FOR COLLATIMG CENTRE USE

CRUISE SUMMARY REPORT	Ref.No.:			
	Is data exchange			
SHIP enter the full name and international radio call sign of the ship from which the data were convex example, research ship; ship of opportunity, naval survey vessel; etc.	ollected, and indicate the type of ship, for			
Name: Brennholm Call S	ign: LIWG			
Type of ship: Fishing vessel(purse seine and stern trawler, 75,6m, 2666d	wt) chartered for research purposes			
CRUISE NO. / NAME: IESSNS international mackerel-ecosystem survey (enter the unique number, name 2015832)or acronym assigned to the cruise (or cruise leg, if appropriate).			
CRUISE PERIOD start 26.06.2015 to 28.07.2015 end 28.07.2015 (set sail) day/ month/ year day/ month/ year (return to port)				
PORT OF DEPARTURE (enter name and country) Bergen, Norway				
PORT OF RETURN (enter name and country) Tromsø, Norway				
RESPONSIBLE LABORATORY enter name and address of the laboratory responsible the cruise	for coordinating the scientific planning of			
Name: INSTITUTE OF MARINE RESEARCH (IMR)				
Address: NORDNESGATEN 50				
Country: Norway				
CHIEF SCIENTIST(S) enter name and laboratory of the person(s) in charge of the scientic Endre Grimsbø (26/6-15/7-2015) IMR, Leif Nøttestad (15-28/7-2015) IMR.	fic work (chief of mission) during the cruise.			
OBJECTIVES AND BRIEF NARRATIVE OF CRUISE enter sufficient information about the purpose and nature of the cruise so as to provide the context in which the report data were collected. Ecosystem cruise with abundance estimation and biological sampling of Northeast Atlantic (NEA) mackerel, Norwegian spring-spawning (NSS) herring and North Sea herring. Predetermined station net for systematic biological sampling with the standardized Multpelt 832 pelagic sampling trawl with acoustic position sensors (SIMRAD) and video capture. Oceanographical measurements with ADCP (Teledyne RDI) and CTD (SAIV and SeaBird) cast 0-500 m depth. Zooplankton sampling with WP2 vertical net hauls 0-200 m depth. Acoustic mapping of pelagic fish and plankton with multi-frequency echo sounders (SIMRAD EK60:18kHz, 38kHz, 120kHz, 200kHz and 333kHz) and multibeam sonar				
(SIMRAD SX), Opportunistic marine mammal observations. Total survey length: 4395 nmi				

PROJECT (IF APPLICABLE) if the cruise is designated as part of a larger scale cooperative project (or expedition), then enter the name of the project, and of organisation responsible for co-ordinating the project.

Project name: International Ecosystem Summer Survey in the Nordic Seas (IESSNS)

Coordinating body: Institute of Marine Research, Bergen, Norway

PRINCIPAL INVESTIGATORS: Enter the name and address of the Principal Investigators responsible for the data collected on the cruise
and who may be contacted for further information about the data. (The letter assigned below against each Principal Investigator is used on pages
2 and 3, under the column heading 'PI', to identify the data sets for which he/she is responsible)

- A. Leif Nøttestad (IMR)
- B. Endre Grimsbø (IMR)
- C. Jarle Kristiansen (IMR)
- D. Valantine Anthonypillai, (IMR)
- E. Matteo Bernasconi (IMR)

MOORINGS, BOTTOM MOUNTED GEAR AND DRIFTING SYSTEMS

This section should be used for reporting moorings, bottom mounted gear and drifting systems (both surface and deep) deployed and/or recovered during the cruise. Separate entries should be made for each location (only deployment positions need be given for drifting systems). This section may also be used to report data collected at fixed locations which are returned to routinely in order to construct 'long time series'.

PI	1	APP A T ITUDI	ROXIMA ⁻		TION ONGITUD	nE	DATA TYPE	DESCRIPTION Identify, as appropriate, the nature of the instrumentation the parameters (to be) measured, the number of instruments and their depths, whether deployed and/or recovered, dates of deployments and/or recovery, and any identifiers given to the site.
See top of page.	deg	min	N/S	deg	min	E/W	enter code(s) from list on last page.	rom list on
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SUMMARY OF MEASUREMENTS AND SAMPLES TAKEN

Except for the data already described on page 2 under 'Moorings, Bottom Mounted Gear and Drifting Systems', this section should include a summary of all data collected on the cruise, whether they be measurements (e.g. temperature, salinity values) or samples (e.g. cores, net hauls).

Separate entries should be made for each distinct and coherent set of measurements or samples. Different modes of data collection (e.g. vertical profiles as opposed to underway measurements) should be clearly distinguished, as should measurements/sampling techniques that imply distinctly different accuracy's or spatial/temporal resolutions. Thus, for example, separate entries would be created for i) BT drops, ii) water bottle stations, iii) CTD casts, iv) towed CTD, v) towed undulating CTD profiler, vi) surface water intake measurements, etc.

Each data set entry should start on a new line - it's description may extend over several lines if necessary.

NO, UNITS: for each data set, enter the estimated amount of data collected expressed in terms of the number of 'stations'; miles' of track; 'days' of recording; 'cores' taken; net 'hauls'; balloon 'ascents'; or whatever unit is most appropriate to the data. The amount should be entered under 'NO' and the counting unit should be identified in plain text under 'UNITS'.

1	L	inder 'NO' and t	he counting	unit should be identified in plain text under 'UNITS'.
PI see page 2	NO see above	UNITS see above	DATA TYPE Enter code(s) from list	DESCRIPTION Identify, as appropriate, the nature of the data and of the instrumentation/sampling gear and list the parameters measured. Include any supplementary information that may be appropriate, e. g. vertical or horizontal profiles, depth horizons, continuous recording or discrete samples, etc. For samples taken for later analysis on shore, an indication should be given of the type of analysis planned, i.e. the purpose for which the samples were taken.
A	52	St.	on cover page B14	The trawl Multpelt 832 was used for surface trawling (0-35m, opening 120m). The
				length of each haul was 30 min.
В	4395	nmi	B26	Marine mammal sightings
С	52	St.	G10	A SAIV and SeaBird sonde is lowered down to maximum 500 m to retrieve data on water temperature and conductivity
С	4395	nmi	G74	Multifrequency echosounders recordings, SIMRAD EK60: 18kHz, 38kHz, 120kHz, 200kHz, and 333kHz.
С	4395	nmi	G24	Multibeam sonar, SIMRAD SX
С	4395	nmi	D71	ADCP, Teledyne RDI
D	52	St.	B09	A WP2 plankton net is hauled vertically 0-200 m depth to sample zooplankton
Е		St.		Video capture, trawl

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				Please continue on separate sheet if necessary
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TRACK CHART: You are strongly encouraged to submit, with the completed report, an annotated track chart illustrating the route followed and the points where measurements were taken.

Insert a tick(♥) in this box if a track chart is supplied

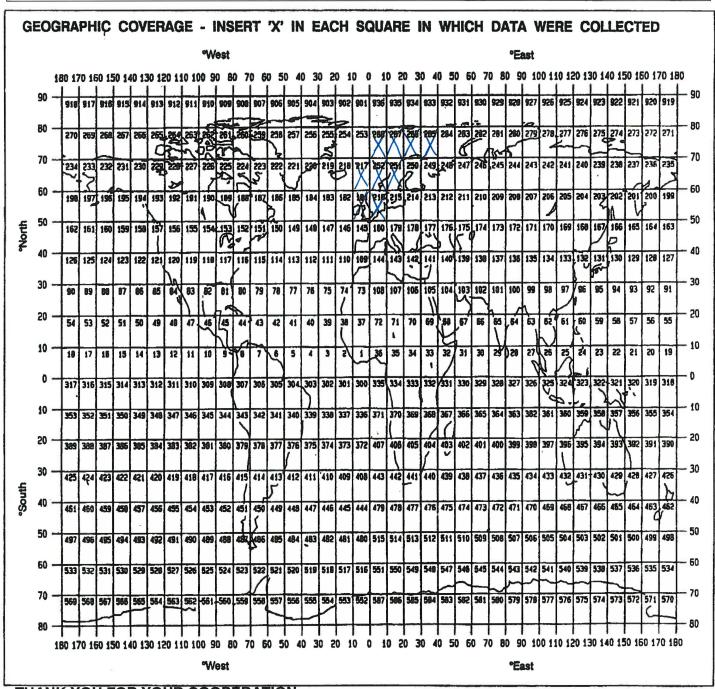


GENERAL OCEAN AREA(S): Enter the names of the oceans and/or seas in which data were collected during the cruise – please use commonly recognised names (see, for example, International Hydrographic Bureau Special Publication No. 23, 'Limits of Oceans and Seas').

Survey covers the North Sea, Norwegian Sea and Barents Sea.

SPECIFIC AREAS: If the cruise activities were concentrated in a specific area(s) of an ocean or sea, then enter a description of the area(s). Such descriptions may include references to local geographic areas, to sea floor features, or to geographic coordinates.

Norwegian coast and Bear Island



PARAMETER CODES

METEOROLOGY

M01	Upper air observations
M02	Incident radiation
M05	Occasional standard measurements
M06	Routine standard measurements
M71	Atmospheric chemistry
M90	Other meteorological measurements

PHYSICAL OCEANOGRAPHY

111101	OAL OCEANOUNAL III
H71	Surface measurements underway (T,S)
H13	Bathythermograph
H09	Water bottle stations
H10	CTD stations
H11	Subsurface measurements underway (T,S)
H72	Thermistor chain
H16	Transparency (eg transmissometer)
H17	Optics (eg underwater light levels)
H73	Geochemical tracers (eg freons)
D01	Current meters
D71	Current profiler (eg ADCP)
D03	Currents measured from ship drift
D04	GEK
D05	Surface drifters/drifting buoys
D06	Neutrally buoyant floats
D09	Sea level (incl. Bottom pressure & inverted
L	echosounder)
D72	Instrumented wave measurements
D90	Other physical oceanographic measurements

CHEMICAL OCEANOGRAPHY

H21	Oxygen
H74	Carbon dioxide
H33	Other dissolved gases
H22	Phosphate
H23	Total - P
H24	Nitrate
H25	Nitrite
H75	Total - N
H76	Ammonia
H26	Silicate
H27	Alkalinity
H28	PH
H30	Trace elements
H31	Radioactivity
H32	Isotopes
H90	Other chemical oceanographic
1	measurements

MARINE CONTAMINANTS/POLLUTION

P01	Suspended matter			
P02	Trace metals			
P03	Petroleum residues			
P04	Chlorinated hydrocarbons			
P05	Other dissolved substances			
P12	Bottom deposits			
P13	Contaminants in organisms			
P90	Other contaminant measurements			

MARINE BIOLOGY/FISHERIES

*****	IE BIOLOGY/FISHERIES
B01	Primary productivity
B02	Phytoplankton pigments (eg chlorophyll,
	fluorescence)
B71	Particulate organic matter (inc POC, PON)
B06	Dissolved organic matter (inc DOC)
B72	Biochemical measurements (eg lipids, amino
	acids)
B73	Sediment traps
B08	Phytoplankton
B09	Zooplankton
B03	Seston
B10	Neuston
B11	Nekton
B13	Eggs & larvae
B07	Pelagic bacteria/micro-organisms
B16	Benthic bacteria/micro-organisms
B17	Phytobenthos
B18	Zoobenthos
B25	Birds
B26	Mammals & reptiles
B14	Pelagic fish
B19	Demersal fish
B20	Molluscs
B21	Crustaceans
B28	Acoustic reflection on marine organisms
B37	Taggings
B64	Gear research
B65	Exploratory fishing
B90	Other biological/fisheries measurements

MARINE GEOLOGY/GEOPHYSICS

IAIN CLICIL	ie deceda i/deci iii cico
G01	Dredge
G02	Grab
G03	Core - rock
G04	Core - soft bottom
G08	Bottom photography
G71	In-situ seafloor measurement/sampling
G72	Geophysical measurements made at depth
G73	Single-beam echosounding
G74	Multi-beam echosounding
G24	Long/short range side scan sonar
G75	Single channel seismic reflection
G76	Multichannel seismic reflection
G26	Seismic refraction
G27	Gravity measurements
G28	Magnetic measurements
G90	Other geological/geophysical measurements

