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MRV ALBA NA MARA

Survey 0516A

REPORT

28 March – 15 April 2016

Loading: 26 March 2016, Fraserburgh

Sailing: 28 March 2016, Fraserburgh

Half Landing: 05 April 2016, Mallaig

Unloading: 15 April 201, Oban

Fishing Gear: Scallop Dredges

Project: 20 Days SU02NS

Personnel

[REDACTED]

Objectives

1. To carry out a survey of scallop stocks on the West coast
2. To assess shell damage on all scallop stocks
3. To collect information on by-catch of other commercial fish and shellfish species
4. To identify and quantify numbers of starfish species in all dredge tows
5. To collect flesh samples for toxin analysis back at the laboratory

Overview

The commercial fishery for the king scallop (*Pecten maximus*) is the second most valuable shellfish fishery in Scotland. Dredge surveys of the major scallops grounds around Scotland have been carried out annually by Marine Scotland Science (MSS) since the mid-1990's. The scallop survey data are used in the regional stock assessments carried out by MSS. These surveys typically cover Shetland, the East coast and West coast of Scotland.

The survey gear on the starboard side consists of six standard commercial spring-loaded Newhaven type dredges (75 cm wide, 9 tooth bar, 80 mm internal diameter belly rings). The port side has six smaller configured sampling dredges (75 cm wide, 11 tooth bar, with 60 mm internal diameter belly rings). At each station (Figure 1) the dredges are towed at ~2.5 knots for 30 minutes and all king scallops caught are aged and measured (length to the 0.5 cm below).

Narrative

Scientific crew arrived at Alba in Fraserburgh at 0930 on the 28 March and after safety drills we left at 10:00 so as to make it through the Pentland Firth on a favourable tide. Sampling work started mid-afternoon on the 29 March in ICES statistical square 45E3. Sampling continued through to 5 April with 33 stations sampled covering stations in ICES statistical squares 45E4, 45E3, 44E4, 44E3, 43E2 and 42E2, some of the stations previously surveyed in past years where missed out this year due to the introduction of MPA's.

The half landing was brought forward to the 5 April and was moved from Oban to Mallaig due to problems with the hydraulics on board

The second half of the survey was delayed and sailing was not until the 8 April, we started work in ICES statistical square 43E4. Sampling continued through to the 14 April with 41 stations sampled covering stations in ICES statistical square 43E4, 43E3, 42E4, 42E3, 41E4, 41E3, 40E4, 40E3 and 39E4. The survey finished in Oban on the 14 April with unloading on the 15 April where staff and equipment returned to the laboratory in Aberdeen

Results

Survey of scallop stocks

During the trip 73 stations were fished covering 15 ICES statistical squares on the West coast of Scotland (Figure 1). The primary survey objective is to collect data for the provision of a catch at age index for use in the scallop stock assessment. Figure 2 shows a map where new MPA's have been introduced, the red stars are the positions of stations which now lie inside the new MPA and are no longer going to be part of further west coast survey.

A total of 13345 scallops were caught which were all measured and aged and damaged indexed. Table 1 shows the numbers of scallops caught on this survey and previous surveys going back to 1993.

The total number of king scallops at length caught on the 2016 survey are shown in Figure 3 with sizes ranging from 50 to 160 mm. King scallops were aged at between 2 (7 individual scallops) and 10 years old (note that this is a plus group as scallops on MSS surveys are only aged to a maximum of 10 years) with the highest number of scallops aged 4 as shown in Figure 4.

By-catch

Table 2 shows the by-catch species caught other than starfish (776 individuals) the most abundant being Brown crab(469 individuals), followed by Common whelk (95 individuals), Queen scallops (60 individuals), Red whelk (52 individuals) and then lower numbers of other species. Table 2 show the starfish species caught (6420 individuals), the most abundant being Common starfish (4834 individuals), followed by Seven armed starfish (649 individuals), then lower numbers of other species. All off these were measured/counted and given a damage index similar to the scallops.

Toxin and Genetic analysis

Samples were taken for toxin testing from 19 stations 13 ICES statistical squares 45E4, 45E3, 44E4, 44E3, 43E4, 43E3, 43E2, 42E3, 42E2, 41E3, 40E4, 40E3 and 39E4. Samples were also taken for genetic analysis from 21 stations covering 11 ICES statistical squares 44E4, 44E3, 43E4, 43E3, 43E2, 42E3, 42E4, 41E3, 40E4, 40E3 and 39E4.

Parasite detection

Some additional work was also completed which was not included in the original objectives of the survey that involved the collecting 11 samples from 7 ICES statistical squares, 43E2, 43E4, 43E3, 40E4, 40E3 and 39E4, of 10 scallops for parasite detection in scallops.



Figure 1. Tow start positions for 2016 MSS West coast scallop dredge survey

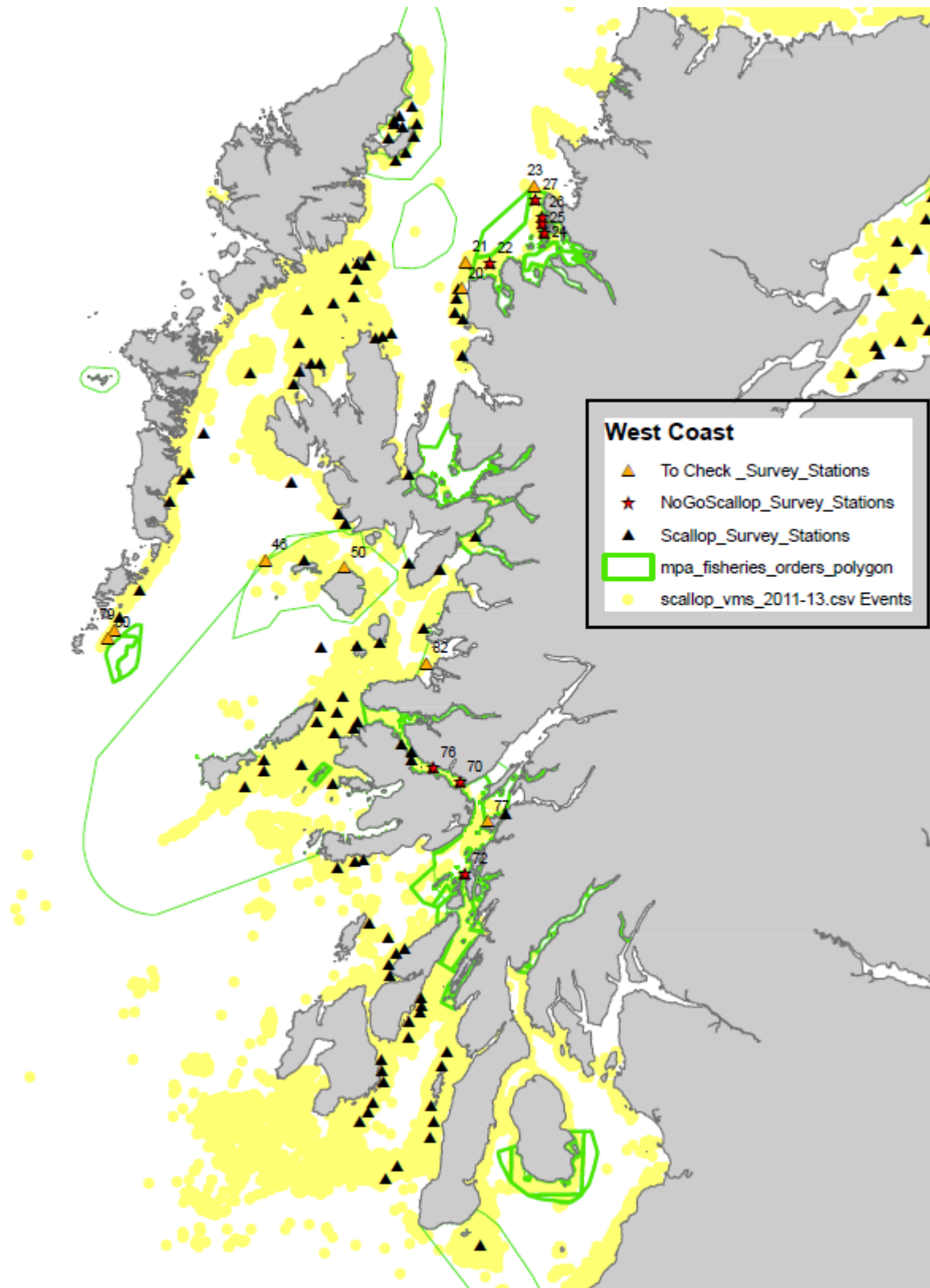


Figure 2. Map showing introduced or planned introduction of MPA's on west coast of Scotland

Cruise	Vessel	Year	Survey area	Start date	End date	No. station	No, scallops
0516A	Alba na Mara	2016	West coast	28-Mar-16	15-Apr-16	72	13345
0415A	Alba na Mara	2015	West coast	29-Mar-15	17-Apr-15	73	13703
0514A	Alba na Mara	2014	West coast	04-Apr-14	23-Apr-14	68	10835
0413A	Alba na Mara	2013	West coast	03-Apr-13	22-Apr-13	80	14859
0612A	Alba na Mara	2012	West coast	09-Apr-12	23-Apr-12	74	14905
0411A	Alba na Mara	2011	West coast	04-Apr-11	23-Apr-11	87	14944
0410A	Alba na Mara	2010	West coast	02-Apr-10	20-Apr-10	89	12293
0709A	Alba na Mara	2009	West coast	19-Apr-09	08-May-09	91	13817
0208A	Alba na Mara	2008	West coast	24-Apr-08	15-May-08	92	12608
0407H	Aora II	2007	West coast	14-May-07	01-Jun-07	96	13434
0506H	Aora II	2006	West coast	07-Aug-06	26-Aug-06	95	19522
0305H	Aora II	2005	West coast	08-Aug-05	27-Aug-05	94	17931
0204H	Aora II	2004	West coast	09-Aug-04	27-Aug-04	95	18963
1303H	Aora II	2003	West coast	04-Aug-03	22-Aug-03	96	21139
9902H	Golden Promise	2002	West coast	20-May-02	30-May-02	86	22410
0302H	Aora	2002	West coast	10-Jun-02	28-Jun-02	83	11259
0201H	Aora	2001	West coast	09-Jul-01	27-Jul-01	83	11180
0200H	Aora	2000	West coast	12-Jun-00	30-Jun-00	91	11971
0299H	Aora	1999	West coast	15-Jun-99	03-Jul-99	91	10293
0198H	Aora	1998	West coast	15-Jun-98	03-Jul-98	90	11563
0397H	Aora	1997	West coast	16-Jun-97	04-Jul-97	84	9827
0396H	Aora	1996	West coast	17-Jun-96	05-Jul-96	90	10128

0295H	Aora	1995	West coast	19-Jun-95	07-Jul-95	85	11496
2794H	Aora	1994	West coast	20-Jun-94	08-Jul-94	75	12068
1993H	Aora	1993	West coast	09-Jul-93	23-Jul-93	52	11118

Table 1. West coast scallop dredge survey stations, 1993-2016, with number of stations sampled and total number of king scallops caught. Note that the number of stations includes foul hauls

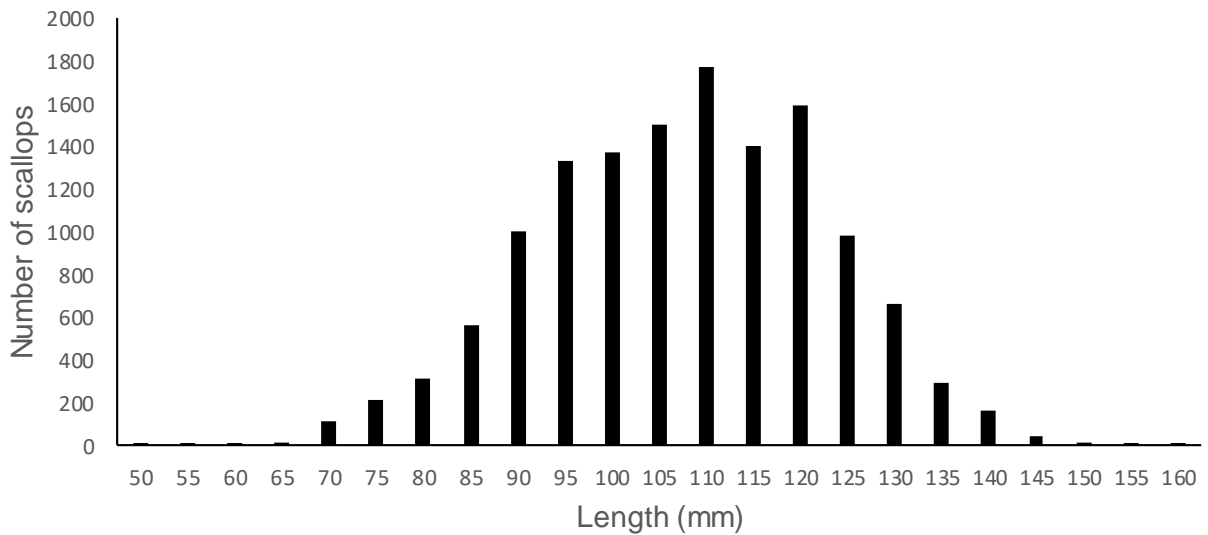


Figure 3 . MSS West coast scallop survey. Total number of king scallops at length caught on the 2016 survey

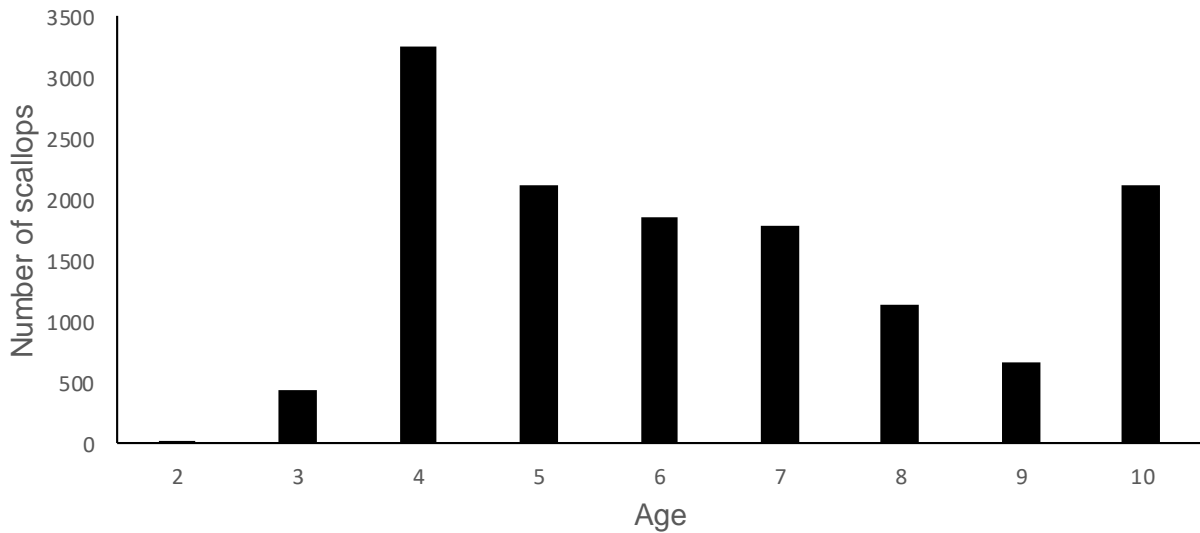


Figure 4. Total number of king scallops by age group caught on the 0516A West coast scallop dredge survey. Note that age 10 is a plus group.

Common Name	Scientific name	Number caught	Average damage Index
Brown crab	<i>Cancer pagurus</i>	469	2
Velvet crab	<i>Necora puber</i>	4	3
Spider crab	<i>Maja squinado</i>	1	2
Cuckoo ray	<i>Raja naevus</i>	31	2
Spotted ray	<i>Raja montagui</i>	9	3
Common skate	<i>Raja batis</i>	2	2
Blonde ray	<i>Raja brachyrua</i>	1	2
Thornback ray	<i>Raja clavata</i>	1	2
Plaice	<i>Pleuronectes platessa</i>	12	2
Monkfish	<i>Lophius piscatorius</i>	13	4
Bullrout	<i>Myoxocephalus scorpius</i>	1	1
Topknot	<i>Zeugopterus punctatus</i>	1	4
Lesser spotted dogfish	<i>Scyliorhinus canicula</i>	3	2
Norway pout	<i>Trisopterus esmarkii</i>	1	4
Brill	<i>Scophthalmus rhombus</i>	2	2
Common dab	<i>Limanda limanda</i>	4	4
Solenette	<i>Buglossidium luteum</i>	1	1
Boarfish	<i>Capras aper</i>	1	4
Megrim	<i>Lepidorhombus whiffiagonis</i>	1	4
Arctica	<i>Arctica islandica</i>	11	2
Queen scallop	<i>Aequipecten opercularis</i>	60	1
Common whelk	<i>Buccinum undatum</i>	95	1
Red whelk	<i>Neptunea antiqua</i>	52	2

Table 1. Count of by-catch species caught listed by common name (excluding Starfish) on the East coast scallop dredge survey 0516A and average damage index **Error! Bookmark not defined.**

Common Name	Scientific name	Number caught	Average damage Index
Common starfish	<i>Asterias rubens</i>	4834	1
Seven armed starfish	<i>Luidia ciliaris</i>	649	2
Bloody henry starfish	<i>Henricia sanguinolenta</i>	227	2
Spiny starfish	<i>Marthasterias glacialis</i>	228	2
Common sun star	<i>Crossaster papposus</i>	217	1
Sand star	<i>Astropecten irregularis</i>	161	2
Starlet cushion star	<i>Asterina gibbosa</i>	70	1
Purple sun star	<i>Solaster endeca</i>	18	1
Goose foot starfish	<i>Anseropoda placenta</i>	10	2
Brittlestar	<i>Ophiura ophiura</i>	6	2

Table 2. Count of by-catch of starfish species caught (listed by common name) on the East coast scallop survey 0516A and average damage index **Error! Bookmark not defined..**

Error! Bookmark not defined. Veale, L.O., Hill, A. S., Hawkins, S. J. and Brand, A. R. 2001. Distribution and damage to the by-catch assemblages of the northern Irish Sea scallop dredge fisheries. *Journal of the Marine Biological Association of the United Kingdom*, 81: 85-96.