	Amphioplus aurensis										2
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.										
	Irregularia indet.										
	Irregularia indet. Juv						0/1				0/1
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.										
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II										
*	POGONOPHORA										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09
	Stations	GE-1	GE-1	GE-1	GE-1	GE-1	GE-2	GE-2	GE-2	GE-2	GE-2
	Sample number	4	5	6	7	8	4	5	6	7	8
*	Pogonophora indet.										
	ENTEROPNEUSTA										
	Enteropneusta indet.										1
*	CHAETOGNATHA										
*	Chaetognatha indet.										
	ASCIDIACEA										
	Ascidiacea indet.										
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.	1			1	1		1			
*	Pisces indet. Egg										
*	Egg (fra diverse arter)										
*	VARIA										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
	Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**										
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet		1	2		1	8		2	1	
	Anthozoa										
	Anthozoa indet										
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.		3			1					
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.	2		4	3		1	2	4	2	5
*	NEMATODA										
*	Nematoda indet								1		
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.										1
	Paramphinome jeffreysii	1	2								
	Cf. Paramphinome jeffreysii									1	
	Chloeia inermis		1	1							
	Aphroditidae										
	Aphrodita alta		1								
	Acoetidae										
	Cf. Eupanthalis kinbergi		1								
	Polynoidae										
	Polynoidae indet.			1	1				1		
	Sigalionidae										
	Pholoe sp										
	Sigalionidae sp. I										
	Sigalionidae sp. II										
	Psammolyce sp										

Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
Sample number	4	5	6	7	8	4	5	6	7	8
Sthenolepis sp.										
cf. Sthenolepis sp.		1								
Cf. Leanira hystricis										
Sthenelais limicola										
Pisionidae										
Pisione africana										
Phyllodocidae										
Phyllodocidae indet.										
Phyllodoce sp. I				2						
Phyllodoce sp. II						1				
Phyllodoce sp. III										
Phyllodoce sp. IV										
Eulalia sp.										
Chrysopetalidae										
Chrysopetalidae indet.										
Pilargidae										
Loandalia sp.						1				
Glyphohesione klatti										
Pilargis papillata										
Paralacydoniidae										
Paralacydonia paradoxa	1	2	2	5		3	2	3	4	2
Hesionidae										
Cf. Gyptis capensis									1	1
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.										
Cf. Syllis cornuta				1						
Nereididae										
Nereididae indet.										
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.									1	
Nephtyidae										
Aglaophamus sp.	3	5	1	1	1			1		
Nephtys sp.									3	1
Sphaerodoridae										
Glyceridae										
Glycera alba			1	1		1				
Glycera sp.										
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana				2		1				
Goniada sp.										
Goniada sp. I										
Goniada congoensis					1					
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.						1				3
Onuphidae										
Diopatra sp										
Hyalinoecia tubicola										
Hyalinoecia bilineata	3			2						
Nothria conchylega						1				
Paradiopatra cf. fiordica	1					9	7	2	4	8
Paradiopatra fiordica										
Onuphis eremita								1		

Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
Sample number	4	5	6	7	8	4	5	6	7	8
Onuphis quadricuspis										
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.	1		1	4	4					
Nematonereis hebes	5	8	4	3	2					
Marphysa sp	1		1	1						
Lumbrineridae										
Lumbrineris sp.	6	3	5	9	5		2		2	
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida				2						
Cf. Scoloplos sp	1		2							
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.	2	2	1	3	1					
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										
Prionospio sp.	3	2	9	5	3	4	3	1	2	3
Scolelepis sp.										
Spiophanes bombyx										
Spiophanes soederstroemi					2					1
Cf. Dispio sp.		1						1		
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa								1		
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus	3	2	2		1		1			
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis		1	1	2		2			2	
Magelona cincta					1		2			1
Magelona papillicorenis										
Magelona sp.										
Maldanidae										
Maldanidae indet sp.I	1									
Maldanidae indet sp.II										
Maldanidae indet sp.III	1			1						
Maldanidae indet sp.V		2			1					
Praxillella gracilis		1								
Cf. Euclymene sp.	2	1						1		
Maldane decorata			1							
Maldane sp.										
Rhodine cf. loveni										
Sabaco atlantideus										
Cf. Rhodine sp.										
Paraonidae										
Aricidea fauveli								1		
Aricidea sp I	1			3			2	2	4	2
Aricidea sp II										
Aricidea sp III				1						
Aricidea longobranchiata						2		5	4	
Levinsenia gracilis	1		1	1		1	4		1	2

Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
Sample number	4	5	6	7	8	4	5	6	7	8
Paraonis sp.						1				
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.	4		3	6	2	4	6	3	5	2
Chaetozone sp.				1					1	1
Dodecaceria sp.										
Cossuridae										
Cossura coasta			1			1				
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.										
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata				1						
Ophelina sp.						1				
Scalibregmidae										
Scalibregma inflatum		1								
Cf. Scalibregma inflatum										
Capitellidae										
Capitellidae indet.										
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis		1				3	1	3	2	2
Notomastus aberans				1		3	1		2	
Notomastus latericeus	1		2	4	1	2	3		4	1
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I					1					
Myriochele sp.II						3				1
Myriochele sp.III	1						1			1
Owenia fusiformis		1								
Sternaspidae										
Sternaspis scutata										
Pectinariidae										
Pectinaria sp.										1
Ampharetidae										
Ampharetidae indet sp.I			1	3						
Ampharetidae indet sp.III	1			1						
Ampharetidae indet. Sp.II						1				
Ampharetidae indet sp. III									1	
Ampharetidae indet. Juv										
Ampharetidae indet. Juv Sp.II										
Amphicteis gunneri	1	1	1	2		1	1	5	1	3
Cf. Ampharete sp juv		0/1			0/1	0/1	0/3	0/2	0/3	0/6
Cf. Anobothrus gracilis										
Isolda pulchella								1	2	3
Melinna sp						1	1	1	2	
Sabellidae										
Sabellidae indet.				2			1			
Sabellidae juv indet.										
Cf. Sabellastarte sp.										
Euchone incolor					1					
Cf. Jasmineira elegans										
Cf. Jasmineira sp.								2		

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
	Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Sabellariidae										
	Lygdamis cf. muratus										
	Terebellidae										
	Pista unibranchia	1		1	1			1			
	Laphania sp.										
	Cf. Laphania sp.										1
	Cf. Amaeana sp.				1						
	Terebellidae indet.		1		1						
	Terebellidae indet juv										
	Lysialla ubianensis										
	Cf. Lysialla ubianensis										
	Trichobranchidae										
	Terebellides stroemi										1
	Trichobranchus glacialis								1	3	
	Serpulidae										
	Cf. Hydroides sp										
	Oligochaeta										
	Oligochaeta indet.										
	Hirudinea										
	ECHIURA										
	Echiura indet.		1								
	SIPUNCULA										
	Sipuncula indet.			1							
	Sipunculidae indet										
	Golfingia sp.										
	Cf. Golfingia sp.				2						
	Aspidosiphon sp										
	Onchnesoma steenstrupi		1	6	6		5	9	8	8	12
	Cf. Onchnesoma steenstrupi										
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet										
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I										
*	Ostracoda indet. Sp.II	1									
*	Ostracoda indet. Sp.III			2							
*	Ostracoda indet. Sp.IV		3			1					
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.										
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II							1			
	Cumacea indet sp.III										
	Cumacea indet sp.IV										
	Cumacea indet. sp.V	4	1	2			1		1	1	
	Cumacea indet. sp.VI	4			4	2					
	Cumacea indet sp.VII							2			
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.	1									
	Diastylis sp. I								1		1
	Diastylis sp. II						1		1		
	Cf. Diastylis echinata				1			1			1
	Tanaidacea										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
	Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	Tanaidacea indet.										
	Apseudes acutifrons		1								
	Isopoda										
	Flabellifera indet.	1		5			1				
	Asellota indet.										
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II									1	
	Anthuroidea indet.sp. III										
	Gnathia sp.		1				1				
	Amphipoda										
	Amphipoda indet.										
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.										
	Caprellidae indet.										
	Ampelisca sp.I	2	2			2	3	1	16	3	2
	Ampelisca sp.II	2		1	1	1	1	1			2
	Ampelisca sp.III										
	Cf. Liljeborgiidae indet.	2									1
	Stegosephalidae indet										
	Cf. Cressidae indet.										
	Cf. Photidae indet										
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I										
	Lysianassidae indet. Sp.II	1		1						1	
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.										
	Oedicerotidae indet.								1		
	cf. Oedicerotidae indet.										
	Cf. Harpinia sp.		3								
	Cf. Paraphoxus oculatus									1	
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										
*	Decapoda juv indet (larve)					0/1					
	Brachyura indet	1	4		2		2		6		1
	Brachyura indet sp. I										
	Callianassidae indet								1		
	Cf. Galathea sp.					2					
	Cf. Munida sp.										
	Paguridae indet.	3		1							
*	**Malacostraca**										
*	Malacostraca indet.	3	1	6	1	2		1		1	
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.										
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet										

Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
Sample number	4	5	6	7	8	4	5	6	7	8
Neogastropoda indet										
Cancellariidae indet			2							
Trochindae indet										
Turridae indet										
Eulimidae indet										
Naticidae indet.		1								
Naticidae indet.										
cf. Skeneidae indet.										
cf. Epitoniidae indet						1				
Conidae indet										
Nassariidae indet.										
Opistobranchia indet.	1						1			
Bivalvia										
Bivalvia indet.					1					
Bivalvia indet. Juv										
Similipecten similis	2	2	1					1		
Mytelidae juv indet										
Cardiidea indet							1			
Scintilla sp.										
cf. Scintilla sp.		1					1			
Thyasiridae indet.1										
Thyasiridae indet sp.I										
Thyasira cf. eumyaria										
Thyasira cf. ferruginea	18	9	7	6	5					
Thyasira sp.				1						
Thyasira sp.I										
Thyasira sp.II		1	1	1		2	2	2		
Thyasira sp.III						1	1			1
Thyasira sp.IV										
Cf. Striarca lactea										
Nucula sp.										
Nuculoma sp.			1	1						
Nuculana sp					1		2	3		
Nuculana wolffi										
cf. Nuculana wolffi										
Cf. Yoldia acuminata										
Yoldiella sp.										
Mytilidae indet.										
Cf. Modiolus sp.										
Lucinidae indet	1	2	2			1				
cf. Myrtea cf. spinifera						2				
Mendicula cf. ferruginosa										
Aloidis cf. striatissima										
Erycinacea indet										
Montacutidae indet.										
Cf. Mysella bidentata									1	
Ensis sp.										
cf. Phaxas pellucidus										
Tellinidae indet										
Tellinidae indet juv			0/1							
Tellina sp.			1	2		1				
cf. Donax sp.										
Gari sp.										
Abra sp		1			2	4	2		2	
Veneridae indet juv										
cf. Lioconcha sp										
Pitar sp.										
cf. Pitar sp.										
Timoclea sp.										

	Date	04.05.09	04.05.09	04.05.09	04.05.09	04.05.09	11.05.09	11.05.09	11.05.09	11.05.09	11.05.09
	Stations	GE-3	GE-3	GE-3	GE-3	GE-3	GE-4	GE-4	GE-4	GE-4	GE-4
	Sample number	4	5	6	7	8	4	5	6	7	8
	cf. Corbula gibba		1								
	Cuspidaria sp.	1						1			1
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.	1	1			1					
	Cadulus sp.				1						
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.							1			
*	BRYOZOA										
*	Bryozoa indet.					2					
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I						1		1		
*	Ophiuroidea indet. Juv	0/5	0/6	0/3	0/7	0/1					
	Ophiopsila guineensis										
	Ophiophragmus acutispina										
	Amphipholis nudipora			1	1			1		1	1
	Amphilimna olivacea			1							
	Cf. Ophiura grubei										
	Ophiura cf. grubei										
	Ophiactis lymani										
	Amphioplus aciculatus				1						
	Amphioplus aurensis										
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.										
	Irregularia indet.										
	Irregularia indet. Juv										
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.								1	1	
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II										
*	POGONOPHORA										
*	Pogonophora indet.										
	ENTEROPNEUSTA										
	Enteropneusta indet.										
*	CHAETOGNATHA										
*	Chaetognatha indet.			1	1						
	ASCIDIACEA										
	Ascidiacea indet.										
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.								1		
*	Pisces indet. Egg										
*	Egg (fra diverse arter)										
*	VARIA										

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
	Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	HEMICHORDATA										
	Cf. Hemichordata indet										
*	PORIFERA										
*	**Porifera indet**										
	CNIDARIA										
	SCYPHOZOA										
*	HYDROZOA										
*	Hydroida indet								1		
	Anthozoa										
	Anthozoa indet										
	Hexacorallia										
	Cf. Cerianthus lloydii										
	Edwardsiidae indet.										
	PLATYHELMINTHES										
	Platyhelminthes indet										
	NEMERTINI										
	Nemertini indet.		1				1				
*	NEMATODA										
*	Nematoda indet										
	PRIAPULIDA										
	ANNELIDA										
	Polychaeta										
	Amphinomidae										
	Amphinomidae indet.										
	Paramphinome jeffreysii										
	Cf. Paramphinome jeffreysii							1			
	Chloeia inermis										
	Aphroditidae										
	Aphrodita alta										
	Acoetidae										
	Cf. Eupanthalis kinbergi										
	Polynoidae										
	Polynoidae indet.										
	Sigalionidae										
	Pholoe sp										
	Sigalionidae sp. I										
	Sigalionidae sp. II										
	Psammolyce sp										
	Sthenolepis sp.										
	cf. Sthenolepis sp.										
	Cf. Leanira hystricis										
	Sthenelais limicola										
	Pisionidae										
	Pisione africana										
	Phyllodocidae										
	Phyllodocidae indet.										
	Phyllodoce sp. I										
	Phyllodoce sp. II										
	Phyllodoce sp. III										
	Phyllodoce sp. IV										
	Eulalia sp.										
	Chrysopetalidae										
	Chrysopetalidae indet.										
	Pilargidae										
	Loandalia sp.										
	Glyphohesione klatti				1	1					1
	Pilargis papillata										
	Paralacydoniidae										
	Paralacydonia paradoxa										

Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
Sample number	4	5	6	7	8	4	5	6	7	8
Hesionidae										
Cf. Gyptis capensis										
Cf. Gyptis cf. capensis										
Gyptis cf. capensis										
Syllidae										
Syllidae indet.										
cf. Eusyllis blomstrandi										
Cf. Pionosyllis sp.										
Cf. Syllis cornuta										
Nereididae										
Nereididae indet.	1				1					
Cf. Ceratocephale loveni										
Cf. Ceratocephale sp.						1				
Nephtyidae										
Aglaophamus sp.										
Nephtys sp.										
Sphaerodoridae										
Glyceridae										
Glycera alba										
Glycera sp.										
Goniadidae										
Goniadidae indet.										
Glycinde kameruniana										
Goniada sp.										
Goniada sp. I										
Goniada congoensis		1								
Goniada cf. congoensis										
Ophioglycera eximia										
Oenonidae										
Drilonereis sp.										
Onuphidae										
Diopatra sp										
Hyalinoecia tubicola										
Hyalinoecia bilineata										
Nothria conchylega										
Paradiopatra cf. fiordica		2	1		3					
Paradiopatra fiordica										
Onuphis eremita										
Onuphis quadricuspis										
Epidiopatra hupferiana										
Eunicidae										
Eunice sp.										
Nematonereis hebes	1									
Marphysa sp										
Lumbrineridae										
Lumbrineris sp.										
Dorvilleidae										
Cf. Ophryotrocha sp.										
Orbiniidae										
Orbinia sp.										
Phylo foetida										
Cf. Scoloplos sp										
Heterospionidae										
Spionidae										
Aonides oxycephala										
Laonice sp.										
Pseudopolydora sp.										
Prionospio pinnata										
Prionospio malmgreni										

Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
Sample number	4	5	6	7	8	4	5	6	7	8
Prionospio sp.	3	3	3	7	6	1	3	1		
Scolelepis sp.										
Spiophanes bombyx										
Spiophanes soederstroemi								2	1	
Cf. Dispio sp.										
Spiophanes kroeyeri										
Poecilochaetidae										
Poecilochaetus serpens										
Trochochaetidae										
Cf. Trochochaeta multisetosa	2	1	3	1	1					
Chaetopteridae										
Chaetopteridae indet										
Spiochaetopterus typicus	1	1					1			2
Spiochaetopterus cf. typicus										
Magelonidae										
Magelona capensis	3	2	2	5	3					
Magelona cincta										
Magelona papillicorenis										
Magelona sp.										
Maldanidae										
Maldanidae indet sp.I										
Maldanidae indet sp.II					1					
Maldanidae indet sp.III										
Maldanidae indet sp.V										
Praxillella gracilis										
Cf. Euclymene sp.	1			1			2			
Maldane decorata										
Maldane sp.		1								
Rhodine cf. loveni				1						
Sabaco atlantideus										
Cf. Rhodine sp.									1	
Paraonidae										
Aricidea fauveli										
Aricidea sp I	1			2	1					
Aricidea sp II							1		1	
Aricidea sp III										
Aricidea longobranchiata	1	1			1					
Levinsenia gracilis					2	1	1			
Paraonis sp.										
cf. Paradoneis lyra										
Cirratulidae										
Aphelochaeta sp.			2		1					
Chaetozone sp.										
Dodecaceria sp.										
Cossuridae										
Cossura coasta										
Acrocirridae										
Flabelligeridae										
Diplocirrus sp.										
Pherusa sp.										
Opheliidae										
Opheliidae indet. Juv										
Ophelia sp. Juv										
Ophelina acuminata										
Ophelina cf. cylindricaudata										
Ophelina sp.										
Scalibregmidae										
Scalibregma inflatum										
Cf. Scalibregma inflatum										

Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
Sample number	4	5	6	7	8	4	5	6	7	8
Capitellidae										
Capitellidae indet.	1		2	2	2					
Capitellidae sp.I										
Capitella capitata										
Heteromastus filiformis										
Notomastus aberans										
Notomastus latericeus										
Arenicolidae										
Oweniidae										
Myriochele cf. danielsseni										
Myriochele sp.										
Myriochele sp.I										
Myriochele sp.II						1				
Myriochele sp.III	3	2		3	1					
Owenia fusiformis										
Sternaspidae										
Sternaspis scutata									1	1
Pectinariidae										
Pectinaria sp.										
Ampharetidae										
Ampharetidae indet sp.I										
Ampharetidae indet sp.III										
Ampharetidae indet. Sp.II										
Ampharetidae indet sp. III										
Ampharetidae indet. Juv										
Ampharetidae indet. Juv Sp.II										
Amphicteis gunneri										
Cf. Ampharete sp juv										
Cf. Anobothrus gracilis										
Isolda pulchella										
Melinna sp										
Sabellidae										
Sabellidae indet.										
Sabellidae juv indet.										
Cf. Sabellastarte sp.										
Euchone incolor										
Cf. Jasmineira elegans										
Cf. Jasmineira sp.										
Sabellariidae										
Lygdamis cf. muratus										
Terebellidae										
Pista unibranchia										
Laphania sp.										
Cf. Laphania sp.										
Cf. Amaeana sp.										
Terebellidae indet.										
Terebellidae indet juv										
Lysialla ubianensis										
Cf. Lysialla ubianensis										
Trichobranchidae										
Terebellides stroemi						1				
Trichobranchus glacialis										
Serpulidae										
Cf. Hydroides sp										
Oligochaeta										
Oligochaeta indet.										
Hirudinea										
ECHIURA										
Echiura indet.		1								

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
	Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	SIPUNCULA										
	Sipuncula indet.										
	Sipunculidae indet										
	Golfingia sp.						1	2			
	Cf. Golfingia sp.										
	Aspidosiphon sp	1									
	Onchnesoma steenstrupi	5	4	1	3	5	1	2	1		1
	Cf. Onchnesoma steenstrupi										
	ARTHROPODA										
	Crustacea										
*	**Cladocera**										
*	**Copepoda**										
*	Calanoida indet						1			1	
	Cirripedia										
	Cirripedia indet.										
*	**Ostracoda**										
*	Ostracoda indet. Sp.I										
*	Ostracoda indet. Sp.II										
*	Ostracoda indet. Sp.III									1	
*	Ostracoda indet. Sp.IV										
	Leptostraca										
*	**Mycidacea**										
*	Mysidacea indet.										
	Cumacea										
	Cumacea indet. Sp. I										
	Cumacea indet. Sp. II										
	Cumacea indet sp.III										
	Cumacea indet sp.IV										
	Cumacea indet. sp.V										
	Cumacea indet. sp.VI										
	Cumacea indet sp.VII										
	Iphinoe sp										
	Cf. Leucon sp.										
	Diastylis sp.					1					
	Diastylis sp. I										
	Diastylis sp. II										
	Cf. Diastylis echinata										
	Tanaidacea										
	Tanaidacea indet.										
	Apseudes acutifrons										
	Isopoda										
	Flabellifera indet.										
	Asellota indet.								2		
	Anthuroidea indet. Sp.										
	Anthuroidea indet. Sp.I										
	Anthuroidea indet. Sp.II	1					1				
	Anthuroidea indet.sp. III										
	Gnathia sp.										
	Amphipoda										
	Amphipoda indet.					1					
	Amphipoda indet. Sp.I										
	Amphipoda indet. Sp.II										
	Amphipoda indet. Sp.III										
	Metopidae/Stenthoidae indet.										
	Cf. Metopidae/Stenthoidae indet.										
	Caprellidae indet.										
	Ampelisca sp.I					3		1			
	Ampelisca sp.II										
	Ampelisca sp.III										

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
	Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	Cf. Liljeborgiidae indet.										
	Stegosephalidae indet										
	Cf. Cressidae indet.										
	Cf. Photidae indet										
	Lysianassidae indet.										
	Lysianassidae indet. Sp.I						1				
	Lysianassidae indet. Sp.II										
	Lysianassidae indet. Sp.III										
	Cf. Eriopisa sp.										
	Oedicerotidae indet.										
	cf. Oedicerotidae indet.							2			
	Cf. Harpinia sp.			1		1					
	Cf. Paraphoxus oculatus										
	Cf. Urothoe sp.										
	Cf. Urothoe sp. I										
	Cf. Urothoe sp. II										
	Urothoe cf sp.										
*	**Euphausiacea**										
	Decapoda										
*	Decapoda juv indet (larve)							0/1			
	Brachyura indet										
	Brachyura indet sp. I										
	Callianassidae indet										
	Cf. Galathea sp.										
	Cf. Munida sp.										
	Paguridae indet.										
*	**Malacostraca**										
*	Malacostraca indet.										
	INSECTA										
	PYCNOGONIDA										
	Pycnogonida indet.										
	MOLLUSCA										
	Aplacophora										
	Caudofoveata indet.			1						1	
	Polyplacophora										
	Gastropoda										
	Gastropoda indet										
	Prosobranchia indet										
	Neogastropoda indet										
	Cancellariidae indet										
	Trochindae indet										
	Turridae indet										
	Eulimidae indet										
	Naticidae indet.										
	Naticidae indet.										
	cf. Skeneidae indet.										
	cf. Epitoniidae indet										
	Conidae indet										
	Nassariidae indet.										
	Opistobranchia indet.										
	Bivalvia										
	Bivalvia indet.										
	Bivalvia indet. Juv										
	Similipecten similis										
	Mytelidae juv indet										
	Cardiidea indet										
	Scintilla sp.										
	cf. Scintilla sp.										
	Thyasiridae indet.1										

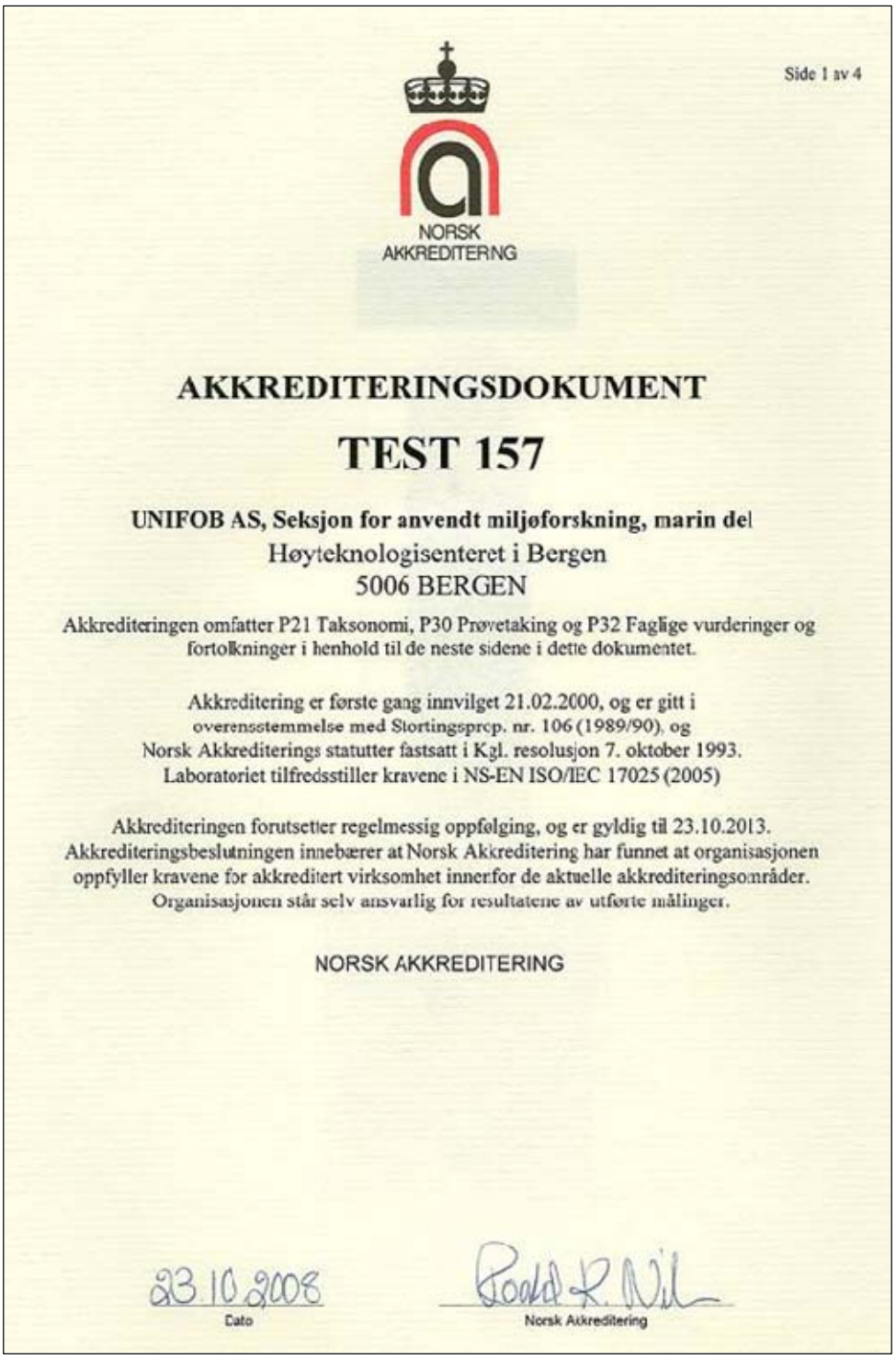
	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
	Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	Thyasiridae indet sp.I										
	Thyasira cf. eumyaria										
	Thyasira cf. ferruginea									1	
	Thyasira sp.					1					
	Thyasira sp.I										
	Thyasira sp.II	2			1						
	Thyasira sp.III										
	Thyasira sp.IV						1				
	Cf. Striarca lactea										
	Nucula sp.										
	Nuculoma sp.										
	Nuculana sp										
	Nuculana wolffi										
	cf. Nuculana wolffi										
	Cf. Yoldia acuminata						2				
	Yoldiella sp.							1			
	Mytilidae indet.										
	Cf. Modiolus sp.										
	Lucinidae indet										
	cf. Myrtea cf. spinifera										
	Mendicula cf. ferruginosa										
	Aloidis cf. striatissima										
	Erycinacea indet										
	Montacutidae indet.										
	Cf. Mysella bidentata										
	Ensis sp.										
	cf. Phaxas pellucidus										
	Tellinidae indet										
	Tellinidae indet juv										
	Tellina sp.										
	cf. Donax sp.										
	Gari sp.										
	Abra sp										
	Veneridae indet juv										
	cf. Lioconcha sp										
	Pitar sp.										
	cf. Pitar sp.										
	Timoclea sp.										
	cf. Corbula gibba										
	Cuspidaria sp.	1	1								
	Cuspidaria sp. Juv										
	Scaphopoda										
	Scaphopoda indet.										
	Dentalium sp.										
	Cadulus sp.										
	Cephalopoda										
	BRACHIOPODA										
	PHORONIDA										
	Phoronida indet.										
*	BRYOZOA										
*	Bryozoa indet.										
	ECHINODERMATA										
	Crinoidea										
	Asteroidea										
*	Asteroidea indet. Juv										
	Ophiuroidea										
	Ophiuroidea indet. I	1						1			
*	Ophiuroidea indet. Juv										
	Ophiopsila guineensis										

	Date	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09	05.05.09
	Stations	GE-5	GE-5	GE-5	GE-5	GE-5	GE-6	GE-6	GE-6	GE-6	GE-6
	Sample number	4	5	6	7	8	4	5	6	7	8
	Ophiophragmus acutispina										
	Amphipholis nudipora										
	Amphilimna olivacea										
	Cf. Ophiura grubei										
	Ophiura cf. grubei										
	Ophiactis lymani										
	Amphioplus aciculatus										
	Amphioplus aurensis										
	Echinoidea										
	Echinoidea indet.										
	Regularia indet.										
	Irregularia indet.										
	Irregularia indet. Juv							0/1	0/1		
	cf. Echinocyamus sp										
	Holothuroidea										
	Holothuroidea indet.										
	Holothuroidea indet. Sp.I										
	Holothuroidea indet. Sp.II							1			
*	POGONOPHORA	1									
*	Pogonophora indet.								1		
	ENTEROPNEUSTA										
	Enteropneusta indet.										
*	CHAETOGNATHA										
*	Chaetognatha indet.										
	ASCIDIACEA										
	Ascidiacea indet.										
	CHORDATA										
	Cephalochordata										
*	**Pisces**										
*	Pisces indet.										
*	Pisces indet. Egg										
*	Egg (fra diverse arter)										
*	VARIA										

Appendix Table 8. Geometric groups

	I	II	III	IV	V	VI	VII	VIII
GP 1	34	25	16	21	8	3	2	1
GP 2	39	34	23	22	3	2	0	0
GP 3	36	25	8	6	2	1	0	0
GP 4	28	19	7	6	0	1	0	0
GP 5	18	10	8	5	0	0	0	0
J7 1	19	9	2	0	0	0	0	0
J7 2	10	6	1	0	0	0	0	0
J7 3	19	3	2	0	0	0	0	0
GW 1	27	17	8	15	7	4	0	0
GW 2	31	26	23	10	7	2	0	0
GW 3	37	27	10	5	4	1	0	0
GW 4	20	19	6	6	1	1	0	0
GW 5	14	10	9	2	1	0	0	0
GW 6	20	12	2	1	0	0	0	0
GE 1	14	17	17	11	4	1	1	0
GE 2	30	29	10	4	7	1	1	0
GE 3	41	31	14	10	3	1	0	0
GE 4	45	16	12	12	3	1	0	0
GE 5	14	11	3	3	2	0	0	0
GE 6	16	11	2	0	0	0	0	0

Appendix Table 9. Accreditation Frontpage of accreditation documents from UNI Research-SAM-marin and Eurofins as.



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NORSK AKKREDITERNG

AKKREDITERINGSDOKUMENT

TEST 157

UNIFOB AS, Seksjon for anvendt miljøforskning, marin del
Høyteknologisenteret i Bergen
5006 BERGEN

Akkrediteringen omfatter P21 Taksonomi, P30 Prøvetaking og P32 Faglige vurderinger og fortolkninger i henhold til de neste sidene i dette dokumentet.

Akkreditering er første gang innvilget 21.02.2000, og er gitt i overensstemmelse med Stortingsprop. nr. 106 (1989/90), og Norsk Akkrediterings statutter fastsatt i Kgl. resolusjon 7. oktober 1993. Laboratoriet tilfredsstiller kravene i NS-EN ISO/IEC 17025 (2005)

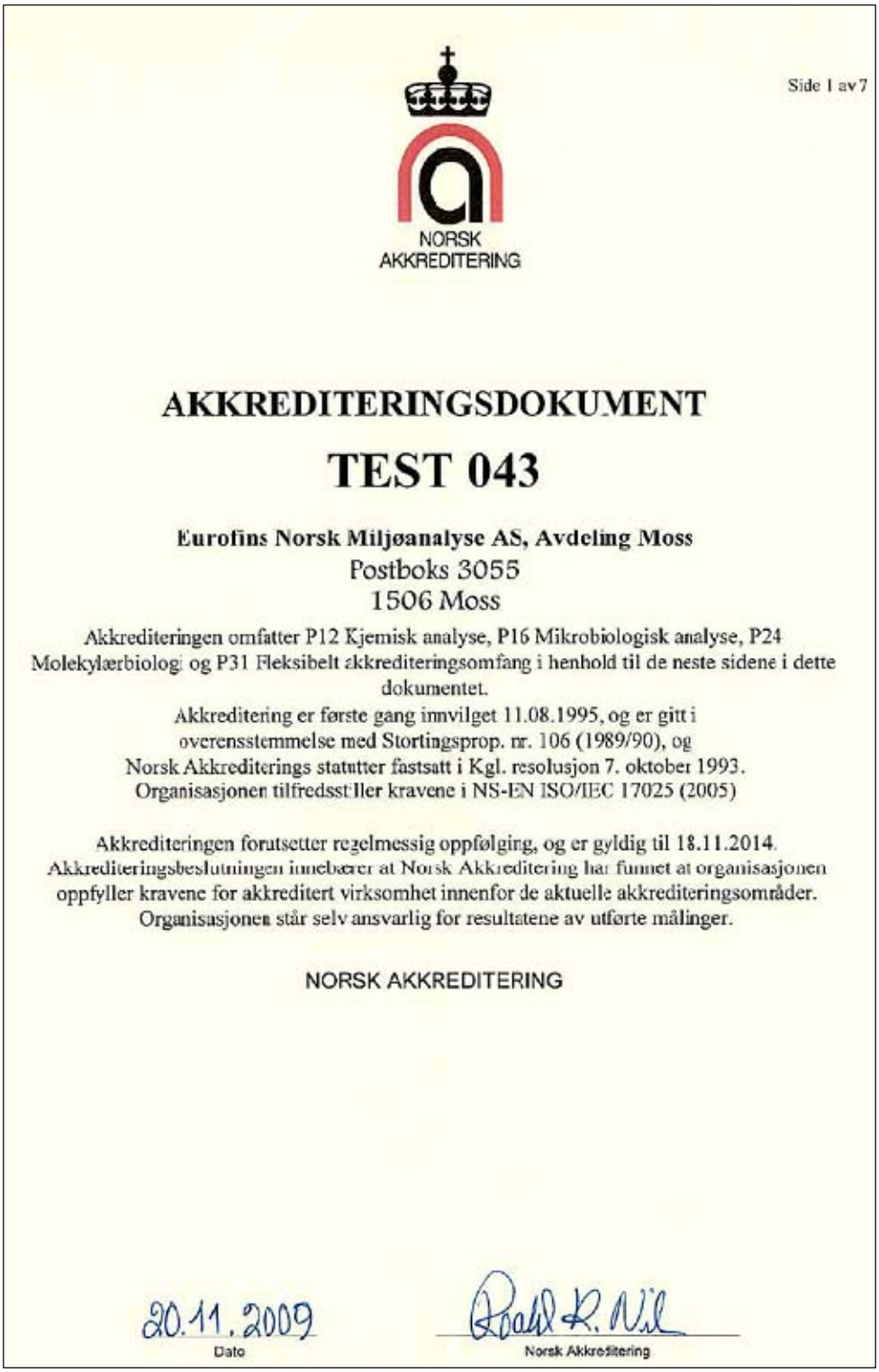
Akkrediteringen forutsetter regelmessig oppfølging, og er gyldig til 23.10.2013. Akkrediteringsbeslutningen innebærer at Norsk Akkreditering har funnet at organisasjonen oppfyller kravene for akkreditert virksomhet innenfor de aktuelle akkrediteringsområder. Organisasjonen står selv ansvarlig for resultatene av utførte målinger.

NORSK AKKREDITERING

23.10.2008
Dato

Norsk Akkreditering

Accreditation document UNIFOB AS. The name of UNIFOB AS was changed to Uni Research AS in November 2009. Chapter 2.3.10 in this report describes which activities and analyses were accredited in accordance with this certificate.



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NORSK
AKKREDITERING

AKKREDITERINGSDOKUMENT

TEST 043

Eurofins Norsk Miljøanalyse AS, Avdeling Moss
Postboks 3055
1506 Moss

Akkrediteringen omfatter P12 Kjemisk analyse, P16 Mikrobiologisk analyse, P24 Molekylærbiologi og P31 Fleksibelt akkrediteringsomfang i henhold til de neste sidene i dette dokumentet.
Akkreditering er første gang innvilget 11.08.1995, og er gitt i overensstemmelse med Stortingsprop. nr. 106 (1989/90), og Norsk Akkrediterings statutter fastsatt i Kgl. resolusjon 7. oktober 1993.
Organisasjonen tilfredsstiller kravene i NS-EN ISO/IEC 17025 (2005)

Akkrediteringen forutsetter regelmessig oppfølging, og er gyldig til 18.11.2014.
Akkrediteringsbeslutningen innebærer at Norsk Akkreditering har funnet at organisasjonen oppfyller kravene for akkreditert virksomhet innenfor de aktuelle akkrediteringsområder.
Organisasjonen står selv ansvarlig for resultatene av utførte målinger.

NORSK AKKREDITERING

20.11.2009
Dato

Norsk Akkreditering

Accreditation document Eurofins Norsk Miljøanalyse AS. Chapter 2.2.8 in this report describes which activities and analyses were accredited in accordance with this certificate.

Appendix Table 10. Sampling journal. Starts at the next page and contains 22 sheets.

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GW – 1	06.05.09			28 m

Weather:	Wind:	Wave hight (m):
Time Start: 15.50	Time Finish: 17.00	Duration: 1:10

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: sand	
Color: 10 Y, 4/3, brown	Odor:
Observation of animals: shrimps, gastropods	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	3	1	1	1	1	1	1	
2	12	1	1	1	1			
3	6	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	13	1	
5	10	1	
6	12	8	
7	18	2	
8	6.5	8	
9	11.5	7	0.5 mm sieve
10	10	12	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GW – 2	06.05.09			52

Weather: partly clouded	Wind:	Wave hight (m): 1
Time Start: 13.45	Time Finish: 15.15	Duration: 1:30
Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2 light		
Type of bottom sediment: sand		
Color: 5 Y, 3/2, dark olive gray		Odor:
Observation of animals: Ophiurioidea, Echinoidea, Polychaeta, crabs		
Observation of oil, waste etc:		Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	6.5	1	1	1	1	1	1	
2	6	1	1	1	1			
3	6	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	4	1	
5	5	1	
6	4.5	1	
7	4.5	1	
8	6.5	1	
9	8	2	0.5 mm sieve
10	5	2	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GW – 3	06.05.09			104

Weather: rain	Wind:	Wave hight (m): 1.5
Time Start: 10.30	Time Finish: 12.30	Duration: 2:00

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: sand/silt	
Color: 5 Y, 4/2, olive gray	Odor:
Observation of animals: Crustacea, Polychaeta, crabs	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	7	1	1	1	1	1	1	
2	5	1	1	1	1			
3	7	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	5	3	
5	8	5	
6	9	4	
7	6	3	
8	6	4	
9	3	4	0.5 mm sieve
10	4	5	0.5 mm sieve

SAMPLING JOURNAL **Page nr: …. of ……**

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GW – 4	06.05.09			252

Weather: rain	Wind:	Wave hight (m): 1.5
Time Start: 07.10 + 19.00	Time Finish: 10.00 + 23.00	Duration: 6:50

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2, light and heavy. Biology heavy.	
Type of bottom sediment: sand/silt	
Color: 5 Y, 4/2, olive gray	Odor: H_2S
Observation of animals: Polychaeta, Ophiuroidea	
Observation of oil, waste etc:	Number of rejected samples: 9

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	0.5	1	1	1	1	1	1	Heavy grab
2	9	1	1	1	1			Light grab
3	6	1	1	1	1			Light grab

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	1.5	5	
5	9	3	Odour: H_2S
6	6.5	3	
7	6	4	
8	0	3	Odour: H_2S
9	1	4	0.5 mm sieve
10	7	3	0.5 mm sieve, Odour: H_2S

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GW – 5	06.05.09			501

Weather:	Wind:	Wave hight (m):
Time Start: 03.30	Time Finish:	Duration:
Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2 heavy		
Type of bottom sediment: sand/silt		
Color: 7.5Y, 4/1, dark gray		Odor:
Observation of animals: Polychaeta		
Observation of oil, waste etc:		Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	6	1	1	1	1	1	1	
2	1	1	1	1	1			
3	2	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	0	1	
5	0	1	
6	0	1	
7	0	1	
8	0	1	
9	14	1	0.5 mm sieve
10	0	1	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GW – 6	06.05.09			1200

Weather: cloudy	Wind:	Wave hight (m):
Time Start: 22.30	Time Finish: 04.15	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: sandy, shell fragments	
Color: 5Y, 4/1, dark gray	Odor:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	0	1	1	1	1	1	1	
2	0	1	1	1	1			
3	2	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	3	1	Broken surface of the sediment
5	0	1	
6	0	1	
7	0	1	
8	0.5	1	
9	0	1	0.5 mm sieve
10	0	1	0.5 mm sieve

SAMPLING JOURNAL **Page nr: …. of ……**

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GE – 1	04.05.09			28

Weather: sun	Wind:	Wave hight (m): 0.5 svell
Time Start: 13.10	Time Finish: 14.45	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: silt and sand, shell fragments	
Color: 5Y, 4/2, olive gray	Odor:
Observation of animals: fish, Polychaeta, crabs, Gastropoda	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	1	1	1	1	1	1	1	
2	0	1	1	1	1			
3	0	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	0	2	
5	0	1	
6	0	2	
7	0	2	
8	0	2	
9	0	3	0.5 mm sieve

SAMPLING JOURNAL **Page nr: …. of ……**

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GE – 2	04.05.09			50

Weather:	Wind:	Wave hight (m): 1 m, svell
Time Start: 13.10	Time Finish: 14.45	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2 light	
Type of bottom sediment: silt and clay	
Color: 5Y, 4/2, olive gray	Odor:
Observation of animals: Ophiuroidea, Polychaeta, Echinoidea, Anthozoa, crab, shrimp	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	5	1	1	1	1	1	1	
2	1.5	1	1	1	1			
3	1	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	0	1	Heavy grab (all the other samples with light grab)
5	1.5	1	
6	1	1	
7	1	1	
8	0	1	
9	0.5	1	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GE – 3	04.05.09			101

Weather:	Wind:	Wave hight (m):
Time Start: 16.35	Time Finish: 18.40	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: silt and sand	
Color: 5Y, 4/2, olive gray	Odor:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	8	1	1	1	1	1	1	
2	5	1	1	1	1			
3	5	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	3	4	
5	3	4	
6	3	4	
7	5	5	
8	6	5	
9	9	7	0.5 mm sieve
10	6	4	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GE – 4	04.05.09			250

Weather:	Wind:	Wave hight (m):
Time Start: 20.05	Time Finish:	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: silt and sand	
Color: 5Y, 4/2, olive gray	Odor:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples: 1

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	6	1	1	1	1	1	1	
2	8	1	1	1	1			
3	5.5	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	7	4	
5	8	3	
6	8	4	
7	7.5	2	
8	6	3	
9	9	5	0.5 mm sieve
10	10	4	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GE – 5	05.05.09			503

Weather:	Wind:	Wave hight (m):
Time Start: 00.00	Time Finish: 03.50	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: muddy	
Color: 10Y, 3/1, very dark gray	Odor:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples: 3

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	4	1	1	1	1	1	1	
2	6	1	1	1	1			
3	7	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	6	1	
5	7	1	
6	5	1	
7	3.5	1	
8	3	1	
9	4	1	0.5 mm sieve
10	3	1	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GE – 6	05.05.09			1201

Weather:	Wind:	Wave hight (m):
Time Start: 06.00	Time Finish:	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2 sample 1-6 light grab, sample 7-10 heavy grab	
Type of bottom sediment: Silt and clay	
Color: 5Y, 4/1, Dark gray	Odor:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples: 6

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	0.5	1	1	1	1	1	1	
2	0.5	1	1	1	1			
3	1	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	10	1	
5	6	1	
6	5	1	
7	0	1	
8	0	1	
9	0	1	0.5 mm sieve
10	0	1	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GP – 1	07.05.09			28

Weather: rainy	Wind:	Wave hight (m):
Time Start: 12.15	Time Finish: 14.00	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: sandy	
Color: 5Y, 3/1, very dark gray	Odor:
Observation of animals: shrimp, crab, Polychaeta	
Observation of oil, waste etc:	Number of rejected samples: 5

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	7	1	1	1	1	1	1	
2	5	1	1	1	1			
3	6	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	2	1	
5	5	1	
6	7	1	
7	7	1	
8	6.5	10	
9	13	5	0.5 mm sieve
10	13		0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GP – 2	07.05.09			51

Weather: cloudy, rainy	Wind:	Wave hight (m):
Time Start: 10.10	Time Finish: 11.30	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: sandy, shell fragments	
Color: 5Y, 4/2, olive gray	Odor:
Observation of animals: Ophiuroidea	
Observation of oil, waste etc:	Number of rejected samples: 5

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	4	1	1	1	1	1	1	
2	6	1	1	1	1			
3	7	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	7	2	
5	6	2	
6	7	3	
7	1.5	3	
8	6	3	
9	6	2	0.5 mm sieve,
10	6	2	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GP – 3	07.05.09			102

Weather: cloudy	Wind:	Wave hight (m):
Time Start: 06.40	Time Finish: 09.40	Duration: 3:00

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2 ,light	
Type of bottom sediment: sandy, broken shells	
Color: 5Y, 4/1, dark gray	Odor:
Observation of animals: Polychaeta	
Observation of oil, waste etc: oil in sample 9 (probably from the wire)	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	3,5	1	1	1	1	1	1	
2	5	1	1	1	1			
3	6	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	5	2	
5	3	2	
6	5	2	
7	5,5	2	
8	4	1	
9	6	2	0.5 mm sieve, oil observed in sample
10	5	2	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GP – 4	05.05.09			250

Weather:	Wind:	Wave hight (m):
Time Start: 22.55	Time Finish: 02.00	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: Sand	
Color: 5Y, 4/1, dark gray	Odor:
Observation of animals: Polychaeta	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	6	1	1	1	1	1	1	
2	4.5	1	1	1	1			
3	5	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	2	6	
5	2	10	
6	3	6	
7	1	8	
8	0.5	8	
9	1	12	0.5 mm sieve
10	1	10	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
GP – 5	05.05.09			508

Weather:	Wind:	Wave hight (m):
Time Start: 18.50	Time Finish: 22.20	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2 heavy	
Type of bottom sediment: clay and silt	
Color: 5Y, 4/2, very olive gray	Odor:
Observation of animals: Polychaeta	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	0	1	1	1	1	1	1	
2	0	1	1	1	1			
3	6	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	2	1	
5	0	1	
6	9	1	
7	1	1	
8	0	1	
9	0	1	0.5 mm sieve
10	0.5	1	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
J7 - 1	07.05.09			1273

Weather: rainy	Wind:	Wave hight (m):
Time Start: 18.40	Time Finish: 02.00	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: mud	
Color: 2.5Y, 4/1, dark gray	Odor:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	0	1	1	1	1	1	1	
2	0	1	1	1	1			
3	0	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	0	1	
5	0	1	
6	0	1	
7	0	1	
8	0	1	
9	2	1	0.5 mm sieve
10	10	1	0.5 mm sieve

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
J7 - 2	08.05.09			1300

Weather: rainy	Wind:	Wave hight (m):
Time Start: 18.40	Time Finish: 02.00	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: mud	
Color: 2.5Y, 3/1, very dark gray	Odor:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples: 3

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	3	1	1	1	1	1	1	
2	0.5	1	1	1	1			
3	0	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	0	1	
5	0	1	
6	0	1	
7	0	1	
8	0	1	

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
J7 - 3	08.05.09			1271

Weather: sun	Wind:	Wave hight (m):
Time Start: 10.45	Time Finish: 14.15	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: mud	
Color: 5Y, 4/1, dark gray	Odor:
Observation of animals: Sipuncula	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	0	1	1	1	1	1	1	
2	8	1	1	1	1			
3	0.5	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4	0	1	
5	0	1	
6	0	1	
7	0	1	
8	0	1	

Vessel: Dr. Fridtjof Nansen	Area: Ghana	Project code:	Survey nr: 2009405

Grab station nr.	Date	Latitude	Longitude	Depth (m)
J7 - 4	08.05.09			1280

Weather: sunny	Wind:	Wave height (m):
Time Start: 15.55	Time Finish: 18.10	Duration:

Sample equipment used (name, bite area, weight): Van Veen grab 0.1 m^2	
Type of bottom sediment: mud	
Colour: 5Y, 3/1, very dark gray	Odour:
Observation of animals:	
Observation of oil, waste etc:	Number of rejected samples:

Sample nr	Volume (cm from lid to sediment)	Hydrocarbons 300 g		Heavy metal 100 g		Grain size TOM 300 g		Remarks:
		Norway	Ghana	Norway	Ghana			
1	0.5	1	1	1	1	1	1	
2	0.5	1	1	1	1			
3	0	1	1	1	1			

Sample nr	Volume (cm)	Nr containers bottom fauna	Remarks:
4			
5			
6			
7			
8			