DTU Aqua

Cruise Report

R/V Dana

Cruise 05/2024

”DK IBTS 3Q 2024”

Vessel: R/V DANA

Cruise dates (planned): 22/8 –9/9 2024

Cruise number: 05/24

Cruise name: DK IBTS 3Q 2024

Port of departure:	Hirtshals	**Date:**	22 August
Port of return:	Esbjerg*	**Date:**	9 September
Other ports:	Esbjerg	**Date and justification:**	30 August: Scheduled exchange of scientific staff and crew

Participants

Leg 1: Hirtshals – Esbjerg		
Name	**Institute**	**Function and main tasks**
Helle Rasmussen	DTU Aqua, Monitoring	Cruise leader, Technician, Fish lab
Stina Hansen	DTU Aqua, Monitoring	Technician, Fish lab
Rasmus Jensen	DTU Aqua, Monitoring	Technician, Fish lab
Rene Erlandsen	DTU Aqua, Monitoring	Technician, Fish lab
Viktor Kjeldsen	DTU Aqua, Monitoring	Technician, Fish lab
Ronny Sørensen	DTU Aqua, Monitoring	Technician, CTD, Maintenance
Bastian Huwer	DTU Aqua, Marine Living Resources	Scientist, Fish larvae and eggs
Esin Yüksel Durmaz	DTU Aqua, Centre for Ocean Life	Scientist, Jellyfish
Eylül Metin	DTU Aqua, Centre for Ocean Life	Scientist, Jellyfish
Samir Hobloss	DTU Food	Scientist, Vitamin D in plankton and fish

Leg 2: Esbjerg – Esbjerg*		
Name	**Institute**	**Function and main tasks**
Kai Wieland	DTU Aqua, Monitoring	Cruise leader, Scientist, Fish lab
Maria Jarnum	DTU Aqua, Monitoring	Technician, Fish lab
Tom Svoldgaard	DTU Aqua, Monitoring	Technician, Fish lab
Per Christensen	DTU Aqua, Monitoring	Technician, Fish lab
Kim Pedersen	DTU Aqua, Monitoring	Technician, Fish lab
Alexandra Poell	Thuenen Institute Bremerhaven	Technician, Fish lab
Annabelle Andersen	DTU Aqua, Marine Living Resources	Scientist, Trainee
Ronny Sørensen	DTU Aqua, Monitoring	Technician, CTD, Maintenance
Bastian Huwer	DTU Aqua, Marine Living Resources	Scientist, Fish larvae and eggs
Esin Yüksel Durmaz	DTU Aqua, Centre for Ocean Life	Scientist, Jellyfish
Eylül Metin	DTU Aqua, Centre for Ocean Life	Scientist, Jellyfish

*: the survey was extended by a third leg (9/9 – 15/9, Esbjerg – Hirtshals, DE IBTS 3Q 2024, charter by Thuenen Institute) to cover the remaining stations left due to the breakdown of the German research vessel RV Walter Herwig. The results of that leg will be presented in a different report.

Objectives

The survey is part of the 3rd quarter International Bottom Trawl Survey (IBTS) in the North Sea, which is coordinated by the ICES International Bottom Trawl Survey Working Group and has been conducted with standard fishing gear in the 3rd quarter since 1991.

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 3rd 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, mackerel and plaice) 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 captured fish species and selected invertebrates;
- To collect data for the determination of biological parameters for selected species;
- To collect hydrographical and environmental information.
- To collect information of the amount and distribution of marine litter

Additional midwater sampling with a MIK net for fish larvae and jellyfish was conducted during night for a national Danish project.

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 3rd quarter 2024 was allocated initially during the IBTS Working Group meeting in April 2024.

The working area for the GOV/CTD sampling of Denmark consisted originally of 46 ICES statistical rectangles located in the Skagerrak and the North Sea and in 6 of these rectangles two stations were planned. However, due to the initial unavailability of German participation, a re-allocation of survey areas between Norway, England and Scotland was agreed just prior to the Danish survey, and further re-allocation of sampling positions was done during the survey after the extension of the survey with RV Dana with German funding and additional staff for the fish lab was confirmed.

Itinerary

R/V Dana left Hirtshals on Thursday 22nd August at 09:00 local time as scheduled, and the field work started in the western Skagerrak (Fig. 1) on the same day. R/V Dana stayed in the port of Esbjerg on Friday 30th August from 09:00 to 12:45 for a scheduled exchange of scientific staff and crew and fieldwork resumed on the same day in the afternoon. R/V Dana returned to Esbjerg on Monday 9th September at 09:00 local time.

Strong south-westerly winds dominated during the beginning of the survey whereas favourable weather conditions prevailed during almost the entire 2nd part of the survey (Fig. 2). While south-westerly wind winds above 15 m/s on occurred frequently during the 1st leg wind direction changed to north-east during the main part of the 2nd leg with wind speeds below 10 m/s most of the time.

Achievements

All standard 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 activities were achieved:

55 valid standard GOV hauls and 3 invalid GOV hauls on standard positions. 2 of the invalid tows were repeated on near-by tracks whereas no alternative track in sufficient short distance has been available for the invalid tow in rectangle 31F2. The nominal tow duration was 30 min in most of the cases. However, at three stations tow duration was between 16 and 25 min due to missing space between cables and pipelines or unsuitable bottom conditions at the beginning and end of the track.

56 CTD profiles (with additional sensors for e.g., dissolved oxygen and turbidity) at GOV stations.

6 experimental tows with the so-called JTS610 trawl which is the supposed new standard survey gear for the IBTS.

63 valid MIK/MIKey nighttime hauls and 4 MIK stations for flowmeter calibration

Results

Routine sampling

GOV 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 limits specified in the IBTS manual in most cases (Fig. 3a). The remaining deviations for mainly net opening from the theoretical values based on flume tank experiments can likely be attributed to the high sensibility of the GOV to current effects and bottom type. Marport sensors for wing spread worked properly on most of stations, and the remaining six missing values for the standard tows can easily be estimated from the linear regression with door spread (Fig. 3b).

JTS610 headline height and door spread were within the range of the theoretical GOV values. The results will be reported in detail to the IBTSWG meeting in April 2025.

In total, 81 different species of fish, cephalopods and crustaceans were found in catches (Tab. 1) and the total weight of the catches was 47.4 tons (includes the JTS610 catches). Here, haddock and whiting were the most dominant species in weight whereas herring and sprat were most prominent in numbers.

Total catch in weight and in number and species richness at the trawl stations ranged from 63 kg (rectangle 34F3) to 3785 kg (rectangle 39F4) and from 441 individuals (rectangle 35F1 west) to 100279 individuals (rectangle 33F4) and from 12 to 28 different IBTS mandatory fish and invertebrate species per haul. No clear spatial pattern was visible for species richness whereas relative low biomass and high abundance was predominantly found in the eastern and southern of survey area (Fig. 4). The latter is also reflected in the distribution of mean fish length by tow ranging from 7 cm (rectangle 39F7, catch dominated by small horse mackerel and sardine) to 68 cm (rectangle 35F1 west, catch dominated by large sharks (Tope)) (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) and otoliths were collected for the main commercial species (cod, haddock, whiting, Norway pout, saithe, herring, sprat, mackerel and plaice (Tab. 2).

Stomach data were collected for plaice, hake, turbot, brill, ling and tub gurnard according to a request from the EU. The number of individuals (≥ 15 cm length) examined and the numbers of non-empty stomach collected for later analysis are listed in table 3.

Preliminary abundance indices of main commercial species indicate that whiting (all age groups), herring (age 0), sprat (age 1) but also mackerel (age 1 and 2+) and plaice (age 1 and 2+) were widely distributed in the survey area. Haddock (age 1 and 2+) was common in the northern part of survey area whereas Norway pout and cod were extremely rare (Tab. 4; Note: saithe is usually not found at all in the area covered by Denmark in Q3).

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 5.10 kg of which 4.65 kg was plastic.

Temperature, salinity and dissolved oxygen content at surface and bottom were extracted from the CTD profiles for storage in the institute's fish data base. 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 centre. The surface and bottom temperatures ranged from 14.4 to 19.9 and from 7.6 to 19.9 °C, respectively, with a presence of a pronounced thermocline at the deeper station in the north-western part of the survey area.

Sea surface temperature measure continuously along the cruise track indicate further that lowest the water was coolest in the west and warmest in the southeast and in the German Bight (Fig. 5).

Special observations

Bryozoans were complete absent in contrast to the last three years with mass occurrence of these invertebrates in the south-eastern part of the survey area.

Catches of 0-group sardine in the German Bight and the occurrence of 0-group (4 – 6 cm) striped-red mullet in the southern part of the survey area was observed again, and small horse mackerel was much more abundant than in previous years.

The total catch of tope (Tab. 1) ranging from 122 to 162 cm in length and 7.8 to 20.4 kg in individual weight was the highest seen in the time series.

Miscellaneous

Results of the plankton sampling for sprat and other fish larvae as well as observations on the occurrence of jellyfish in the plankton samples conducted during night will be reported elsewhere at a later time. The same applies for the sampling of zooplankton and fish (129 MIKey zooplankton samples and 83 fish samples with 249 individuals from both cruise legs) on Vitamin D production in the sea (DFF1-project).

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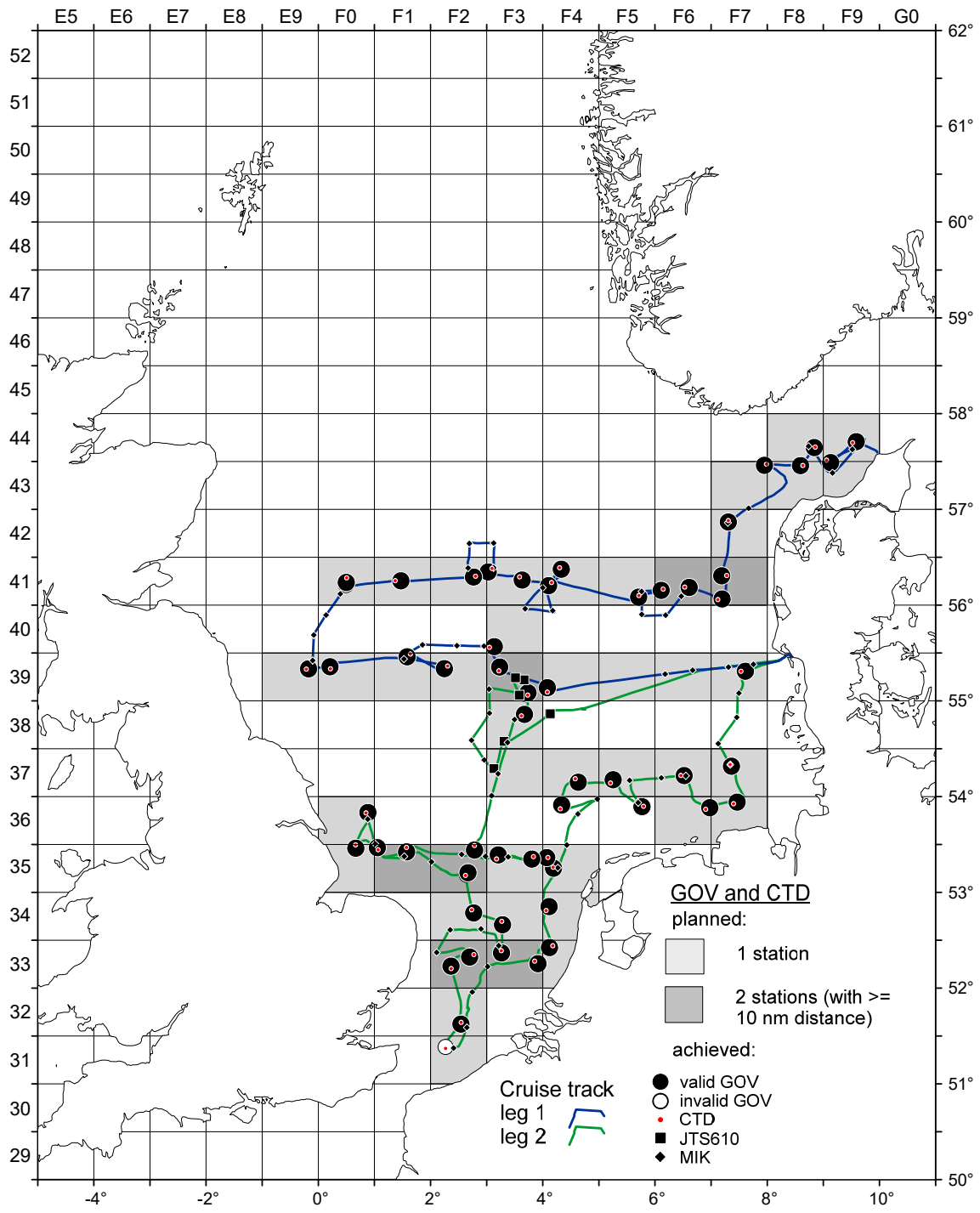


Fig. 1: Survey map with cruise track and sampling locations (Note: survey area as agreed just prior to the cruise; further re-allocation during the survey, i.e. double coverage in 41F3 and 41F4 instead of GOV/CTD stations in 39F5 and 39F6), RV Dana DK IBTS 3Q 2024.

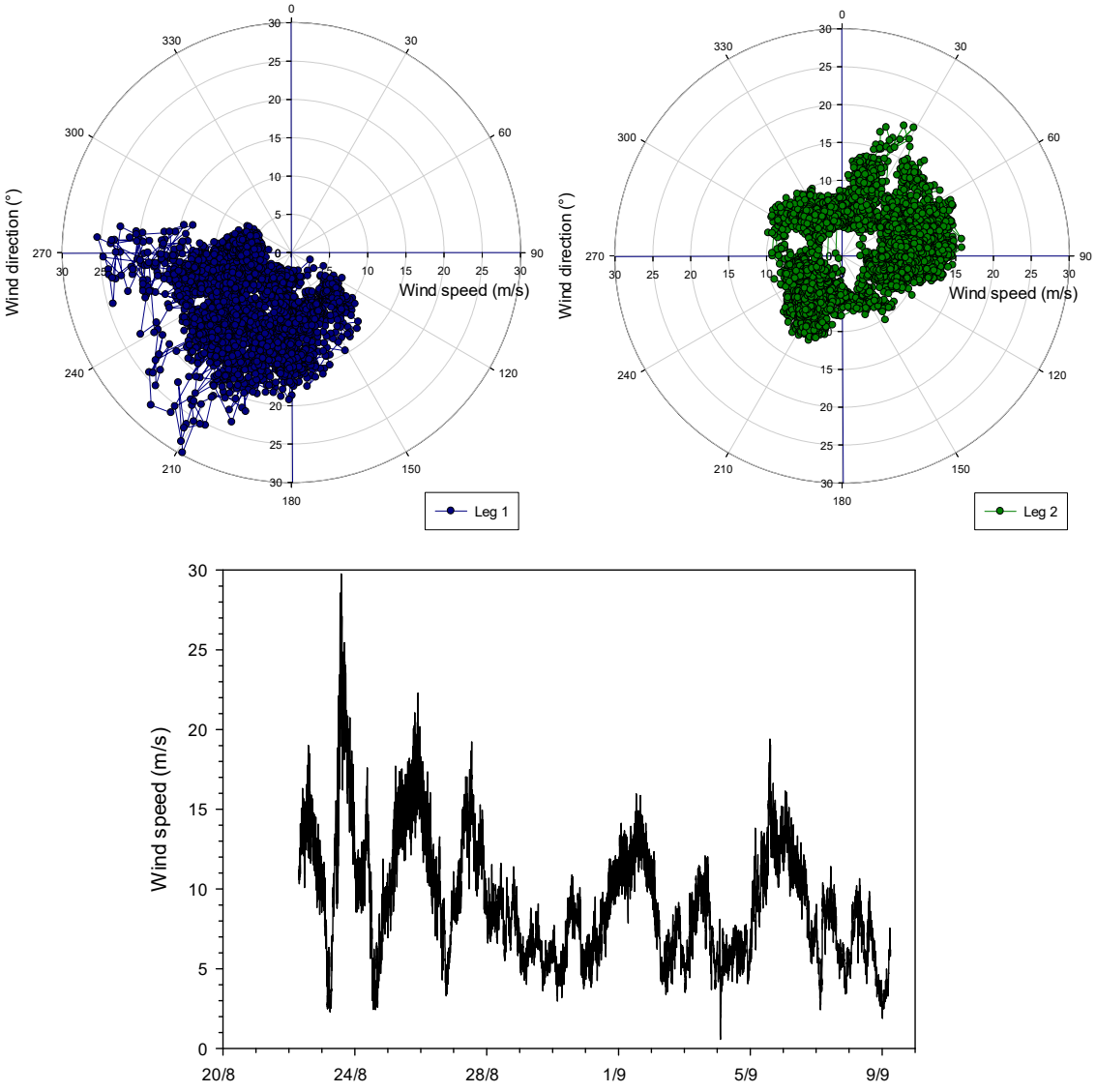


Fig. 2. Wind speed (m/s) and wind direction (°) recorded along the cruise track, RV Dana DK IBTS 3Q 2024.

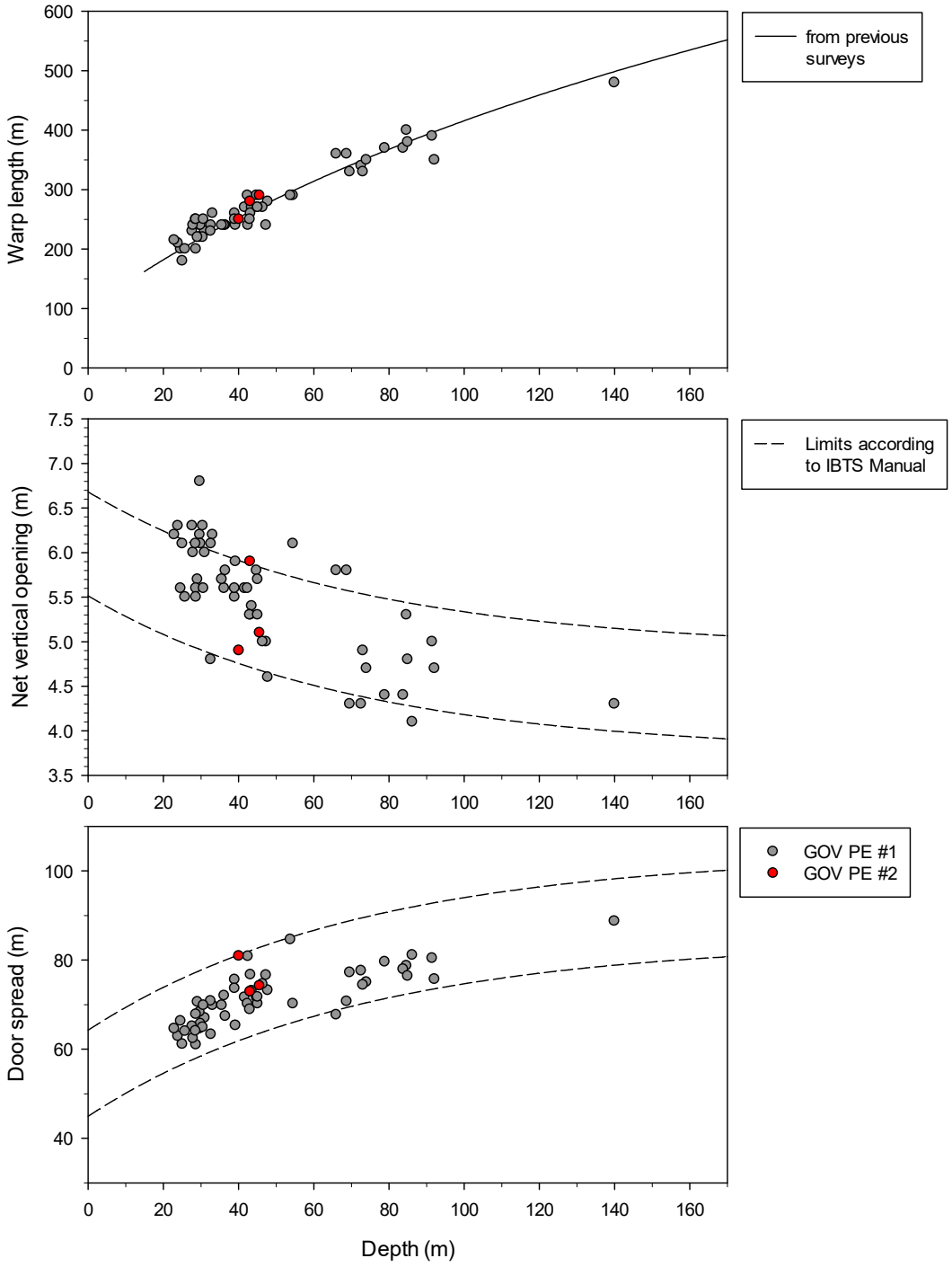
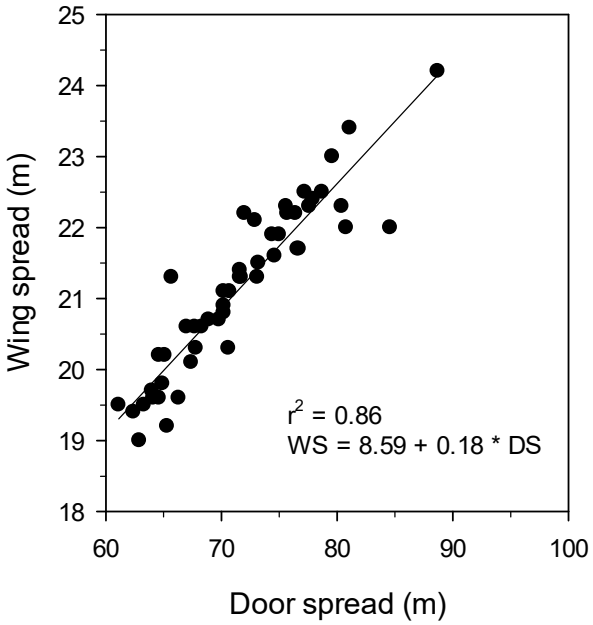


Fig. 3a: Warp length, net opening and door spread in relation to depth, RV Dana DK IBTS 3Q 2024.



R	Rsqr	Adj Rsqr	Standard Error of Estimate
0.9257	0.8570	0.8540	0.4526

	Coefficient	Std. Error	t	P
y0	8.5939	0.7433	11.5617	<0.0001
a	0.1754	0.0103	16.9580	<0.0001

Analysis of Variance:

	DF	SS	MS
Regression	2	22429.2668	11214.6334
Residual	48	9.8332	0.2049
Total	50	22439.1000	448.7820

Corrected for the mean of the observations:

	DF	SS	MS
Regression	1	58.9116	58.9116
Residual	48	9.8332	0.2049
Total	49	68.7448	1.4030

Statistical Tests:

Normality Test (Shapiro-Wilk) Passed (P = 0.0813)
W Statistic= 0.9591 Significance Level = 0.0500

Constant Variance Test (Spearman Rank Correlation) Passed (P = 0.5827)

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

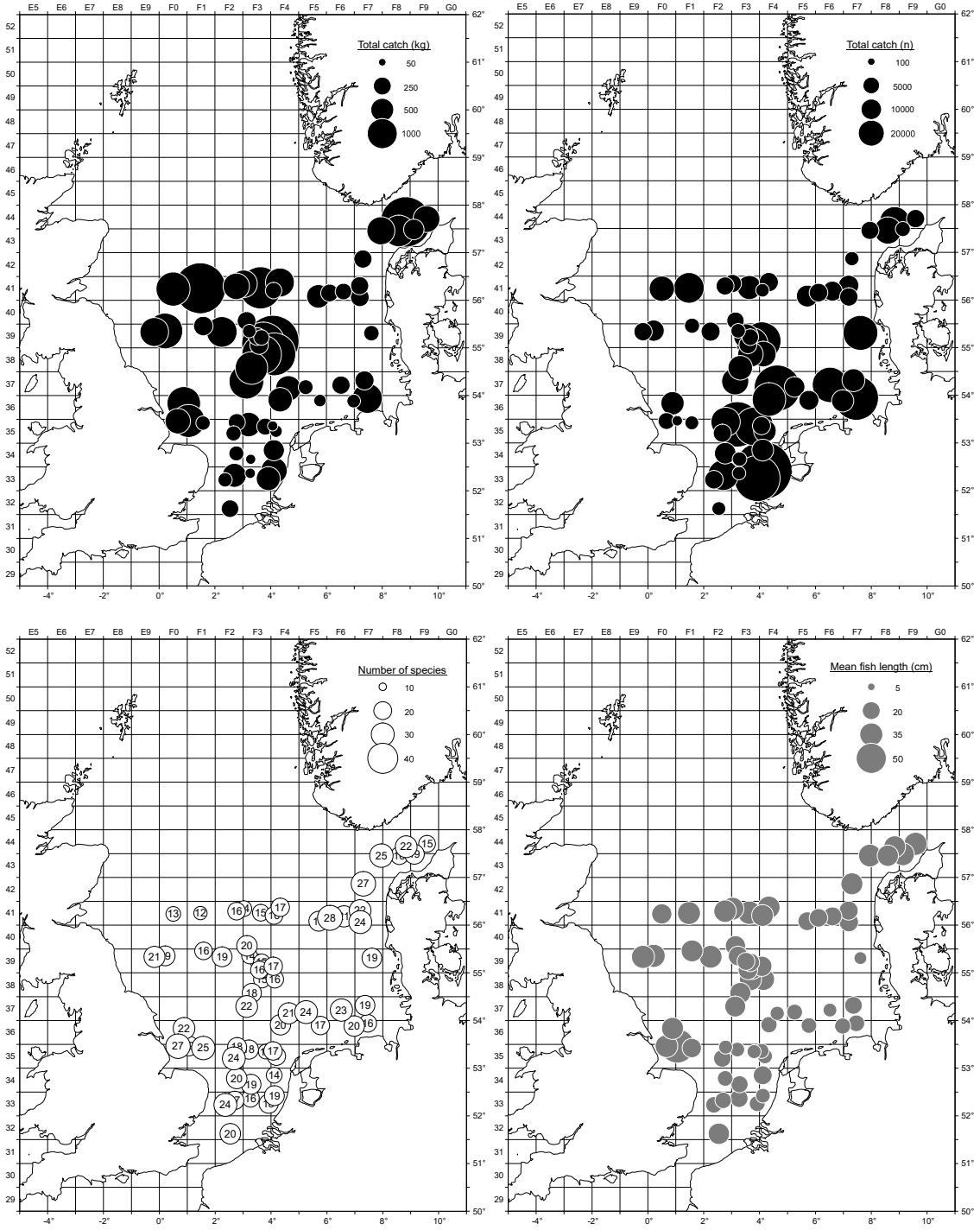


Fig. 4: Total catch of fish and shellfish in weight, in numbers, species richness and mean fish length per tow (Note: catch in weight and numbers not adjusted for differences in tow duration or swept area fished), Dana DK IBTS 3Q 2024.

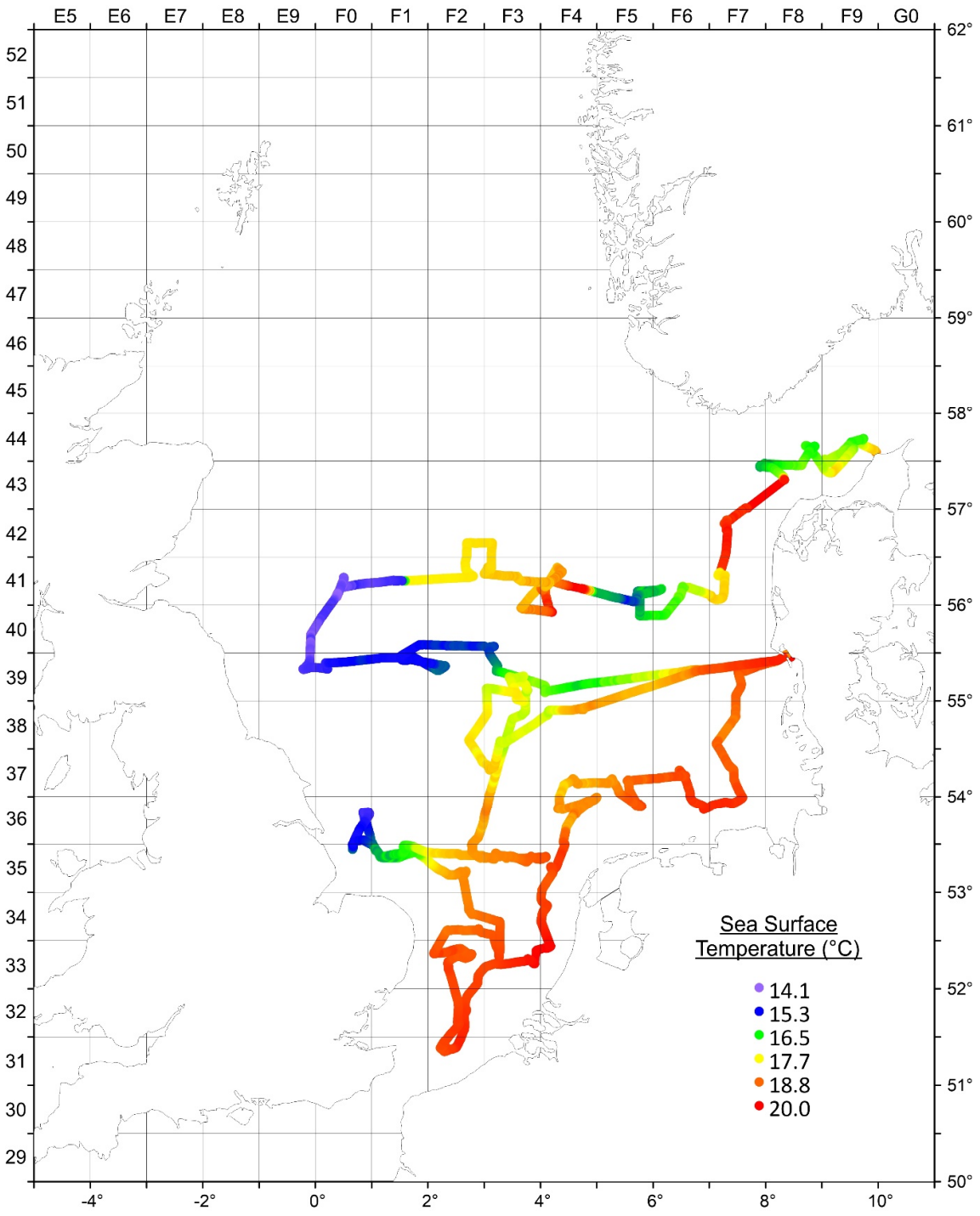


Fig. 5: Sea surface temperature along cruise track (Thermosalinograph, 4 m depth), Dana DK IBTS 3Q 2024.

Tab. 1: Species list, Dana DK IBTS 3Q 2024 (L: total length in cm below (fish); ML: mantle length (cephlapods); CPL or CPW: carapace length or width (crusteaceans).

Latin name	English name	Danish name	Weight (kg)	Number	L_{min} (cm)	L_{max} (cm)	Remark
Aequipecten opercularis	Queen scallop	Jomfruøsters	1.515	30	-	-	
Agonus cataphractus	Pogge	Panserulk	0.307	26	9.0	15.0	
Alloteuthis subulata	European common squid	Dværgblæksprutte	51.765	12673	1.0	14.0	ML
Amblyraja radiata	Starry ray	Tærbe	7.361	26	16.0	44.0	
Ammodytes marinus	Lesser sandeel	Havtobis	101.190	10102	9.5	19.0	
Arnoglossus laterna	Scaldfish	Tungehvarre	0.696	62	8.0	16.0	
Atherina presbyter	Sand-smelt	Almindelig stribefisk	0.001	1	5.0	5.0	
Blennius ocellaris	Butterfly blenny	Plettet slimfisk	0.020	2	8.0	9.0	
Buglossidium luteum	Solenette	Glastunge	1.230	114	7.0	12.0	
Callionymus lyra	Common dragonet	Stribet fløjfisk	5.934	153	12.0	24.0	
Callionymus maculatus	Spotted dragonet	Plettet fløjfisk	0.031	2	14.0	14.0	
Cancer pagurus	Edible crab	Taskekrabbe	70.120	142	8.9	20.6	CPW
Chelidonichthys cuculus	Red gurnard	Tværstribet knurhane	1.191	9	21.0	28.0	
Chelidonichthys lucerna	Tub gurnard	Rød knurhane	10.778	35	19.0	43.0	
Clupea harengus	Herring	Sild	4038.907	198314	6.5	32.5	
Dicentrarchus labrax	Bass	Havbars	3.004	3	38.0	52.0	
Echiichthys vipera	Lesser weever	Fjæsing lille	19.413	810	6.0	18.0	
Eledone cirrhosa	Horned octopus	Eledone Blæksprutte	0.255	2	-	-	
Enchelyopus cimbrius	Four-bearded rockling	Firetrådet havkvabbe	1.495	33	11.0	28.0	
Engraulis encrasicolus	Anchovy	Ansjos	0.021	2	6.0	15.0	
Entelurus aequoreus	Snake pipefish	Snippe	0.040	4	19.0	41.0	
Eutrigla gurnardus	Grey gurnard	Grå knurhane	802.378	9682	8.0	39.0	
Gadus morhua	Cod	Torsk	93.334	219	10.0	70.0	
Galeorhinus galeus	Tope	Gråhaj	1229.090	95	122.0	162.0	
Glyptocephalus cynoglossus	Witch	Skærising	3.025	16	24.0	37.0	
Helicolenus dactylopterus	Blue-mouth redfish	Blåkæft	0.226	2	17.0	19.0	
Hippocampus hippocampus	Short-snouted seahorse	Kortsnudet søhest	0.011	1	11.0	11.0	
Hippoglossoides platessoides	American plaice	Håising	138.088	3214	10.0	24.0	
Homarus gammarus	European lobster	Hummer	29.011	57	5.5	16.3	CPL
Hyperoplus lanceolatus	Greater sandeel	Plettet tobiskonge	3.919	123	17.0	30.0	
Illex coindetii	Southern shortfin squid	Rød blæksprutte	9.766	126	8.0	22.0	ML
Lampetra fluviatilis	River lamprey	Flodlampret	0.055	1	31.0	31.0	
Leucoraja naevus	Cuckoo ray	Pletrokke	1.371	2	47.0	54.0	
Limanda limanda	Common dab	Ising	3594.619	65169	6.0	38.0	
Liparis liparis	Sea snail	Finnebræmmet ringbug	0.004	1	6.0	6.0	
Liparis montagui	Montague's seasnail	Særfinnet ringbug	0.010	1	8.0	8.0	
Lithodes maja	Norway king crab	Troldkrabbe	5.554	10	8.2	12.5	CPL
Loligo	Loligo sp	*Loligoblæksprutter	103.886	7465	4.0	13.0	ML
Loligo forbesii	Northern squid	Loligoblæksprutte	122.339	4253	2.0	34.0	ML
Loligo vulgaris	European squid	Europæisk loligo	15.986	54	9.0	32.0	ML
Lophius piscatorius	Angler fish	Havtaske	21.694	8	32.0	76.0	
Lycodes gracilis	Vahls eelpout	Ålebromse	0.028	1	20.0	20.0	
Maja squinado	Common spider crab	Edderkoppekrabbe	2.539	2	14.0	15.0	CPL
Melanogrammus aeglefinus	Haddock	Kuller	17373.232	64757	10.0	51.0	
Merlangius merlangus	Whiting	Hvilling	10200.908	161429	5.0	45.0	
Merluccius merluccius	Hake	Kulmule	68.901	44	15.0	98.0	
Microchirus variegatus	Thickback sole	Båndet tunge	0.034	2	7.0	13.0	
Micromesistius poutassou	Blue whiting	Blåhvilling	121.900	1057	20.0	35.0	
Microstomus kitt	Lemon sole	Rødtunge	163.888	1931	14.0	34.0	
Molva molva	Ling	Lange	1.516	1	64.0	64.0	
Mullus surmuletus	Striped red mullet	Stribet rød Mulle	8.711	143	5.0	30.0	
Mustelus asterias	Starry smooth-hound	Stjernehaj	189.564	101	47.0	114.0	
Myoxocephalus scorpius	Sculpin	Almindelig ulk	0.616	16	3.0	20.0	
Myxine glutinosa	Hagfish	Slimål	0.090	3	20.0	32.0	
Nephrops norvegicus	Norway lobster	Jomfruhummer	6.515	97	2.9	5.9	CPL
Pecten maximus	Great scallop	Stor kammusling	1.884	5	-	-	
Pholis gunnellus	Butter fish	Tangspræl	0.018	1	16.0	16.0	
Platichthys flesus	Flounder	Skrubbe	3.158	15	20.0	34.0	
Pleuronectes platessa	Plaice	Rødspætte	607.818	4704	11.0	47.0	
Pollachius virens	Saithe	Sej	3.753	5	39.0	48.0	
Pomatoschistus spp.	Sand gobies	*Sandkutlinger	0.056	56	3.0	5.0	
Raja brachyura	Blonde ray	Småplettet rokke	54.326	19	49.0	96.0	
Raja clavata	Thornback ray	Sømrokke	48.143	35	25.0	81.0	
Raja montagui	Spotted Ray	Storplettet Rokke	21.788	39	21.0	62.0	
Sardina pilchardus	Pilchard	Sardin	310.285	37223	5.0	25.0	
Scomber scombrus	Mackerel	Makrel	5088.278	22390	7.0	41.0	
Scophthalmus maximus	Turbot	Pighvarre	25.085	28	23.0	47.0	
Scophthalmus rhombus	Brill	Slethvarre	6.975	10	26.0	53.0	
Scyliorhinus canicula	Lesser-spotted dogfish	Småplettet rødhaj	215.047	399	14.0	67.0	
Sepia officinalis	Common cuttlefish	Sepiablæksprutte	3.866	9	12.0	16.0	ML
Sepiola atlantica	Atlantic bobtail squid	Sepiola atlantica	0.003	1	-	-	
Solea solea	Sole	Tunge	10.714	142	14.0	39.0	
Sprattus sprattus	Sprat	Brisling	803.259	171635	5.0	14.5	
Squalus acanthias	Spurdog	Pighaj	8.368	6	25.0	92.0	
Taurulus bubalis	Sea scorpion	Langtornet ulk	0.332	7	12.0	18.0	
Todaropsis eblanae	Lesser flying squid	Todaropsis eblanae	0.869	7	9.0	19.0	ML
Trachinus draco	Greater weever fish	Fjæsing	40.237	246	14.0	38.0	
Trachurus trachurus	Horse mackerel	Hestemakrel	1461.767	91724	3.0	37.0	
Trisopterus esmarkii	Norway pout	Sperling	62.679	6495	6.0	20.0	
Trisopterus luscus	Bib	Skægtorsk	6.325	134	12.0	29.0	
Trisopterus minutus	Poor-cod	Glyse	20.408	283	9.0	22.0	
Zeus faber	John dory	Sanktpetersfisk	1.734	4	28.0	29.0	

Tab. 2: Preliminary numbers of single fish data (length, individual weight, and sex; maturity for herring, sprat and hake; genetics for cod (n=38, area 4b); maturity checks (if spawning) for gadoids), Dana DK IBTS 3Q 2024.

Species	Total
Herring (Clupea harengus)	516
Sprat (Sprattus sprattus)	253
Cod (Gadus morhua)	86
Haddock (Melanogrammus aeglefinus)	503
Whiting (Merlangius merlangus)	667
Saithe (Pollachius virens)	5
Norway pout (Trisopterus ermarkii)	25
Mackerel (Scomber scombrus)	342
Plaice (Pleuronectes platessa)	626
Sum:	3023

Tab. 3: Number of stomach data collected by species (V: everted, R: regurgitated, F: feeding, E: empty, -: not caught, Dana DK IBTS 3Q 2024.

		Number of stomachs per category				
Species		V	R	F	E	total
Plaice	Pleuronectes platessa	0	1	295	19	315
Hake	Merluccius merluccius	1	0	8	6	15
Turbot	Scophthalmus maximus	1	1	14	1	17
Brill	Scophthalmus rhombus	0	0	5	0	5
Halibut	Hippoglossus hippoglossus	-	-	-	-	-
Pollack	Pollachius pollachius	-	-	-	-	-
Tusk	Brosme brosme	-	-	-	-	-
Ling	Molva molva	0	0	1	0	1
Tub gurnard	Chelidonichthys lucerna	1	1	18	1	21
	sum:			341		374

Tab. 4: Preliminary abundance indices (number per hour trawling) for commercial IBTS species per tow, Dana DK IBTS 3Q 2024.

		COD			HADDOCK			WHITING			NORWAY POUT			HERRING			SPRAT		MACKEREL			SAITHE			PLAICE		
assumed Age:		0	1	2+	0	1	2+	0	1	2+	0	1	2+	0	1	2+	1	2+	0	1	2+	0	1	2+	0	1	2+
Length:		<18	18-37	≥38	<17	17-29	≥30	<17	17-23	≥24	<13	13-15	≥16	<15.5	15.5-22.5	≥23	<13	≥13	<17	17-29	≥30	<22	22-32	≥33	<10	10-18	≥19
St No	Rect																										
1	44F9							10	4	2						2				5347	828					35	292
3	43F9			2				2							2					2803	107					64	201
9	44F8	82	185	40		344	10769	318	740	3658	29	532	234	1068	16874		893	190		902	567						12
11	43F8					20	365			46					4					810	664					8	115
13	43F7		56	6		493	2034	30		232		63	1151	6	558	273		2		2	10			8			
17	42F7			2	2	14	178	326	24	24											2					8	832
18	41F7				2	2	8	4118	1446	2				24	2		178	2		68	12					70	266
20	41F7							3540	1537					52	2		298	20		811	159					107	264
22	41F6					26	84	1971	185	6				68	4	4	265	3		219	58					69	338
29	41F6			2		427	264	3116	110	8				98	28	4	379	4		6				2		76	606
31	41F5			2	6	1343	728	2545	1490	828				1536	136	18	4350	85		2	4					2	58
36	41F4				12	661	162		441	533					2	28	2		6	2742	2213					6	142
37	41F4				2	383	54	2	147	188					20	138				278	341					4	64
39	41F3		2		12	2692	538		1978	1339					18	400				4277	8141						118
41	41F3		2			4045	1162		777	1831						62				4	10						105
48	41F2		4			3653	913		831	1108					2	44				24	132						138
49	41F1		2	2		4576	8286		698	3055					10255	14542				134	100						54
52	41F0		10			1073	3517			2377	9007				5257	2908				8	6						36
59	39E9		2			4354	1916		126	781	128				372	565				58	50					4	70
61	39F0					2349	4617		120	2544	1516		4		110	2319				341	474						10
62	39F1				52	1698	461		201	170					2	6		2		52	52					4	161
64	39F2				1851	1750	803		66	84						10				2597	2357						236
71	40F3				136	382	34		16	22						26				193	123						407
72	39F3								8	2										2	4					8	90
74	39F4					11111	6667		13801	6703				7303	151	26	20360	3577		2						4	193
80	39F7							429						80		2	134			98						44	16
87	37F7							9980	665																	16	24
88	36F7							92217	3664					3917			1364		2	44						4	2
90	36F6							9039	114					2222			106	2	84	40						8	2
92	37F6							1521	299					31145		3	44220									77	47
101	36F5							2509	247	21				3271			2977			6						8	14
102	37F5							1386	805	22				1780		2	5126									46	46
104	37F4							2322	8312	296				10638	2	2	92062			108	14					36	70
106	36F4							7062	10593	246				15773			17305			6						14	42
113	35F4							55	41					14642			4858				2					36	5
114	34F4							10	14										19	401	2					56	16
116	33F4							175	18					92653			37036		468	439	4					28	12
118	33F3							40	18					111086			554	2		52						42	8
126	32F2								41	34	646	9								1148	1837					4	7
129	33F2								4	28										90	6						10
130	33F2								4	6										630	176					2	10
137	33F3							10	50	5										26	24						14
138	34F3							414	323	40										8						14	16
140	34F2							48	1093	285										38	2					4	8
143	35F2							6168	1045	34				562			440	5									50
150	36F0		2		4	418	664		10062	7497						2				71	77					2	6
151	35F0		2				14		243	4851				2	12	6	760	9		2	88						
153	35F1						6			51										4	10						
155	35F1							220	351	392				4			4			32	20					18	38
161	35F4							95	35					2635	2		1347									19	4
163	35F3							505	60					15624			56925	106		18						26	18
164	35F3							8836	2155	108				31226	2		60726			128	2					44	134
166	35F2							256	336					3357			57		27	439							32
173	38F3		6			7088	3593	42	5299	2962				2		8				4	6					6	154
175	39F3					6994	2244	107	19967	4805				1180	17	2	94	10		2	6					2	167
176	39F3					2		186	20					2					189	44	4					13	408
177	39F3				2	4		12	18	6									16	412	22					8	98
178	39F3				34	364	47	36	179					738	2		232	8		44	6					24	292
183	37F3		4	2		1037	1760	493	8642	3737											24						562
184	38F3				6	2303	1701		6900	934					4	6		2		109	353					97	261
185	38F4		8	14	8	8701	5302	114	3432	973				4		10	2			32	66					367	508