

The collection of fisheries by-catch data in Malta

Ms. Roberta Mifsud, Ms. Francesca Gravino,
Mr. Eric Muscat, Dr. Leyla Knittweis



Fisheries Control Directorate – MRRA, Malta

INTRODUCTION

- Discards generated by the Maltese fleet are negligible
 - 4.5% of full-time vessels over 10m in length, (questionnaire, 2005)
 - No discards as a result of quotas being used up (quotas only for tuna)
 - By-catch is sold instead of high grading for higher profits

Data collection obligations

- Malta collects discards data in response to the EU's Data Collection Framework
- For EU member states discards data should be collected for those metiers obtained through the ranking system
- This ranking system is based on:
 - total commercial landings
 - total value
 - total effort in days at sea
- Discards data is also collected through the logbooks and CAS

Monitored metiers

METIER	DISCARDS BEHAVIOUR
Pots and traps for demersal species	No
Set trammel nets for demersal species according to mesh size regulation	Should provide reference
Drifting longlines for large pelagic	YES
Set longlines for demersal fish	Should provide reference
Bottom otter trawl for mixed demersal and deep water species	YES
Purse seine for large pelagics	Should provide reference
Purse seine with a Fish Aggregating Device (FAD)	No

Discards data from different metiers

METIER	DISCARDS DATA
Set trammel nets for demersal species according to mesh size regulation	A survey is currently being conducted
Drifting longlines for large pelagics	Length and weight data are being collected
Set longlines for demersal fish	2005 questionnaire revealed that discards are negligible
Bottom otter trawl for mixed demersal and deep water species	Length and weight are obtained for DCF Group I, II & III species
Purse seine for large pelagics	No active purse seiners

Trawlers – Discarded target species

English Name	Scientific Name	% of Catch in Weight	
		Total Trawl Catch	Total Catch of Species
Giant Red Shrimp	<i>Aristaeomorpha foliacea</i>	0.5	3.1
Pink Shrimp	<i>Parapenaeus longirostris</i>	0.6	6.0
Hake	<i>Merluccius merluccius</i>	0.4	9.6
lobster	<i>Nephrops norvegicus</i>	0.03	3.6

Trawlers – Discarded target species

Scientific Name	2009 landings (tonnes)	2009 discards (tonnes)	Modal size (cm)
<i>Aristaeomorpha foliacea</i>	41.52	1.3	2.2
<i>Parapenaeus longirostris</i>	18.24	1.1	1.8
<i>Merluccius merluccius</i>	10.10	0.97	13
<i>Nephrops norvegicus</i>	2.23	0.08	1.8

Trawlers – Discarded by-catch

- In order of decreasing importance:
 - blackmouth catfish (*Galeus melastomus*)
 - small-spotted catshark (*Etmopterus spinax*)
 - velvet belly lantern shark (*Scyliorhinus canicula*)
 - thornback ray (*Raja clavata*)
 - longnose skate (*Dipturus oxyrinchus*)
 - Maltese skate (*Leucoraja melitensis*)
 - kitefin shark (*Dalathias licha*)
 - spotted ray (*Raja montagui*)
 - spotted torpedo (*Torpedo marmorata*)
 - rabbit fish (*Chimaera monstrosa*)
 - sandy skate (*Leucoraja circularis*)
 - dark electric ray (*Torpedo nobiliana*).

Drifting long-lines study

Burgess et al., Collect. Vol. Sci. Pap. ICCAT, 65(6): 2262-2269 (2010)

- 30th April to 30th June 2008
- 6 different long-line vessels sampled
- 85 fishing days:
 - a total fishing effort of 109,155 hooks
 - average of 1, 284 hooks/ day
- Bait used:
 - *Scomber spp.*
 - *Illex coindetii*
- CPUE calculated for N & W (W/1000 hooks/hr)

Generalized Linear Mixed Model (GLMM)

- Independent variables:
 - Species
 - wind speed
 - wind direction
 - temperature
 - lunar phase
 - Date
 - latitude and longitude
- Response variable
 - CPUE(N) or CPUE(W)
- Random effects
 - Vessel
 - Observer

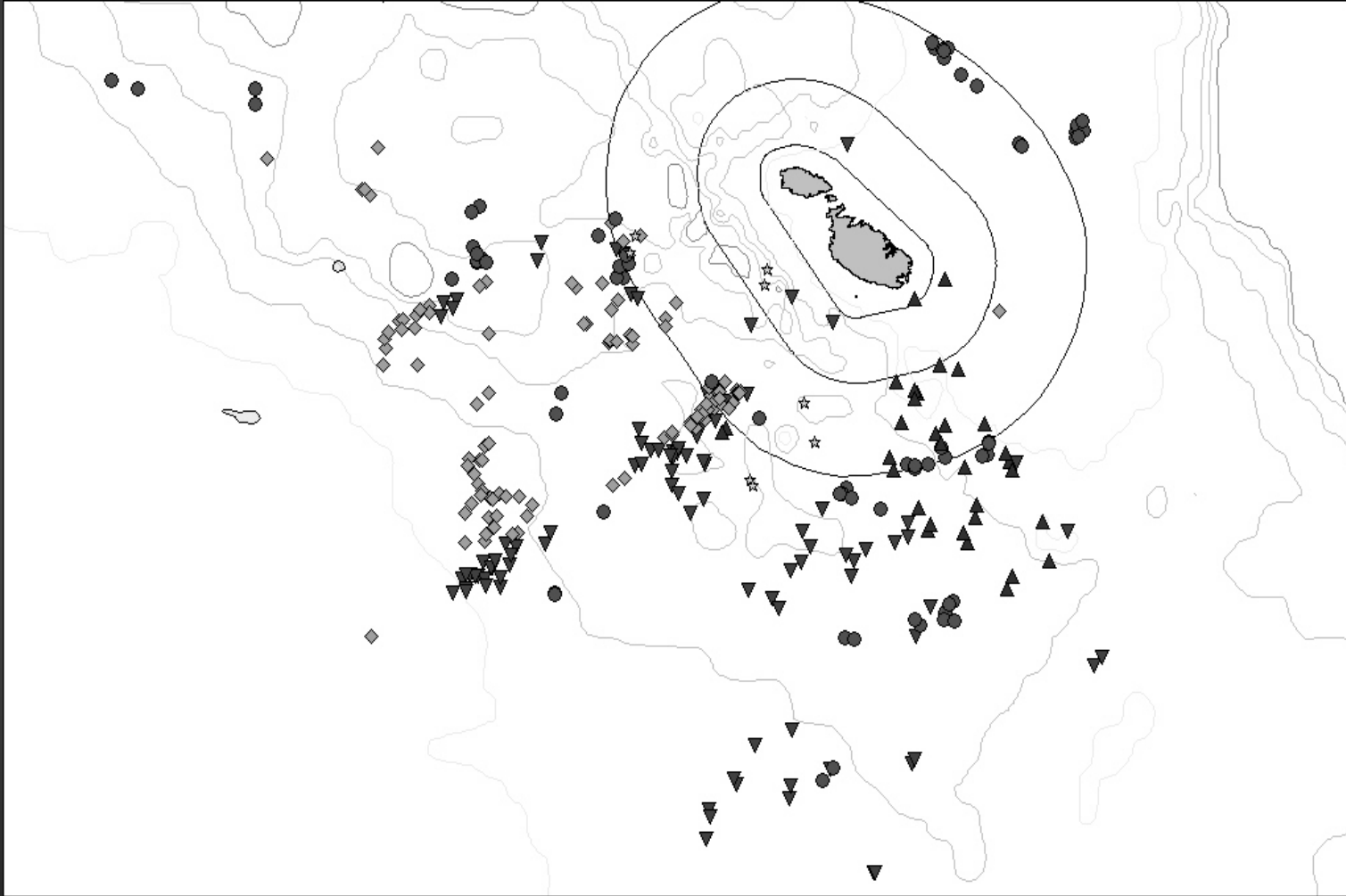
Drifting longlines – By-catch

Common name	Latin name	Total catch in no. (%)	Total catch in wt. (%)
Loggerhead turtle	<i>Caretta caretta</i>	40.3	7.3
Broadbill swordfish	<i>Xiphias gladius</i>	31	21.1
Bluefin tuna	<i>Thunnus thynnus</i>	11.8	65.7
Violet or pelagic stingray	<i>Pteroplatytrygon violacea</i>	9.8	0.7
Dolphin fish	<i>Coryphaena hippurus</i>	2.5	1.3
Oilfish	<i>Ruvettus pretiosus</i>	1.6	0.1
Longfin tunny	<i>Thunnus alalunga</i>	1	0.2
Mediterranean spearfish	<i>Tetrapterus belone</i>	0.8	0.6
Blue shark	<i>Prionace glauca</i>	0.4	0.3
Ocean sunfish	<i>Mola mola</i>	0.3	0.5
Devil fish	<i>Mobula mobular</i>	0.3	1
Porbeagle shark	<i>Lamna nasus</i>	0.3	1.2
Silver scabbardfish	<i>Lepidopus caudatus</i>	0.1	*
White shark	<i>Carcharodon carcharias</i>	0.1	*
Total		100 (796 individuals)	100 (14,871.5 kg)

Drifting longlines – Variables

- Significant effects on CPUE (W):
 - date (increasing trend from May to June)
 - longitude (CPUE increased Eastwards)
 - moon phase (5th lunar phase – full moon)
 - species
 - *Prionace glauca* vs. highest turtle by-catch
 - *Thunnus alalunga* vs. lowest turtle by-catch
 - wind speed (CPUE highest at force 4-5)
- None of the studied variables were found to have significant effects on CPUE (N)

Fishing sites during study



Other data from logbooks and CAS

- Logbook sheets ask for the total weight of discards to be recorded
- E-logbook will ask for weight of discards per species (2012)
- During 2011 information about discards by species started to be collected through the CAS

GFCM Task 1 data

- At present Malta is able to provide full by-catch data only on the associated species
- AS from 2012 Malta will be able to provide data on all the by-catch categories:
 - Target species,
 - Associated Species (by-catch of commercial species),
 - Unwanted Species (by-catch of species of conservation concern) and
 - Discards (all species).

Thank you for your attention!