Institut für Seefischerei

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FRV „Solea“
Cruise 650 and 651
02.01. - 31.01.2012

Scientist in charge: Dr. Th. Neudecker

Winter Distribution of Brown Shrimp in the German Bight

Narrative:

The purpose of both research trips of RV „Solea“ in January 2012 was again surveying the area of the German Bight and adjacent waters for distribution and abundance of brown shrimp (*Crangon crangon*). The programme was initiated 1991. 74 fishing stations were achieved this year from Jutland, DK, to the Dutch border. Furthermore, some plankton hauls were done beside some comparative hauls with wider cod end mesh sizes (24 mm against 20 mm nominal mesh sizes) and a smaller 2-m-beam trawl with tickler chains.
The intended series of stations further west into British waters could not been fished due to the loss of several fishing days because of stormy weather.
The German-Danish cooperation - started in 2005 – could be continued.

The depth range of hauls was between 10 and 43 metres and thereby well within the distributional area for brown shrimp in the southern North Sea.
This year the mean catch of brown shrimp per half hour tow reached 6.7 kg, which was one of the highest rates compared to the years before. Higher concentrations were found west of Schleswig-Holstein and shrimp seemed to be at higher abundances everywhere. Some specimens were larger than 90 mm in total length indicating good stocks as well.
Water temperatures were high this winter ranging between 4.1 and 6.9°C and numerous shrimpers were seen especially on AMRUM BANK and north of Helgoland in the Schleswig-Holstein part.

Concerning the by-catch, 34 invertebrate and 37 fish species were recorded. The high rate of gobiid species was an especially unusual observation besides the increase of *Alosa fallax.*

Participants:

Name	**Function**	**Institution**
Dr. Th. Neudecker	scientist in charge	vTI, SF
Th. Kehlert	fishery biologist	vTI, SF,
T. Weddehage	fishery biologist	vTI, SF
Per Sand-Kristensen	fishery biologist,	observer DTU aqua, DK, 3 days
Christina Fromm	fishery biologist	vTI, SF,
Annika Mues	fishery biologist	Volontärin, IHF, Uni HH
Florian Krau	HiWi, fishery biologist	vTI-SF, Uni Rostock

Dr. Th. Neudecker

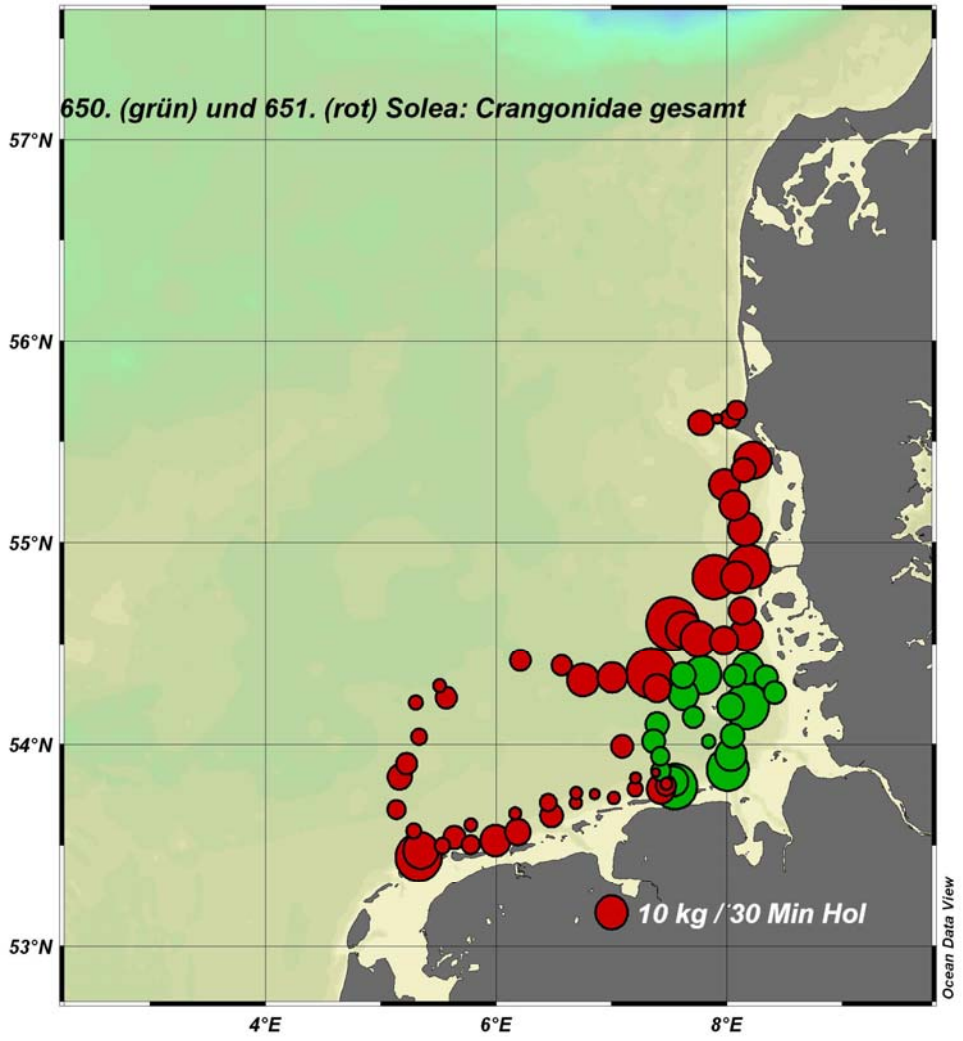

Figure 1: Haul positions and catch of Crangonids during 650. (green dots) **and 651.** (red = darker dots) **cruise of RV "SOLEA" January 2012**

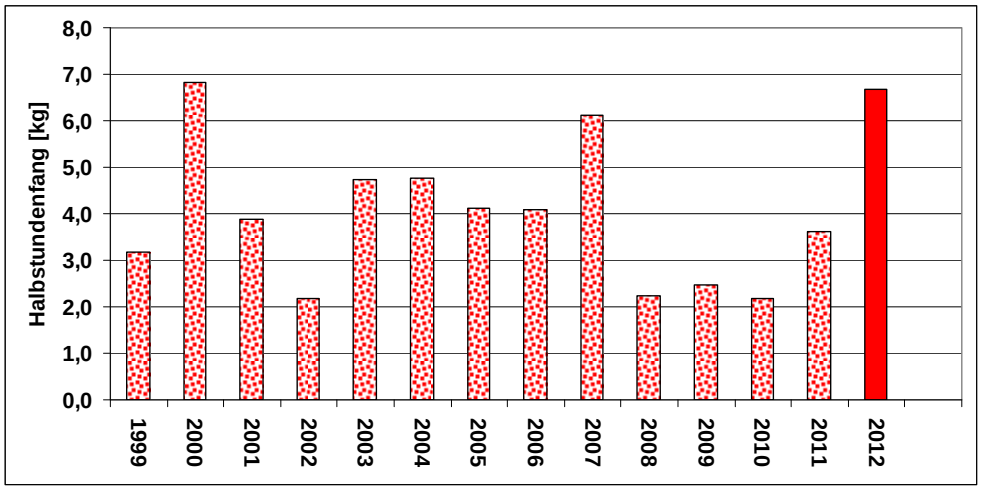

Figure 2: Mean catch of shrimp (*C. crangon* and *C. allmanni*, all sizes) per half hour trawl from SOLEA-cruises between 1999 and 2012 regardless of depth strata, area and number of stations.

Table 1: Registred invertebrate species
from 74 beam trawl catches from RV Solea trips no. 650 and 651
between 2nd and 31st of January 2012 (data adjusted to 30' towing time)

No.	Species / Taxon	Present in 74 hauls	Max. catch-weigt in kg	Mean catch-weigt in kg	Total catch in kg	Individuals caught in all hauls		
						Sum	Mean	Maximum
1	ACTINIARIA	51	1,023	0,056	4,143	1608	22	450
2	ALLOTEUTHIS SUBULATA	4	0,006	0,000	0,014	5	0	2
3	APHRODITA ACULEATA	20	8,847	0,153	11,295	682	9	511
4	APORRHAIS PESPELICANIS	2	0,012	0,000	0,016	3	0	2
5	ASTERIAS RUBENS	71	61,260	1,895	140,228	4080	55	1062
6	ASTROPECTEN IRREGULARIS	32	6,473	0,116	8,598	821	11	591
7	BUCCINUM UNDATUM	9	3,872	0,113	8,338	196	3	92
8	CANCER PAGURUS	2	1,102	0,024	1,778	2	0	1
9	CARCINUS MAENAS	16	0,270	0,013	0,960	42	1	9
10	CORYSTES CASSIVELAUNUS	15	0,080	0,005	0,360	49	1	8
11	**CRANGON spec.**	74	25,121	6,675	493,944			
12	DONAX VITTATUS	1	0,004	0,000	0,004	762	10	668
13	ECHINOCARDIUM CORDATUM	27	8,808	0,175	12,933	330	4	104
14	ENSIS	27	0,530	0,030	2,189	189	3	59
15	EUTRIGLA GURNARDUS	1	0,098	0,001	0,098	2	0	2
16	HYAS ARANEUS	8	0,140	0,003	0,256	18	0	6
17	LEANDER SERRATUS	1	0,010	0,000	0,010	1	0	1
18	MACOMA BALTICA	3	0,076	0,001	0,092	67	1	57
19	MACROPIPUS ARCUATUS	6	0,010	0,000	0,027	15	0	4
20	MACROPIPUS DEPURATOR	6	0,042	0,002	0,152	12	0	6
21	MACROPIPUS HOLSATUS	73	97,790	3,480	257,489	36748	497	7777
22	MACROPODIA	19	0,006	0,000	0,035	29	0	4
23	NATICA CATENA	1	0,004	0,000	0,004	1	0	1
24	NATICA POLIANA	2	0,003	0,000	0,005	5	0	3
25	OPHIURA ALBIDA	45	44,893	0,868	64,259	367727	4969	280581
26	PAGURIDAE	68	1,966	0,129	9,509	1543	21	202
27	PANDALIDAE	60	143,540	2,434	180,134	57853	782	45681
28	PORIFERA	8	0,036	0,002	0,184	13	0	3
29	PSAMMECHINUS MILIARIS	3	0,430	0,007	0,544	66	1	57
30	SEPIOLA ATLANTICA	2	0,004	0,000	0,006	2	0	1
31	SPISULA SOLIDA	1	0,004	0,000	0,004	1	0	1
32	SPISULA SUBTRUNCATA	8	0,028	0,001	0,052	36	0	23
33	TURRITELLA COMMUNIS	5	0,956	0,023	1,672	1079	15	607
34	VENUS GALLINA	7	0,032	0,002	0,130	48	1	10

Table 2: Registred fish species
from 74 beam trawl catches from RV Solea trips no. 650 and 651
between 2nd and 31st of January 2012 (data adjusted to 30' towing time)

No.	Species / Taxon	Present in 74 hauls	Max. catch-weigt in kg	Mean catch-weigt in kg	Total catch in kg	Individuals caught in all hauls		
						Sum	Mean	Maximum
1	AGONUS CATAPHRACTUS	60	3,227	0,002	12,945	702	9	121
2	ALOSA FALLAX	23	1,336	0,004	3,854	536	7	240
3	AMMODYTES MARINUS	5	0,012	0,006	0,044	5	0	1
4	AMMODYTES TOBIANUS	24	0,112	0,006	0,634	62	1	13
5	ANGUILLA ANGUILLA	1	0,804	0,804	0,804	1	0	1
6	ARNOGLOSSUS LATERNA	20	0,46	0,002	1,576	161	2	33
7	ATHERINA PRESBYTER	2	0,004	0,004	0,008	2	0	1
8	BUGLOSSIDIUM LUTEUM	26	3,836	0,006	16,2726	2559	35	608
9	CALLIONYMUS LYRA	32	3,004	0,002	5,994	334	5	94
10	CALLIONYMUS RETICULATUS	20	0,094	0,001	0,395	114	2	35
11	CILIATA MUSTELA	35	0,29	0,004	2,527	108	1	12
12	CLUPEA HARENGUS	66	5,114	0,008	33,669	3743	51	596
13	ENGRAULIS ENCRASICOLUS	2	0,008	0,002	0,01	3	0	2
14	GADUS MORHUA	21	6,725	0,014	17,507	30	0	4
15	GASTEROSTEUS ACULEATUS	32	0,052	0,001	0,287	140	2	26
16	HIPPOGLOSSOIDES PLATESSOIDES	1	0,108	0,108	0,108	1	0	1
17	HYPEROPLUS LANCEOLATUS	20	0,15	0,001	0,569	44	1	11
18	LIMANDA LIMANDA	73	22,03	0,001	251,169	18590	251	2099
19	LIPARIS LIPARIS	7	0,172	0,006	0,784	11	0	2
20	MERLANGIUS MERLANGUS	58	1,03	0,002	14,642	355	5	31
21	MICROSTOMUS KITT	37	5,302	0,004	8,8664	1444	20	924
22	MYOXOCEPHALUS SCORPIUS	37	1,134	0,012	6,869	101	1	11
23	OSMERUS EPERLANUS	31	3,326	0,004	15,78	1116	15	834
24	PHOLIS GUNNELLUS	12	0,112	0,006	0,336	33	0	11
25	PHRYNORHOMBUS NORVEGICUS	1	0,014	0,014	0,014	1	0	1
26	PLATICHTHYS FLESUS	23	1,522	0,012	5,432	75	1	38
27	PLEURONECTES PLATESSA	68	4,618	0,002	33,655	4288	58	529
28	POMATOSCHISTUS MICROPS	16	0,115	0,001	0,423	342	5	115
29	POMATOSCHISTUS MINUTUS	73	16,703	0,02	94,916	55080	744	9688
30	PSETTA MAXIMA	1	0,604	0,604	0,604	1	0	1
31	RHINONEMUS CIMBRIUS	18	0,966	0,016	6,086	384	5	71
32	SOLEA VULGARIS	3	0,112	0,012	0,226	3	0	1
33	SPRATTUS SPRATTUS	73	17,965	0,006	166,595	32350	437	3987
34	SYNGNATHUS ROSTELLATUS	57	0,032	0,001	0,262	505	7	44
35	TRACHURUS TRACHURUS	3	0,178	0,008	0,316	4	0	2
36	TRISOPTERUS LUSCUS	1	0,01	0,01	0,01	1	0	1
37	ZOARCES VIVIPARUS	13	0,366	0,01	1,325	61	1	25