

R/V Dana

Cruise 01/2024

"DK IBTS 1Q 2024"



Vessel: R/V DANA

Cruise dates (planned): 12/1 – 30/1 2024

Cruise number: 01/24

Cruise name: DK IBTS 1Q 2024

Port of departure:	Hirtshals	Date:	12 January
Port of return:	Esbjerg	Date:	30 February
Other ports:	Hanstholm	Date and justification:	13 January (evening) to 15 January (morning) Bad weather

Participants

Hirtshals – Esbjerg		
Name	Institute	Function and main tasks
Kai Wieland	DTU Aqua, Monitoring Hirtshals	Cruise leader (Part 1), Scientist, Fish lab
Helle Rasmussen	DTU Aqua, Monitoring Hirtshals	Cruise leader (Part 2), Technician, Fish lab
Tom Svoldgaard	DTU Aqua, Monitoring Hirtshals	Technician, Fish lab
Rasmus F. Jensen	DTU Aqua, Monitoring Hirtshals	Technician, Fish lab
Dennis U. Andersen	DTU Aqua, Monitoring Lyngby	Technician, Fish lab
Martin M. Christensen	DTU Aqua, Monitoring Lyngby	Scientist, Fish eggs and larvae
Bastian Huwer	DTU Aqua, Marine Living Resources	Scientist, Fish eggs and larvae
Gert Holst	DTU Aqua, Monitoring Hirtshals	Technician, Fish eggs and larvae
Christian Petersen	DTU Aqua, Monitoring Hirtshals	Technician, CTD, Maintenance

Objectives

The survey is part of the 1st quarter International Bottom Trawl Survey in the North Sea (NS-IBTS), which is coordinated by the ICES International Bottom Trawl Survey Working Group and has been conducted with standard fishing gear in the 1st quarter since 1983.

The IBTS aims to provide ICES assessment and science groups with consistent and standardized data for examining spatial and temporal changes in (a) the distribution and relative abundance of fish and fish assemblages; and (b) of the biological parameters of commercial fish species for stock assessment purposes. The main objectives in the 1st quarter IBTS are to:

- To determine the distribution and relative abundance of pre-recruits of the main commercial species (cod, haddock, whiting, Norway pout, saithe, herring, sprat, and mackerel) with a view of deriving recruitment indices;
- To monitor changes in the stocks of commercial fish species independently of commercial fisheries data;
- To monitor the distribution and relative abundance of all fish species and selected invertebrates;
- To collect data for the determination of biological parameters for selected species;

- To collect hydrographical and environmental information;
- To determine the distribution of in particular herring and sprat larvae;

Technical details are described in the current version of the survey manual (ICES. 2020. Manual for the North Sea International Bottom Trawl Surveys. Series of ICES Survey Protocols SISP 10-IBTS 10, Revision 11. 102 pp. <http://doi.org/10.17895/ices.pub.7562> , and ICES. 2013. Manual for the Midwater Ring Net sampling during IBTS Q1. Series of ICES Survey Protocols SISP 2-MIK 2. 18 pp. <http://doi.org/10.17895/7578>).

The area to be covered by Denmark with RV Dana in the 1st quarter 2023 (Fig. 1) was allocated during the most recent IBTS Working Group meeting in April 2023. The survey area consisted of 45 ICES statistical rectangles located in the Skagerrak and the North Sea. In 43 of these rectangles, one GOV/CTD station and two MIK stations were planned whereas in two of the rectangles sampling intensity should have been doubled according to the international program.

Itinerary

R/V Dana departed from Hirtshals as scheduled on Friday 12th January at 11:00 local time and field work started in the western Skagerrak (Fig. 1) in the afternoon. Work was interrupted already on the following afternoon due to bad weather, and R/V Dana entered port in Hanstholm at 19:15 local time on Saturday 13th January. R/V Dana left Hanstholm on Monday 15th January at 9:30 and field sampling resumed in the Skagerrak and the northern part of the study area. Technical problems with the hydraulic system occurred in the following days causing that two fishing stations were missed on 18th January. R/V Dana left Danish waters on Friday 19th January and sailed towards the English coast during night to avoid a period of extremely of bad weather in the eastern and central North Sea. However, bad weather (Fig. 1 inlet) prevented field work in English waters for some time and first at the end of survey weather condition permits coverage of the southern and central part of the survey area. The survey finished on Tuesday 30th January at 8:30 local time with the arrival in the port of Esbjerg.

Unfavorable weather conditions prevailed during almost the entire survey (Fig. 2) so that the survey could not be covered as planned. Six rectangles were not fished at all. However, alternative tows were done in areas where it had been possible on positions which originally had been allocated for other countries. This was reported to the coordinator and since R/V Dana was the first vessels out this year it might have been possible that the other countries could have filled the holes left behind.

Achievements

All trawl hauls were carried out with a 36/47 polyethylene GOV (chalut á Grande Overture Verticale) with the standard groundgear A (see IBTS Manual for specifications), 60 m sweeps and Vonin flyers replacing the standard kite, representing the standard rigging used for the IBTS on DANA since 2019.

The following sampling activities were performed:

45 valid standard GOV hauls with a nominal duration of 30 min.

38 CTD profiles (with additional sensors for dissolved oxygen and turbidity). At 7 stations the CTD casts were dropped in favor to do more GOV tows. For those positions, temperature and salinity measurements from the continuous SBE thermosalinograph recordings at 4 m depth were taken to resemble oceanographic conditions at the fishing stations.

87 valid MIK (2 m diameter ring net) hauls, performed during nighttime, all with MIKey (20 cm diameter fine meshed ring net) net attached. Furthermore, 2 MIK tows for flowmeter calibration were carried out.

Results

Routine sampling

The trawl parameters for the standard tows (vertical net opening and door spread) as monitored with a Scanmar system were in the range or close to the suggested theoretical limits specified in the IBTS manual in almost all cases (Fig. 3a).

Marport sensors for wing spread worked reliable on most of the stations. The obtained data indicates a sufficiently close relationship door spread so that the few missing observations (n=3) for wing spread can be estimated by linear regression (Fig. 3b).

In total, about 90 different species of fish, cephalopods and crustaceans were found in catches, and the total weight of the catches amounted to 12.0 tons (Tab. 1). Total catch and species richness in the standard tows ranged from 6.4 to 1581.8 kg or 65 to 32500 fish per haul and from 12 to 39 different fish and IBTS mandatory invertebrate species (Fig. 4).

Length measurements were made for all commercial and non-commercial fish species. Sharks, skates and rays and selected shellfish species were measured separately by sex (length composition and weight). Single fish data (length, weight, sex and maturity) and otoliths were collected for the main commercial species (cod, haddock, whiting, Norway pout, saithe, herring, sprat, mackerel and plaice) as well as for dab, witch and lemon sole (Tab. 2). In addition, individual length and weight were recorded for all specimens for which stomachs or genetic samples were taken (see below).

Preliminary abundance indices for the recruits of main commercial species indicate that herring, sprat and whiting were widely distributed in the sampled area whereas age 1 cod and haddock, and in particular mackerel were rare (Tab. 3).

Stomach data were collected for plaice, hake, turbot, brill, halibut, pollack, ling and tub gurnard according to a request from the EU. The number of individuals (≥ 15 cm length) examined and the number of non-empty stomachs collected for later analysis are listed in table 4.

Marine litter was recorded in each GOV catch using four main categories: plastic, glass, metals and miscellaneous, which were subdivided into several minor categories to meet

the request by the ICES Working Group for Marine Litter. The total amount of marine litter sorted from the catches retained in the codend was 9.4 kg for the 45 valid tows.

Temperature, salinity and dissolved oxygen content at surface and bottom were extracted from the CTD profiles for storage in the institute's fish database. The temperature and salinity values will be submitted to the ICES DATRAS database together with the GOV catch results and measurements of surface and bottom currents (speed and direction) at the trawl stations to DATRAS, and the complete CTD profiles will be submitted to the ICES hydrographical data center.

The water column was well mixed as typical for this time of the year (Fig. 5), and it appears therefore reasonable to assume that the surface values from the thermosalinograph also reflects the bottom conditions for those fishing stations at which no entire CTD profile is available. In summary, surface and bottom temperatures ranged from 4.6 to 8.0 °C and from 4.6 to 8.1 °C, respectively, with the highest values for both in the west and the lowest values in the east (Fig. 5). Turbidity was uniform for most of this transect except for high values at the bottom in Danish coastal waters (Fig. 5).

Herring larvae were found both in the western and the southeastern part of the survey area whereas sardine larvae occurred predominantly in the east (Fig. 6). In addition, several fish and cephalopod species were identified in the samples (Tab. 5). Further results of the MIK and MIKey plankton sampling for herring larvae, fish eggs and jellyfish conducted during night will be reported later elsewhere, e.g. to ICES WGSINS.

Special requests

Infestation with gill parasites was recorded for haddock, whiting and cod from all individuals for which single fish data were taken.

Genetic samples of cod were taken (n=122) for a national project along with the recording of single fish data (length, weight, sex and maturity).

Special observations

- Wide distribution and relatively high number of large squids (*Loligo forbesi* and *L. vulgaris*)
- Wide distribution of adult haddock at large size especially in the northeastern part of the survey area
- Large size of Norway king crab (*Lithodes maja*)
- Occurrence of some small (7 – 10 cm) age 1 cod and whiting which presumably have been spawned in late summer 2023.

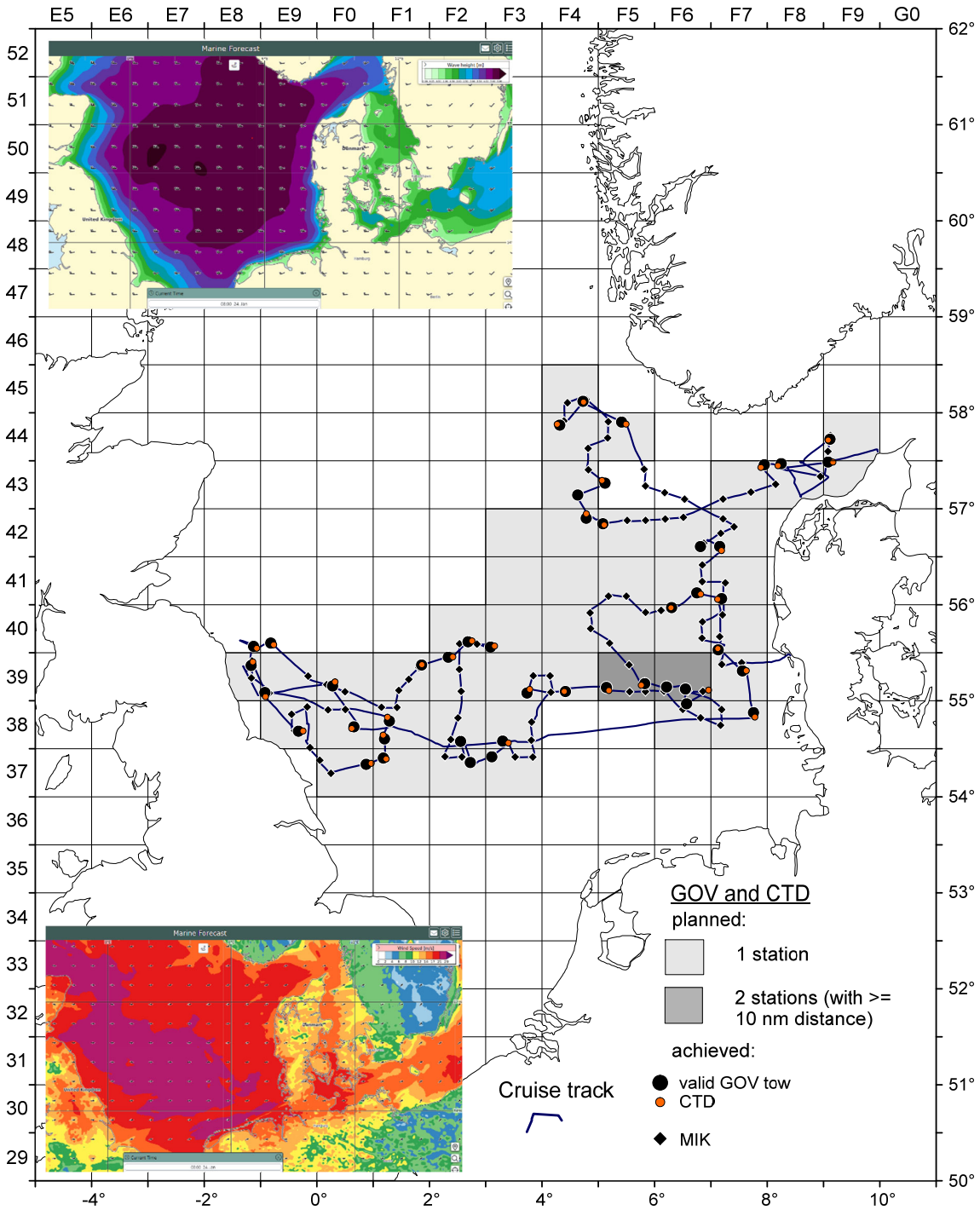


Fig. 1: Survey map with cruise track and sampling locations, RV Dana DK IBTS 1Q 2024 (Note: no CTD in 42F6 due to problems with hydraulic systems; see text for explanation for other missing CTD casts).

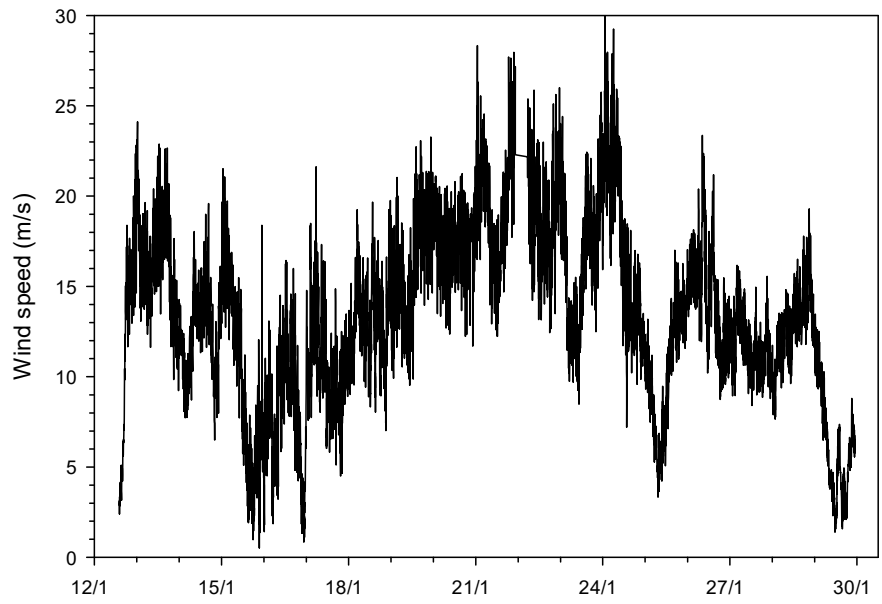
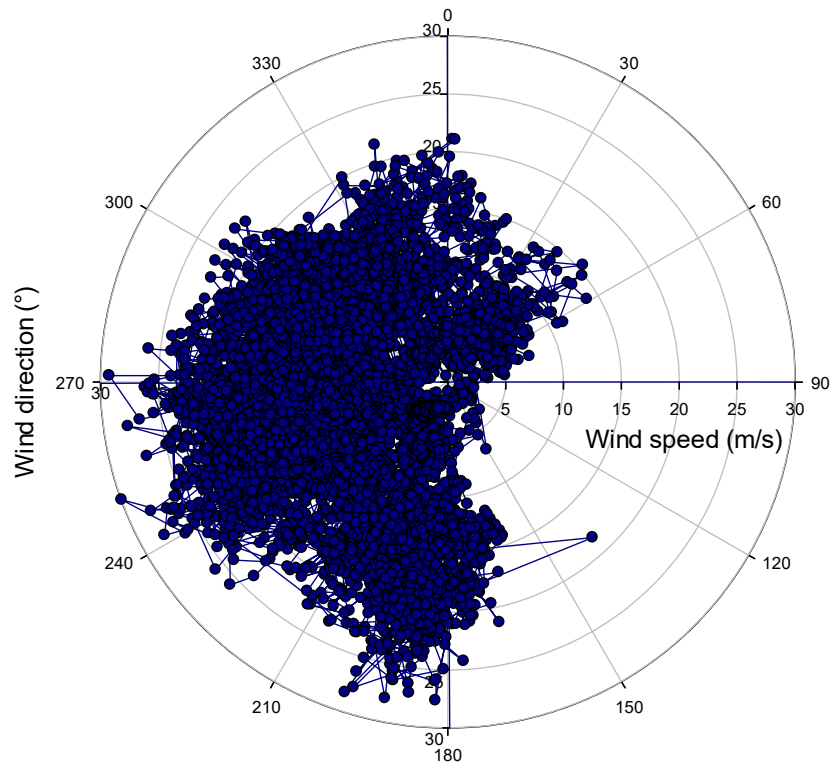


Fig. 2. Wind speed (m/s) and wind direction (°) recorded along the cruise track, RV Dana DK IBTS 1Q 2024.

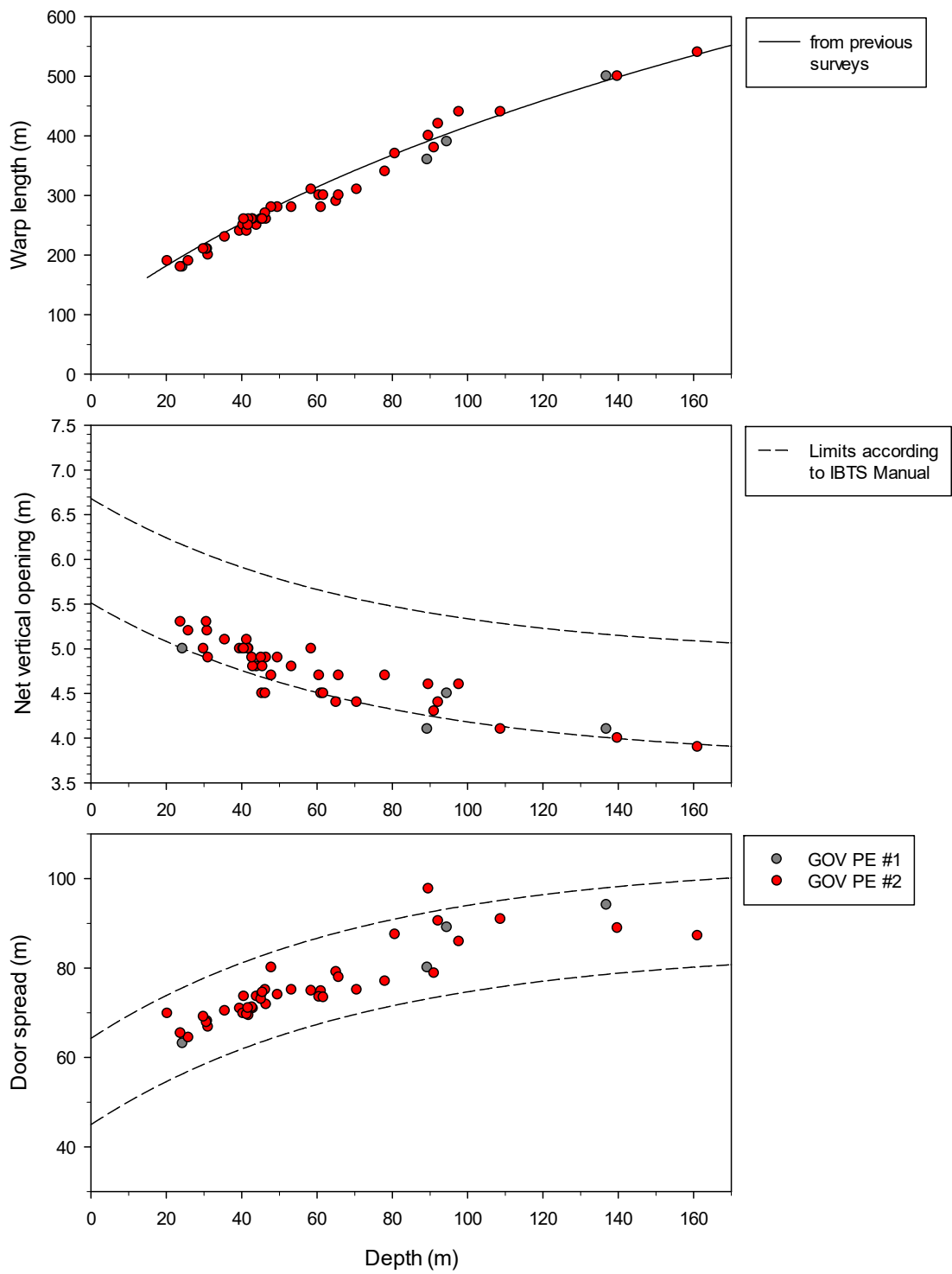


Fig. 3a: Warp length, net opening and door spread in relation to depth, RV Dana DK IBTS 1Q 2024.

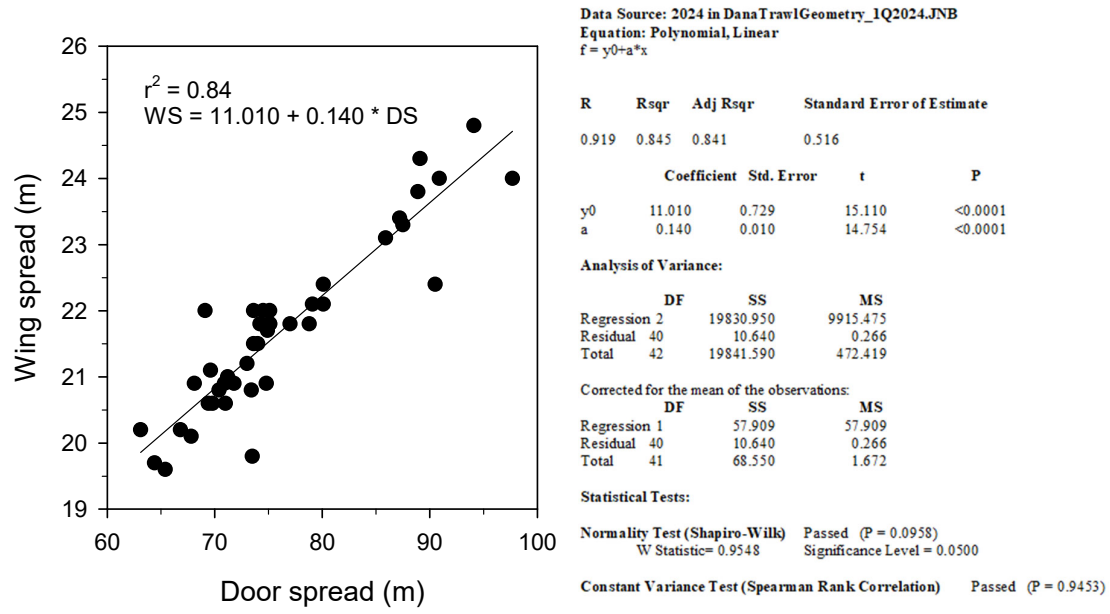


Fig. 3b: Relationship between door and wing spread, RV Dana DK IBTS 1Q 2024.

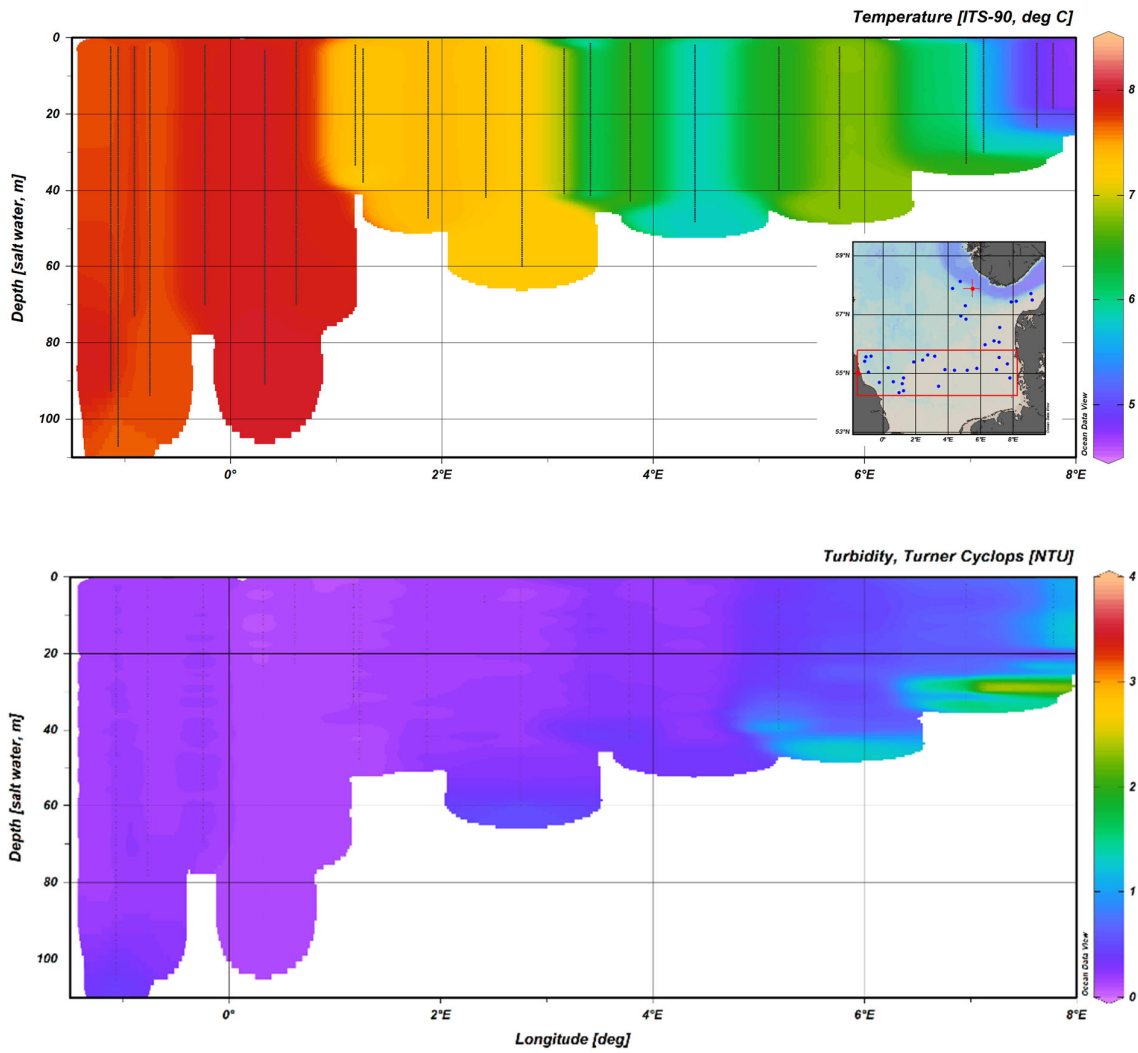


Fig. 5: Temperature and turbidity transect at about 55 °N, Dana DK IBTS 1Q 2024.

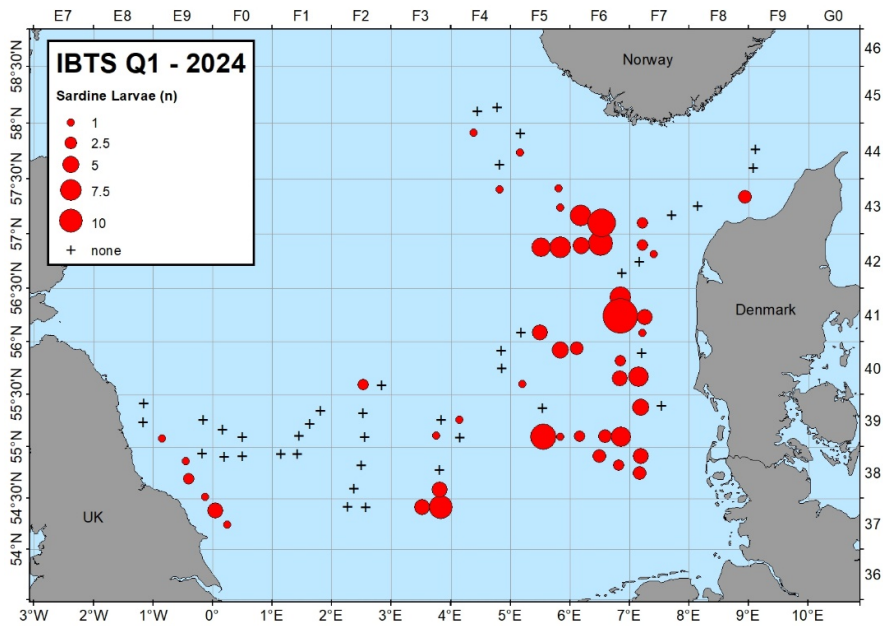
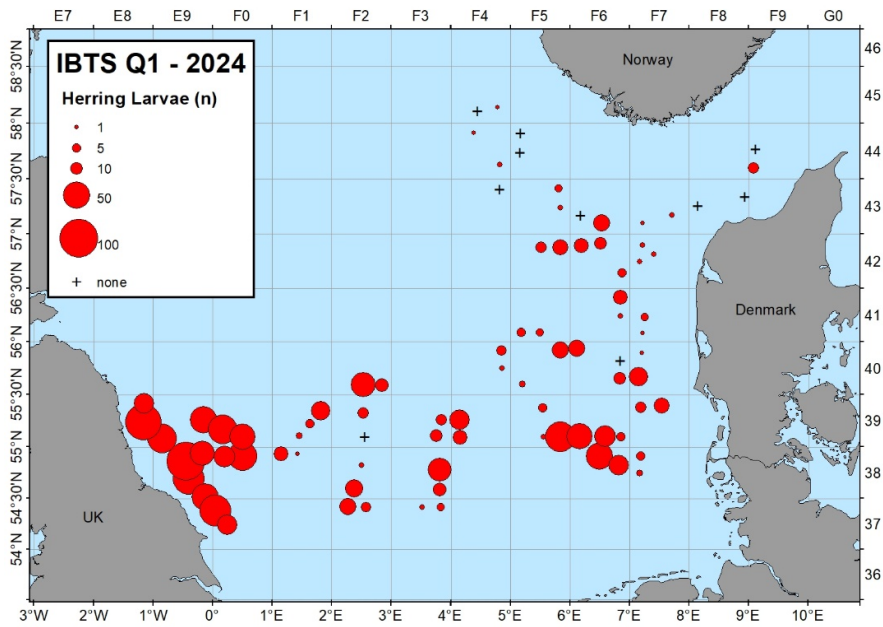


Fig. 6: Distribution of herring and sardine larvae, Dana DK IBTS 1Q 2024.

Tab. 1: Species list, Dana DK IBTS 1Q 2024 (L: total length in cm below (fish); ML: mantle length (cephalopods); CPL or CPW: carapace length or width (crustaceans)).

Latin name	English name	Danish name	Weight (kg)	Number	L _{min} (cm)	L _{max} (cm)	Remark
Aequipecten opercularis	Queen scallop	Jomfruesters	1.121	25	-	-	
Agonus cataphractus	Pogge	Panser ulk	0.639	40	5.0	15.0	
Alloteuthis subulata	European common squid	Dværgeblæksprutte	36.937	12528	2.0	9.0	ML
Alosa fallax	Twaite shad	Stavsild	0.406	1	36.0	36.0	
Amblyraja radiata	Starry ray	Tærbe	35.287	132	8.0	52.0	
Ammodytes marinus	Lesser sandeel	Havtobis	0.279	108	7.0	15.0	
Anarhichas lupus	Catfish	Stribet havkat	0.176	1	-	-	
Aphia minuta	Transparent goby	Glaskutling	0.012	26	3.0	5.0	
Argentina silus	Great silver smelt	Guldlaks	9.311	248	7.0	25.0	
Arnoglossus laterna	Scaldfish	Tungevarre	0.938	99	7.0	14.0	
Atherina presbyter	Sand-smelt	Almindelig sribefisk	0.005	2	7.0	7.0	
Buglossidium luteum	Solenette	Glastunge	4.433	518	6.0	12.0	
Callionymus lyra	Common dragonet	Stribet fløjfisk	1.217	39	6.0	23.0	
Callionymus reticulatus	Reticulated dragonet	Kortfinnet fløjfisk	0.094	19	3.0	13.0	
Cancer pagurus	Edible crab	Taskekrabbe	28.929	69	6.9	20.0	CPW
Capros aper	Boarfish	Havgalt	0.139	6	10.0	12.0	
Chelidonichthys cuculus	Red gurnard	Tværstribet knurhane	0.234	2	17.0	27.0	
Chelidonichthys lucerna	Tub gurnard	Rød knurhane	1.677	8	24.0	33.0	
Clupea harengus	Herring	Sild	248.483	7008	7.0	31.0	
Cyclopterus lumpus	Lumpfish	Stenbider	0.168	1	14.0	14.0	
Echichthys vipera	Lesser weever	Fjæsing lille	0.895	33	10.0	15.0	
Eledone cirrhosa	Horned octopus	Eledone Blæksprutte	0.209	4	-	-	
Enchelyopus cimbrius	Four-bearded rockling	Firetrådet havkvalbe	3.676	74	12.0	30.0	
Engraulis encrasicolus	Anchovy	Ansjos	0.226	33	7.0	15.0	
Entelurus aequoreus	Snake pipefish	Snippe	0.011	1	42.0	42.0	
Etmopterus spinax	Velvet belly lanternshark	Sorthaj	0.200	1	40.0	40.0	
Eutrigla gurnardus	Grey gurnard	Grå knurhane	150.053	2480	5.0	38.0	
Gadiallus argenteus	Silvery pout	Sølvtorsk	0.113	23	6.0	14.0	
Gadus morhua	Cod	Torsk	212.510	156	10.0	98.0	
Gasterosteus aculeatus	Three-spined stickleback	Trepigget hundestejle	0.007	3	6.0	6.0	
Glyptocephalus cynoglossus	Witch	Skaerising	8.474	40	17.0	43.0	
Helicolenus dactylopterus	Blue-mouth redfish	Blåkaft	0.314	4	15.0	20.0	
Hippoglossoides platessoides	American plaice	Håising	51.333	1718	4.0	27.0	
Homarus gammarus	European lobster	Hummer	7.131	4	10.1	16.6	CPL
Hyperoplus lanceolatus	Greater sandeel	Plettet tobiskonge	0.075	6	16.5	19.5	
Illex coindeti	Southern shortfin squid	Rød blæksprutte	0.816	32	6.0	12.0	ML
Lepidorhombus whiffiagonis	Megrim	Glashvarre	0.396	1	37.0	37.0	
Leucoraja naevus	Cuckoo ray	Pletrokke	1.325	2	41.0	49.0	
Limanda limanda	Common dab	Ising	783.538	15878	4.0	31.0	
Liparis liparis	Sea snail	Finnebræmmet	0.199	3	13.0	14.0	
Liparis montagui	Montague's seasnail	Særfinnet ringbug	0.010	1	8.0	8.0	
Lithodes maja	Norway king crab	Troldkrabbe	15.005	45	2.4	12.0	CPL
Loligo forbesii	Northern squid	Loligoblæksprutte	26.070	110	5.0	41.0	ML
Loligo vulgaris	European squid	Europæisk loligo	19.152	57	12.0	46.0	ML
Lophius budegassa	Black-bellied Angler fish	Sort Havtaske	0.310	1	27.0	27.0	
Lophius piscatorius	Angler fish	Havtaske	59.595	23	18.0	83.0	
Lumpenus lampretaeformis	Snake blenny	Spidshalet langebarn	0.011	1	29.0	29.0	
Maurolicus muelleri	Pearlside	Laksesild	0.018	10	4.0	6.0	
Melanogrammus aeglefinus	Haddock	Kuller	6382.557	31254	12.0	60.0	
Merlangius merlangus	Whiting	Hvilling	2936.244	24677	7.0	48.0	
Merluccius merluccius	Hake	Kulmule	2.200	36	8.0	34.0	
Microchirus variegatus	Thickback sole	Båndet tunge	0.056	2	12.0	15.0	
Micromesistius poutassou	Blue whiting	Blåhvilling	275.687	4409	16.0	37.0	
Microstomus kitt	Lemon sole	Rødtunge	20.791	277	12.0	32.0	
Molva molva	Ling	Lange	14.783	7	52.0	89.0	
Mullus surmuletus	Striped red mullet	Stribet rød Mulle	2.895	36	12.0	27.0	
Mustelus asterias	Starry smooth-hound	Stjernehaj	11.944	27	37.0	64.0	
Myoxocephalus scorpius	Sculpin	Almindelig ulk	3.511	30	9.0	27.0	
Myxine glutinosa	Hagfish	Slimål	0.189	6	13.0	31.0	
Nephtys norvegicus	Norway lobster	Jomfruhummer	24.605	552	2.1	6.1	CPL
Pecten maximus	Great scallop	Stor kammusling	14.075	45	-	-	
Petromyzon marinus	Sea lamprey	Havlampret	0.009	1	16.0	16.0	
Phrynorhombus norvegicus	Norwegian topknot	Småhvarre	0.018	4	6.0	7.0	
Phycis blennioides	Greater forkbeard	Skælbrosme	0.610	1	40.0	40.0	
Platichthys flesus	Flounder	Skrubbe	0.926	4	24.0	30.0	
Pleuronectes platessa	Plaice	Rødspætte	187.811	1985	6.0	47.0	
Pollachius pollachius	Pollack	Lysesj	10.892	4	55.0	77.0	
Pollachius virens	Saithe	Sej	122.080	130	29.0	108.0	
Pomatoschistus spp.	Sand gobies	*Sandkutlinger	0.401	615	3.0	8.0	
Raja brachyura	Blonde ray	Småpletlet rokke	2.208	1	63.0	63.0	
Raja clavata	Thornback ray	Sømrokke	16.697	7	40.0	85.0	
Raja montagui	Spotted Ray	Storpletlet Rokke	10.018	19	29.0	62.0	
Rossia macrosoma	Stout bobtail squid	Ross's blæksprutte	0.429	106	-	-	
Sardina pilchardus	Pilchard	Sardin	0.057	10	8.0	11.0	
Scomber scombrus	Mackerel	Makrel	0.372	2	22.0	33.0	
Scophthalmus maximus	Turbot	Pighvarre	3.709	4	29.0	44.0	
Scophthalmus rhombus	Brill	Slethvarre	4.261	8	28.0	42.0	
Scyllorhinus canicula	Lesser-spotted dogfish	Småpletlet rødhaj	12.928	29	13.0	64.0	
Sepia officinalis	Common cuttlefish	Sepiablæksprutte	0.281	3	6.0	11.0	ML
Sepiella atlantica	Atlantic bobtail squid	Sepiola atlantica	0.025	13	-	-	
Solea solea	Sole	Tunge	3.163	11	20.0	40.0	
Sprattus sprattus	Sprat	Brisling	139.014	56182	5.0	14.5	
Syngnathus acus	Great pipefish	Stor tangnål	0.027	3	21.0	31.0	
Syngnathus rostellatus	Lesser pipefish	Lille tangnål	0.002	3	11.0	12.0	
Syngnathus typhle	Broad-nosed pipefish	Almindelig tangnål	0.009	2	19.0	23.0	
Todaropsis eblanae	Lesser flying squid	Todaropsis eblanae	0.843	16	4.0	12.0	ML
Trachinus draco	Greater weever fish	Fjæsing	1.030	5	26.0	36.0	
Trachurus trachurus	Horse mackerel	Hestemakrel	3.684	32	10.0	38.0	
Trisopterus esmarkii	Norway pout	Sperling	103.409	5772	8.0	21.0	

Tab. 2: Number of single fish data (length, individual weight, sex and maturity, infestation with gill parasites for cod, haddock and whiting) and samples for ageing, Dana DK IBTS 1Q 2024.

Species	Total
Herring (<i>Clupea harengus</i>)	551
Sprat (<i>Sprattus sprattus</i>)	179
Cod (<i>Gadus morhua</i>)	122
Haddock (<i>Melanogrammus aeglefinus</i>)	764
Whiting (<i>Merlangius merlangus</i>)	578
Saithe (<i>Pollachius virens</i>)	67
Norway pout (<i>Trisopterus ermarkii</i>)	124
Mackerel (<i>Scomber scombrus</i>)	1
Plaice (<i>Pleuronectes platessa</i>)	357
Turbot (<i>Scophthalmus maximus</i>)	4
Brill (<i>Scophthalmus rhombus</i>)	8
Dab (<i>Limanda limanda</i>)	51
Witch (<i>Glyptocephalus cynoglossus</i>)	35
Lemon sole (<i>Microstomus kitt</i>)	45
Sum:	2886

Tab. 3: Preliminary recruitment indices (age 1 based on length split, number per hour trawling) for commercial IBTS species per tow, Dana DK IBTS 1Q 2024.

Station	Rectangle	Herring < 20 cm	Cod < 25 cm	Haddock < 20 cm	Whiting < 20 cm	Norway pout < 15 cm	Sprat < 10 cm	Mackerel < 25 cm
1	43F9	118			18	6	6491	
10	44F9	10	10		57	686		
11	43F8	6				20		
13	43F7	47	2			48		
24	42F5	10			10	26		
25	42F4				2		2	
27	43F4				2			
28	43F5	6				24		
38	44F4		6	32		407		
40	45F4		4	16		1656		2
41	44F5	4	4	5	15	5422		
51	42F6	129	2		22		96	
52	42F7	285			12		223	
63	40F7	2819					61295	
64	39F7	3762	2		4		15788	
66	38F7	414			8		13067	
69	38F0	4			65	104		
70	39F0	2			35	12		
72	39E8					34	2	
74	39E9					28		
76	38E9					6		
84	37F0			10	12	2		
86	37F1	6	2	4	4			
88	38F1						2	
90	38F1	6			4		17	
97	40E8					12		
99	40E9			50		34		
110	39F1				5			
111	39F2	40						
113	40F2	2			9			
115	40F3				4	4		
125	38F2	6					26	
126	37F2	8			16		102	
127	37F3	20			2		944	
128	38F3	10					80	
138	39F3	6			8		26	
141	39F4	20		240	5425		2	
142	39F5	128		2	30		768	
154	38F6	404			600		708	
155	39F6	241			22		355	
156	39F6	116		28	2192		124	
157	39F5	174			109		1531	
168	40F6	139		4	88		4453	
169	41F6	131			25		3487	
171	41F7	175			24		1164	

Tab. 4: Number of stomach data collected by species (V: everted, R: regurgitated, F: feeding, E: empty, -: not caught; note: only category F stomachs were collected for later analysis), Dana DK IBTS 1Q 2024.

Species	Number of stomachs per category				total
	V	R	F	E	
Plaice	0	0	172	182	354
Hake	11	0	3	0	14
Turbot	0	0	3	1	4
Brill	0	0	6	2	8
Halibut	-	-	-	-	-
Pollack	1	1	2	0	4
Tusk	-	-	-	-	-
Ling	3	1	1	2	7
Tub gurnard	0	0	3	5	8
sum:			190		399

Tab. 5: Occurrence of fish and cephalopod species in the MIK catches, Dana DK IBTS 1Q 2024.

Species english	Species Scientific	Species Danish	Life stage
Butterfish	<i>Pholis gunnellus</i>	Tangspræl	adults
Common dragonet	<i>Callionymus lyra</i>	Stribet fløjfisk	juveniles
Crystal goby	<i>Crystallogobius linearis</i>	Krystalkutling	larvae, juveniles & adults
Dab	<i>Limanda limanda</i>	Ising	adults
European anchovy	<i>Engraulis encrasicolus</i>	Ansjos	adults
European eel	<i>Anguilla anguilla</i>	Europæisk ål	glass eels
Goby spec.	<i>Gobiidae</i>	Kutling	larvae, juveniles & adults
Greater silver smelt	<i>Argentina</i>	Guldlaks	larvae
Herring	<i>Clupea harengus</i>	Sild	larvae
Lemon sole	<i>Microstomus kitt</i>	Rødtunge	larvae
Long rough dab	<i>Hippoglossoides platessoides</i>	Håising	juveniles
Norwegian topknot	<i>Phrynorhombus norvegicus</i>	Småhvarre	juveniles & adults
Pearlside	<i>Maurollicus muelleri</i>	Laksesild	adults
Pipefish spec.	<i>Syngnathidae</i>	Tangnål	juveniles & adults
Plaice	<i>Pleuronectes platessa</i>	Rødspætte	larvae & adults
Sandeel spec.	<i>Ammodytidae</i>	Tobis	larvae, juveniles & adults
Sardine	<i>Sardina pilchardus</i>	Sardin	larvae
Sea snail	<i>Liparis liparis</i>	Finnebræmmet ringbug	juveniles
Solenette	<i>Buglossidium luteum</i>	Glastunge	juveniles & adults
Sprat	<i>Sprattus sprattus</i>	Brisling	juveniles & adults
(Striped) Red mullet	<i>Mullus surmuletus / barbatus</i>	Stibet / Rød mulle	larvae
Three-spined stickleback	<i>Gasterosteus aculeatus</i>	Trepigget hundestejle	adults
Transparent goby	<i>Aphia minuta</i>	Glaskutling	adults
Bobtail squid spec.	<i>Sepiolidae</i>		juveniles & adults
Squid spec.	<i>Loliginidae/Ommastrephidae</i>	Blæksprutter	juveniles