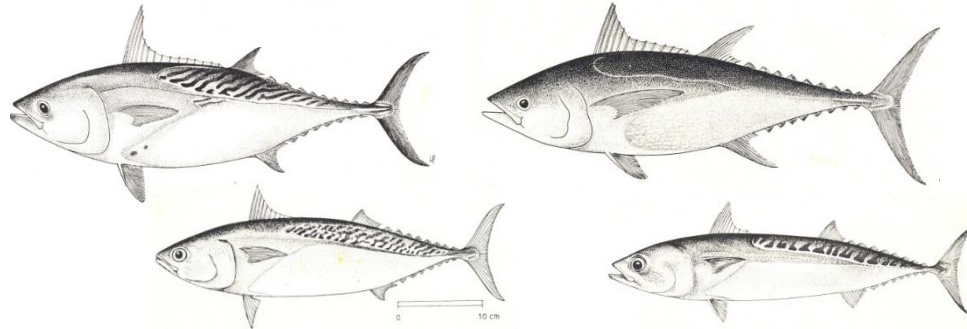




# Update on the Status and Trends of Neritic Tunas and Seerfishes in the Philippines



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**National Fisheries Research and Development  
Institute (NFRDI)**

Mercure Pattaya Ocean Resort  
Chonburi, Thailand  
June 27-29, 2016

# Outline

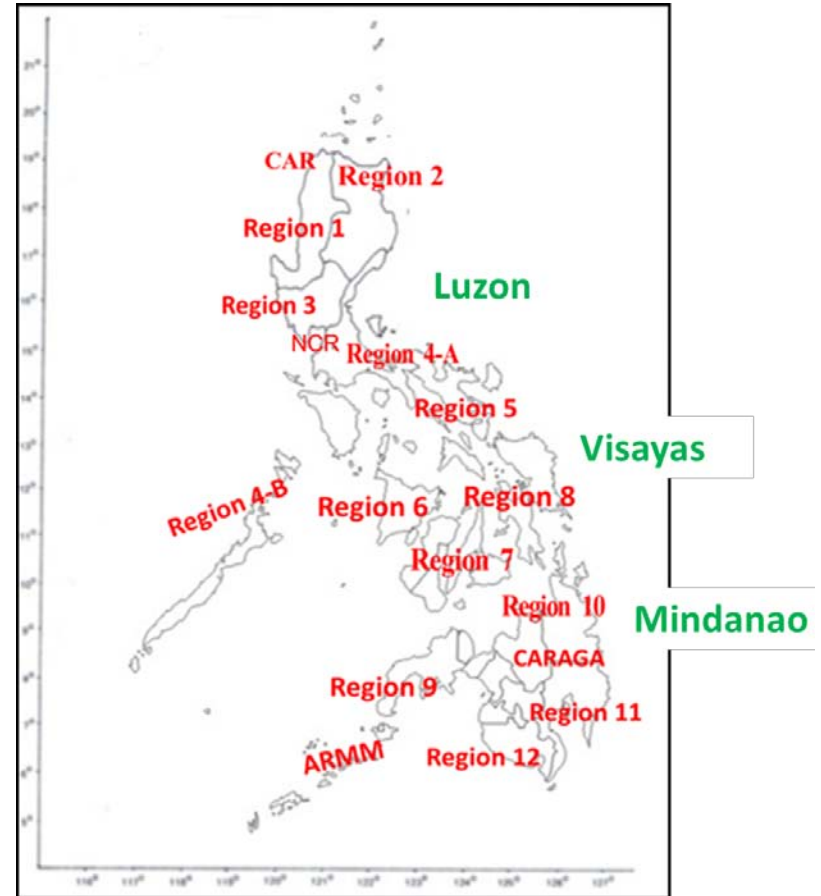
- Introduction
- Philippine Marine Fishery
  - neritic tunas and seerfishes
- Data Collection Initiatives
- Phil. Fishing Gears
- Status and Trends of KAW and LOT
- Update on the other neritic tunas and seerfishes
- Distribution/market of tuna catches

# Introduction

## The Philippines



- an archipelagic country situated in the western Pacific Ocean.
- subdivided into 17 administrative regions
- geographically combined into three island groups of Luzon, Visayas and Mindanao



*Map of the Philippine showing the locations of the different administrative regions*

# The Philippine Marine Fishery

## 2 Sectors:

### 1) Municipal sector (small-scale)

- use boats of < 3 GT;
- vessels licensing under the Local Government Units (LGUs);
- fish within municipal waters or 15 km from shoreline

### 2) Commercial sector

- use boats of 3 GT and above;
- Commercial Fishing Vessel and Gear License (CFVGL) issued by the Bureau of Fisheries and Aquatic Resources (BFAR), renewal every 3 years;
- fish outside municipal waters, beyond 15km off the shoreline



Philippine Fishing Boats

# Philippine Marine Fisheries

## Neritic Tunas and Seerfishes

- Excellent foodfishes
- Economically important for they greatly contribute to the Philippine catches

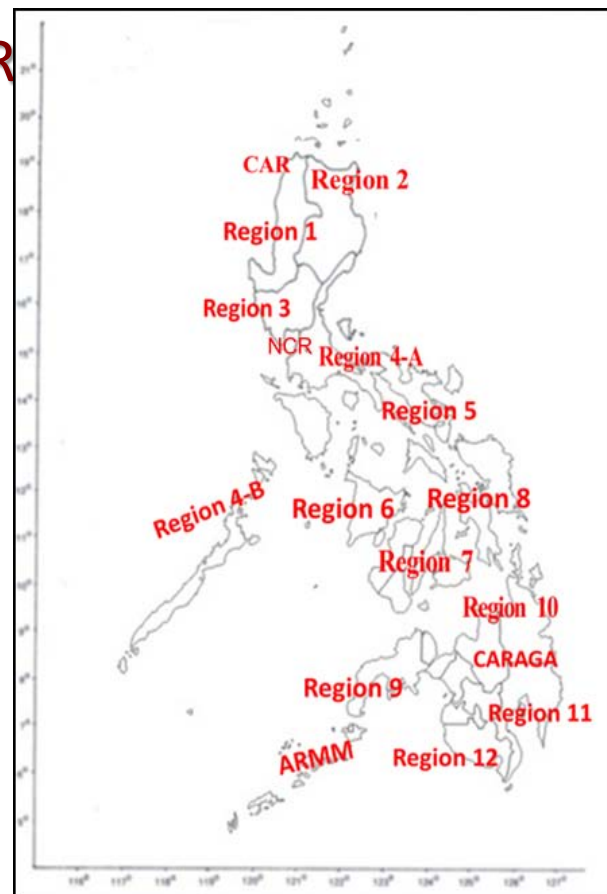
**Neritic tunas:** eastern little tuna (*Euthynnus affinis*), frigate (*Auxis thazard*), bullet tuna (*Auxis rochei*), longtail tuna (*Thunnus tonggol*), and striped bonito (*Sarda orientalis*).

**Seerfishes:** narrow-barred Spanish mackerel (*Scomberomorus commerson*) and the Indo-Pacific king mackerel (*Scomberomorus guttatus*)

# Data Collection Initiatives & Responsible Agencies

## Bureau of Fisheries & Aquatic Resources (BFAR)

- National Stock Assessment Program (NSAP)
  - A regular activity of BFAR in the 17 political regions (started in **1997** to present)
  - Collects landed catch & effort data and reproductive biology data
- Philippine Observer Program
  - Train fisheries observers to go on board fishing vessels (PS and RN)
- West Pacific East Asia Oceanic Fisheries Management Project (WPEA-OFMP)
  - increased their port sampling coverage for tunas in 2010



*Map of the Philippine showing the locations of the different administrative regions*



# **Data Collection Initiatives & Responsible Agencies**

## **The Philippine Statistics Authority (PSA)**

- Mandated to compile and publish the official Philippine fisheries statistics since 1988.

## **The Philippine Fisheries Development Authority (PFDA)**

- Collects data on the volume of catch by species and value in PFDA managed ports.

## **The National Statistics Office (NSO)**

- Conducts national census every 10 yrs.
- Maintains the official statistics on fishery exports and imports in the Philippines
- Provide information vital to monitoring products flows and corroborating production figures

# The Philippine Fishing Gears

- The NSAP (15 BFAR regional offices) conduct Stock Assessment in 61 fishing grounds of the country
- Recorded 23 types of fishing gears that catch neritic tunas and seerfishes

Fishing Gears			
1	Bagnet (BN)	13	Otoshi Amin (OA)
2	Beach Seine (BS)	14	Otter Trawl (OT)
3	Danish Seine (DS)	15	Purse Seine (PS)
4	Drive-in-Net (DIN)	16	Ringnet (RN)
5	Fish Corral (FC)	17	Round Haul Seine (RHS)
6	Fish Pot (FP)	18	Scoop Net (SN)
7	Fish Trap (FT)	19	Spear Gun (SG)
8	Gillnet (GN)	20	Squid Trawl
9	Handline (HL)	21	Trammel Net (TN)
10	Hook & Line (H&L)	22	Trawl (T)
11	Lift Net (LN)	23	Troll Line (TL)
12	Long Line (LL)		

*Fishing gears that catch neritic tunas and seerfishes*

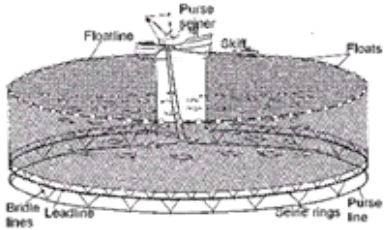
Fishing Grounds			
1	Babuyan Channel	32	Macajalar Bay
2	Baler Bay	33	Manila Bay
3	Bangui Bay	34	Moro Gulf
4	Batanes Waters	35	Pacific Ocean
5	Bohol Sea	36	Palanan Bay
6	Butuan Bay	37	Palawan
7	Calatagan/Balayan Bay	38	Panay Gulf
8	Camiguin Waters	39	Panguil Bay
9	Camotes Sea	40	Pasaleng Bay
10	Casiguran Sound	41	Philippine Sea
11	Cuyo East Pass	42	Ragay Gulf
12	Dasol Bay	43	Sarangani Bay
13	Davao Gulf	44	Sibuyan Sea
14	Dinagat Sound	45	Sulu Sea
15	Dinalungan Sound	46	Surigao
16	Dipaculao Bay	47	Surigao Sea
17	East Siargao Waters	48	Surigao Strait
18	Gingog Bay	49	Tawi-tawi
19	Guimaras Strait	50	Tayabas Bay
20	Hinatuan Bay	51	Visayan Sea
21	Hinatuan Passage	52	Visayas
22	Honda Bay	53	West Phil Sea
23	IC/NWPS	54	West Philippine Sea
24	Iligan Bay	55	Zambales Coast
25	Illana bay	56	Zamboanga
26	Isabela Waters	57	Soouth Sulu Sea
27	Lagonoy Gulf	58	Sindangan Bay
28	Lamon Bay	59	East Sulu Sea
29	Leyte Gulf	60	Dipolog Bay
30	Liang Bay	61	Basilan Strait
31	Lingayen Gulf		

*Fishing Grounds presently covered by NSAP*



# Example of Philippine Fishing Gears that can catch neritic species

**Purse seine**



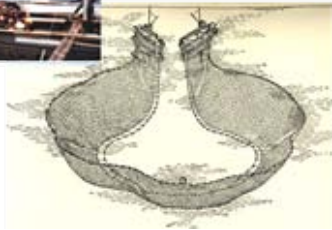
*Typical arrangement of a purse seine (AFMA)*



**Hook & Line**



**Ringnet**



**Multiple Hook & Line**



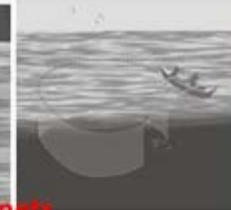
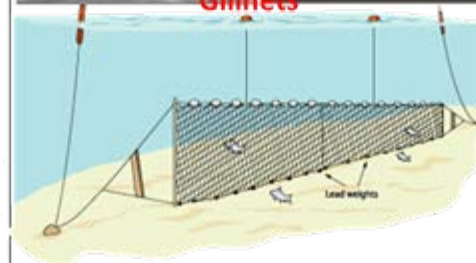
**Bagnet**



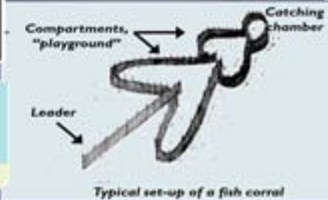
*Typical set-up of an Otoshi-ami*



**Gillnets**



**Fish Corral**

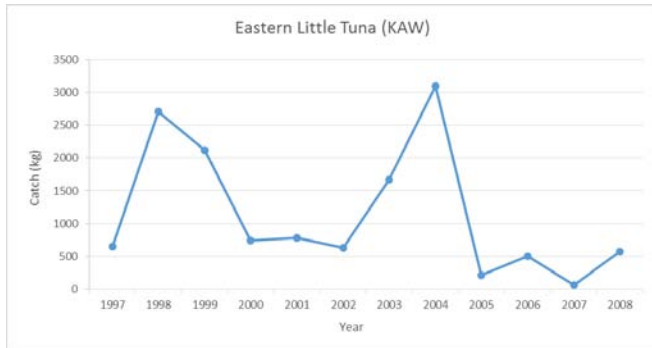


*Typical set-up of a fish corral*

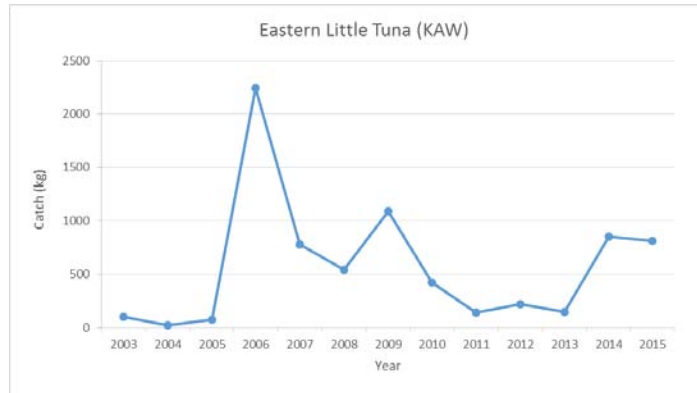
# Status and Trends

# Annual Landed Catch of KAW

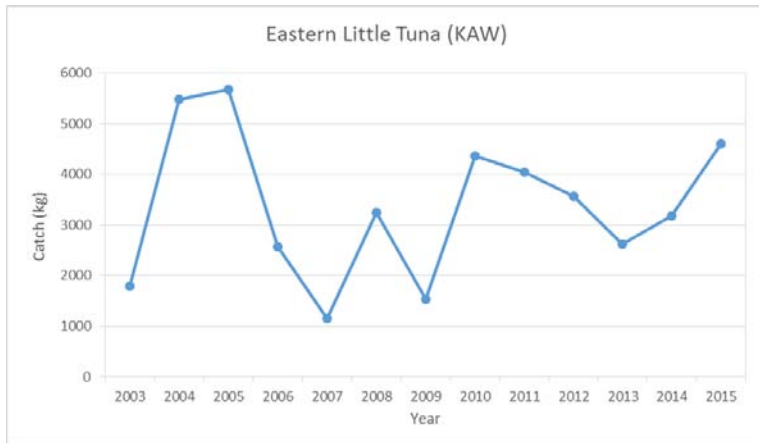
## Region I (Luzon) – Lingayen Gulf



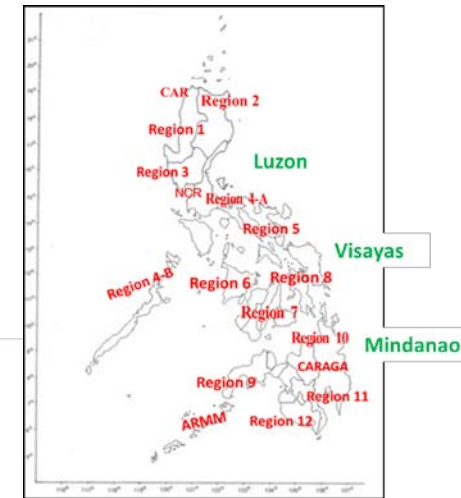
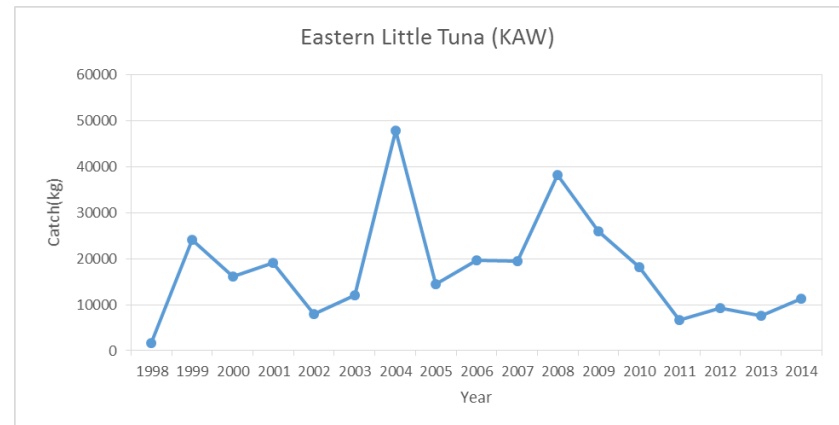
## Region 3 (Luzon) – Zambales Coast



## Region 4B (Luzon) – Honda Bay



## Region 5 (Luzon) – Lagonoy Gulf



# Relative Abundance of KAW by Gear

## Region I (Luzon) – Lingayen Gulf

Year	DS	HL	Total
1997	86.0	14.0	100
1998	97.3	2.7	100
1999	99.4	0.5	100
2000	99.9	0.2	100
2001	100.0		100
2002	99.8	0.2	100
2003	100.0	0.0	100
2004	99.9	0.1	100
2005	98.1	1.7	100
2006	99.1	0.9	100
2007	94.5	5.5	100
2008	100.0		100

## Region 3 (Luzon) – Zambales Coast

	BN	GN	H&L	HL	LL	TN	Total
2004						100	100
2005	14					86	100
2006				96		4	100
2007					3	97	100
2008					18	82	100
2009					3	97	100
2010					25	75	100
2011				11		89	100
2012				3		97	100
2013				7	11	82	100
2014		3	1	18	1	76	100
2015				36		64	100

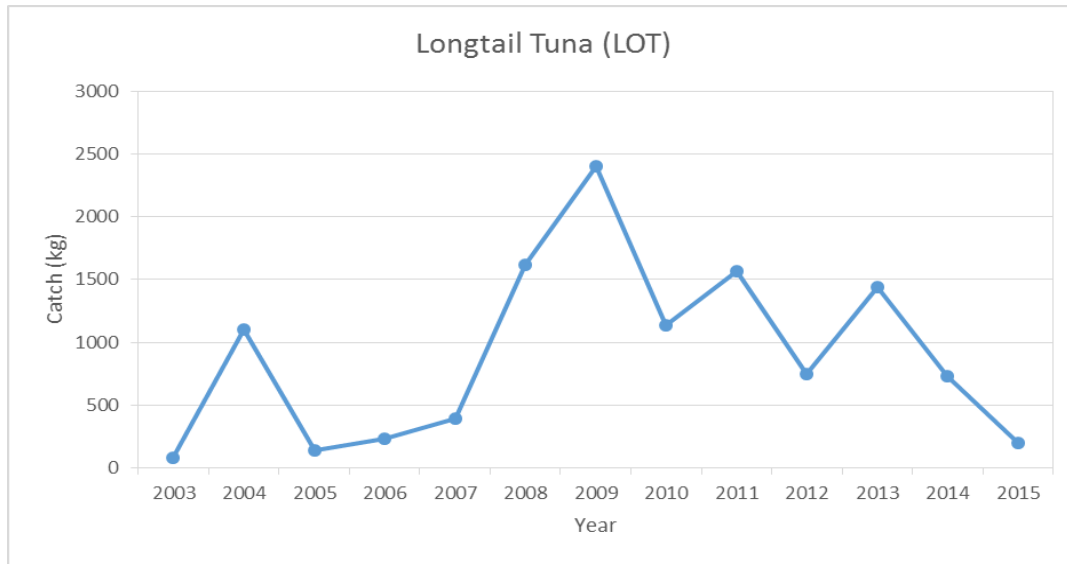
## Region 4B (Luzon) – Honda Bay

	DIN	FC	GN	H&L	LL	LN	RN	TL	Total
2003			56.6				43.0		100
2004		2.2	37.7				59.9		100
2005			53.0	1.9			44.9		100
2006			56.6	4.8			38.6		100
2007		1.5	47.8	20.3			29.2	1.2	100
2008			10.6	31.1			57.8		100
2009			28.8	53.0			18.2		100
2010		0.6	70.0	29.2					100
2011			38.0	60.7				1.3	100
2012			33.5	62.9		3.3			100
2013			48.0	52.0					100
2014		0.5	66.8	32.4	0.3				100
2015	14.4		34.0	51.2					100

## Region 5 (Luzon) – Lagonoy Gulf

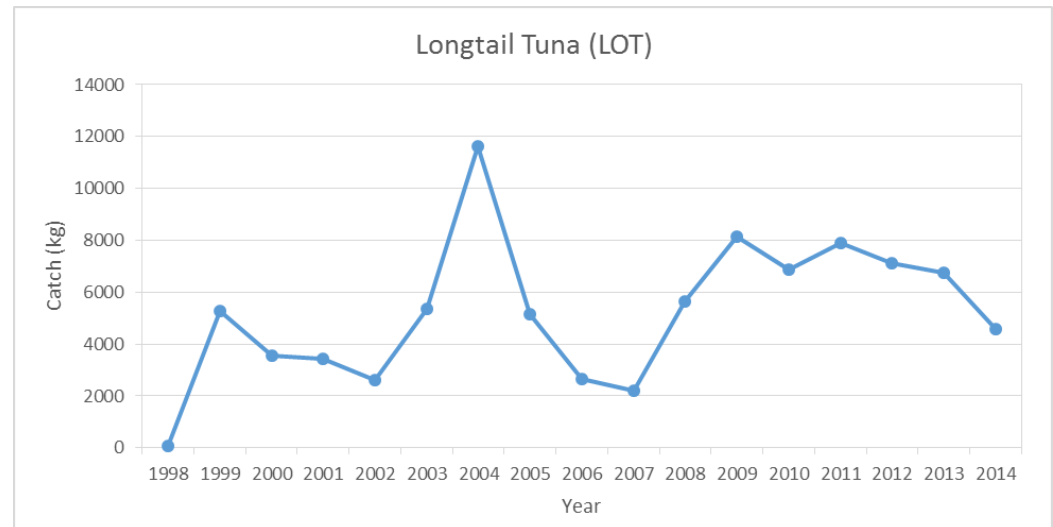
	BN	BS	FP	GN	HL	LL	OA	RHS	RN	TL	Total
1998				0.3	14.7				85.0		100
1999				2.2	29.5				68.3		100
2000	6.1			2.0	3.3				88.6		100
2001		0.1		4.8	6.1				89.0		100
2002			0.1	0.7	3.8	0.1	1.0		94.4		100
2003	0.3			3.6	4.3	0.2	3.2	0.04	88.2		100
2004		0.3		2.7	7.2		1.8		88.0		100
2005				1.3	6.5		0.5		91.7		100
2006				3.3	3.7		0.4		92.6		100
2007		0.4		1.4	2.3				95.9		100
2008				0.4	2.0				97.5		100
2009		0.6	0.0	1.2	4.1				94.1		100
2010		0.2		0.7	1.5				97.5		100
2011				0.8	2.6				96.6		100
2012		5.7		1.8	0.3	0.1			92.1		100
2013				1.4	21.6				77.1		100
2014				11.0	4.7	0.1			83.8	0.4	100

# Annual Landed Catch of LOT



Region 4B (Luzon) – Honda Bay

Region 5 (Luzon) – Lagonoy Gulf



# Relative Abundance of LOT by Gear

## Region 4B (Luzon) – Honda Bay

	GN	H&L	LL	RN	TL	Total
2003	100.0					
2004	0.2			99.8		100
2005	60.0	37.3			2.7	100
2006	81.2	18.8				100
2007	56.9	43.1				100
2008	45.2	54.8				100
2009	37.2	62.8				100
2010		100.0				100
2011	0.2	99.8				100
2012	2.4	97.0	0.5			100
2013		100.0				100
2014		100.0				100
2015		100.0				100

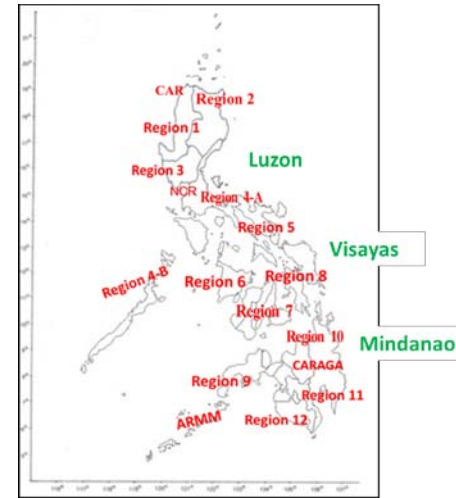
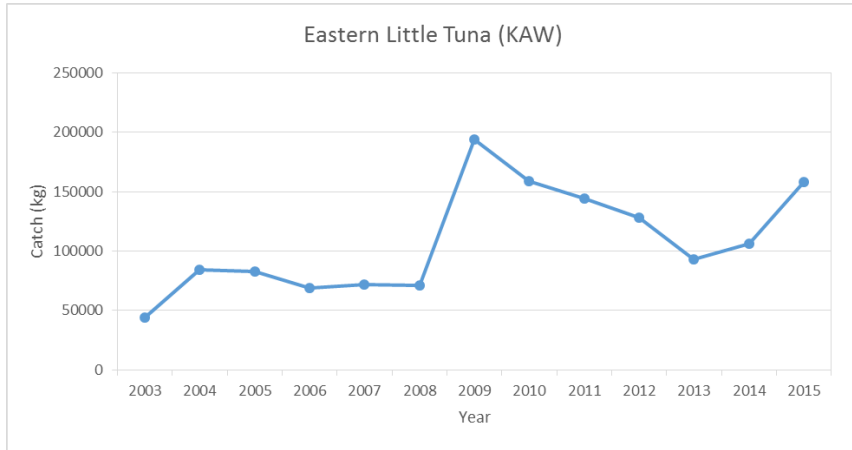
## Region 5 (Luzon) – Lagonoy Gulf

	GN	HL	LL	OA	RHS	RN	Total
1998		100					100
1999	0.2	1.1				98.7	100
2000		0.3				99.7	100
2001		6.0		0.6		93.5	100
2002		2.6		15.0		82.4	100
2003		1.4		50.1		48.5	100
2004		7.2		15.7		77.1	100
2005		2.3		54.2		43.5	100
2006		1.4		48.3		50.3	100
2007		15.7				84.3	100
2008		2.0				98.0	100
2009	0.1	3.5				96.4	100
2010	0.7	6.6	0.1			92.7	100
2011		2.6				97.4	100
2012						100.0	100
2013		0.1				99.9	100
2014		39.5				60.5	100

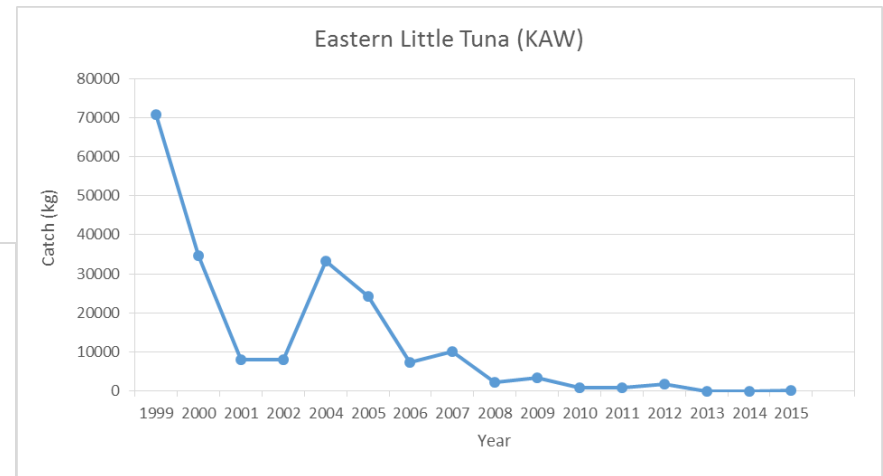


# Annual Landed Catch of KAW

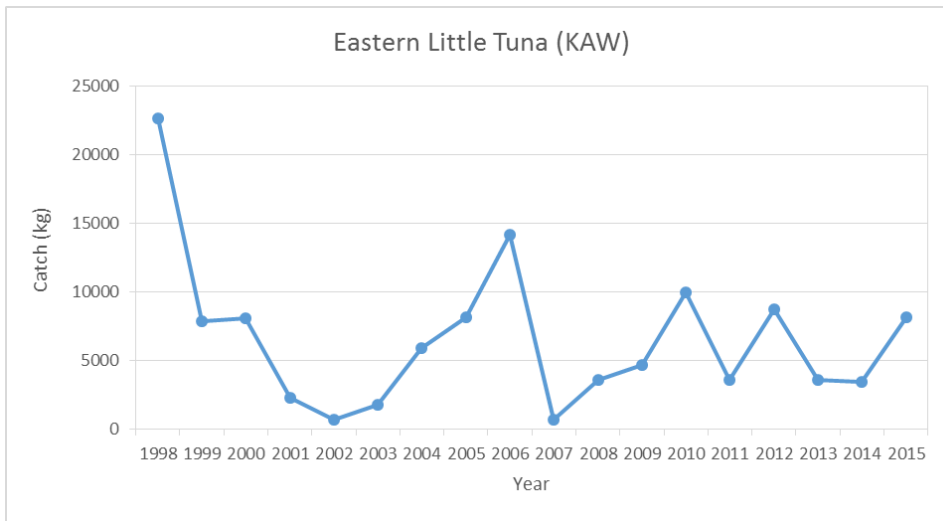
## Region 6 (Visayas) Visayan Sea



## Region 8 (Visayas) Leyte Gulf



## Region 7 (Visayas) Camotes Sea

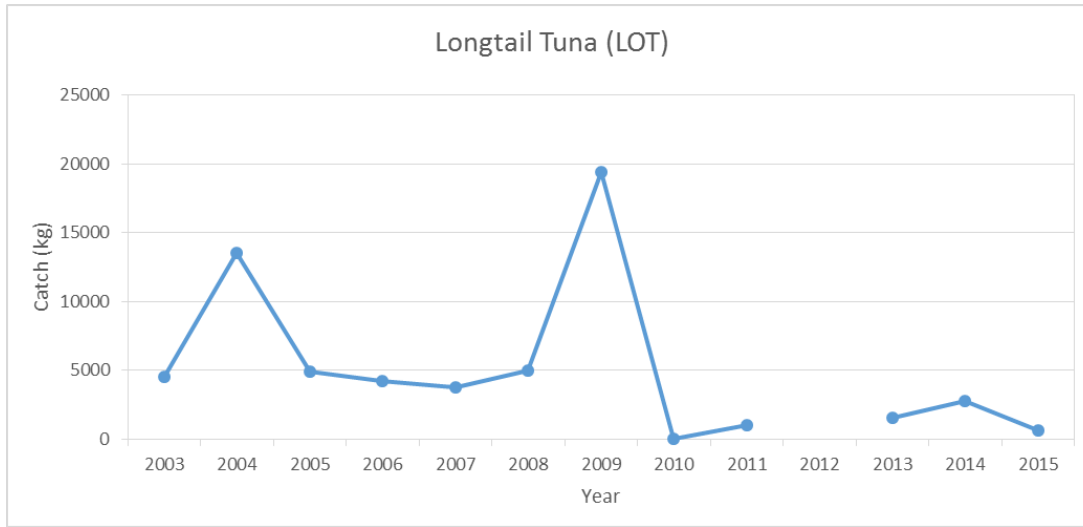


# Relative Abundance of KAW by Gear

## Region 6 (Visayas) Visayan Sea

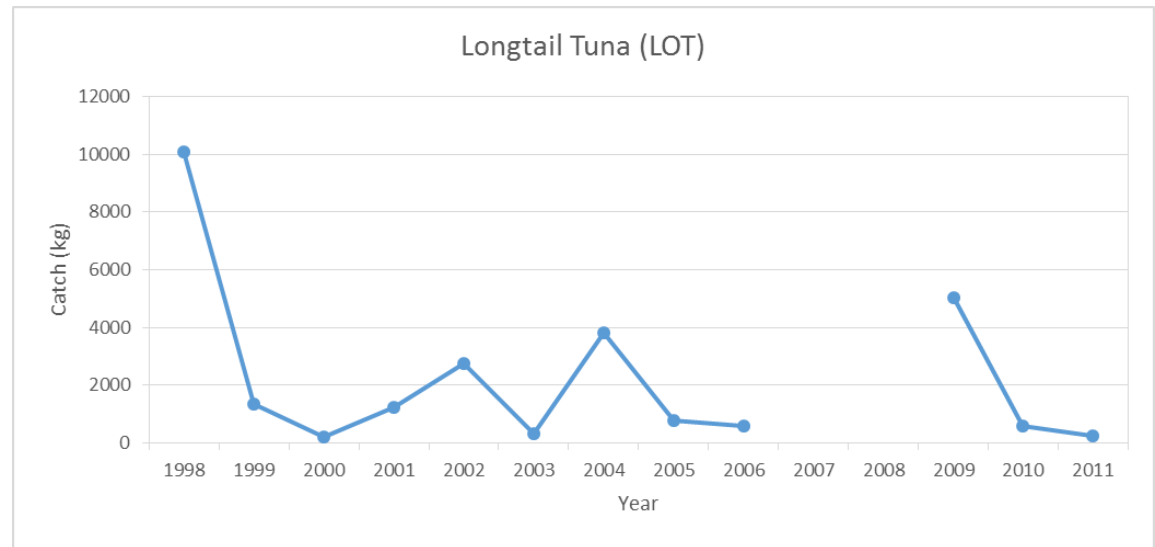
	DIN	DS	FC	GN	OT	PS	RN	T	Grand Tot
2003		31.0		4.1	0.2	64.4		0.2	100
2004		23.2		4.0		62.8		1.6 8.4	100
2005		17.8		1.3		80.6		0.2 0.1	100
2006		7.9		2.6		87.8		1.6 0.1	100
2007		11.6		0.3		85.8		2.2	100
2008		6.1		0.4		93.0		0.4	100
2009		2.8		0.3		97.0			100
2010		3.7		0.2		96.1			100
2011		12.0		0.8		87.3			100
2012		12.4		1.8		82.3		0.1 3.4	100
2013	0.1	7.1		0.5	0.1	92.1			100
2014		9.3	0.1	0.8		89.7			100
2015		2.8		0.1		97.0			100

# Annual Landed Catch of LOT



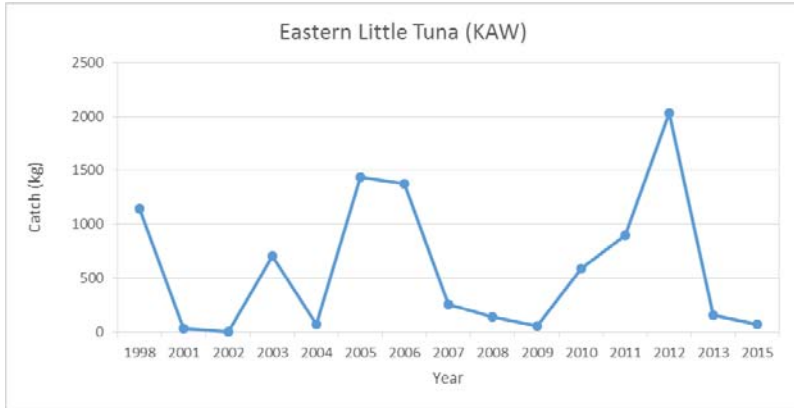
Region 6 (Visayas) Visayan Sea

Region 7 (Visayas) Camotes Sea

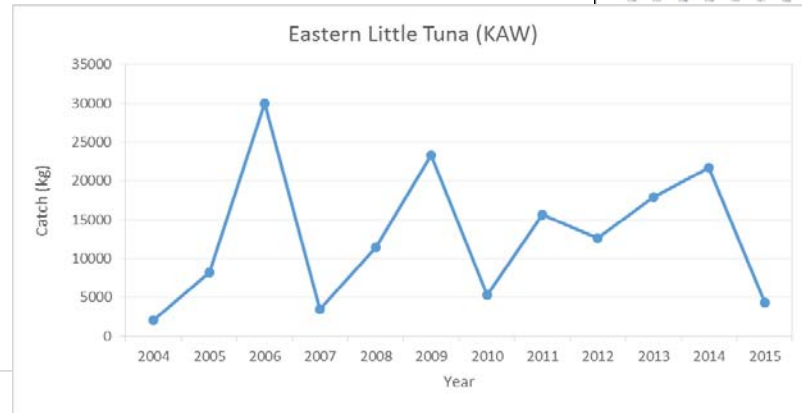


# Annual Landed Catch of KAW

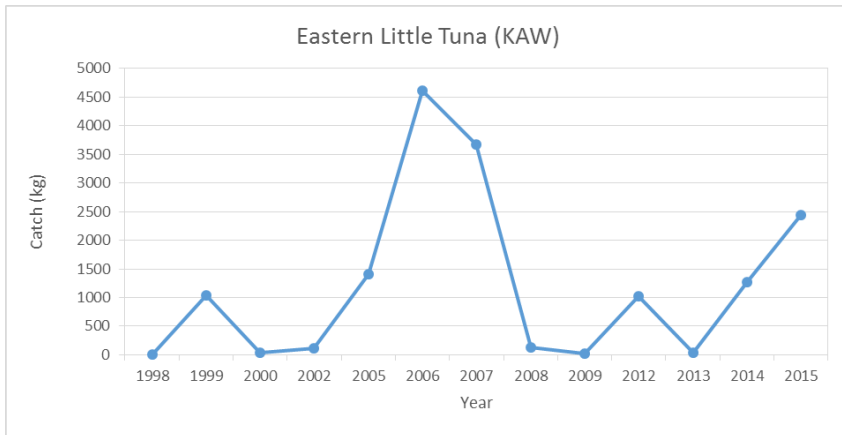
Region 10 (Mindanao)- Macajalar Bay



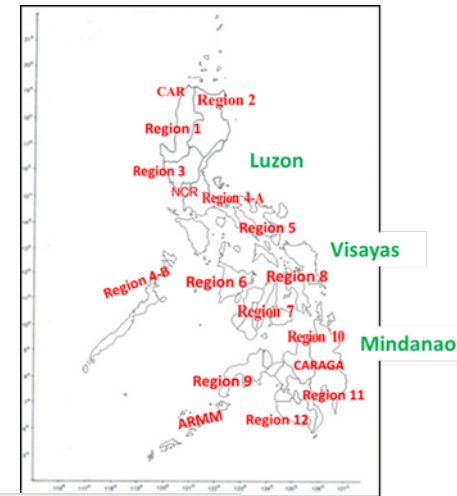
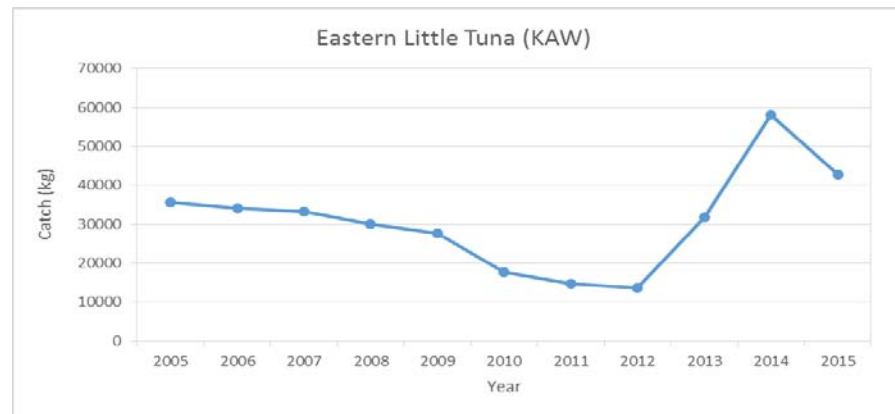
Region 11 (Mindanao)- Davao Gulf



Region 10 (Mindanao)- Iligan Bay

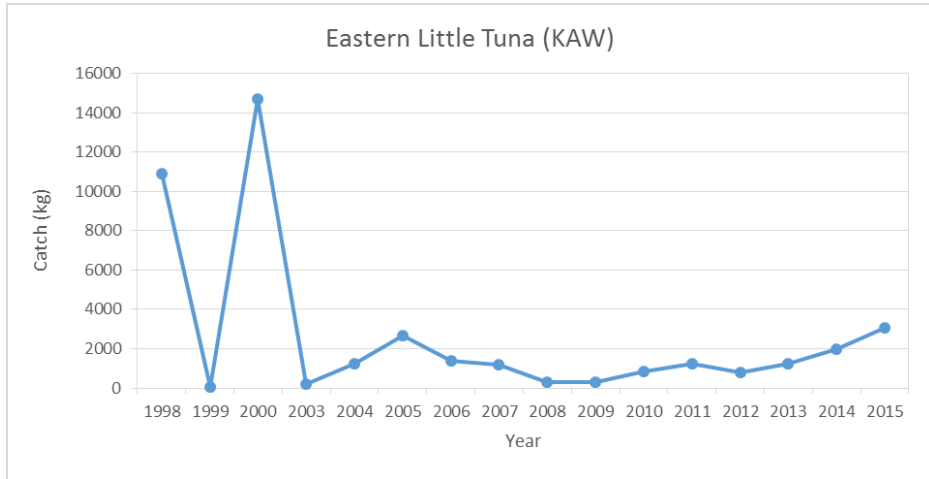


Region 12 (Mindanao)- Moro Gulf

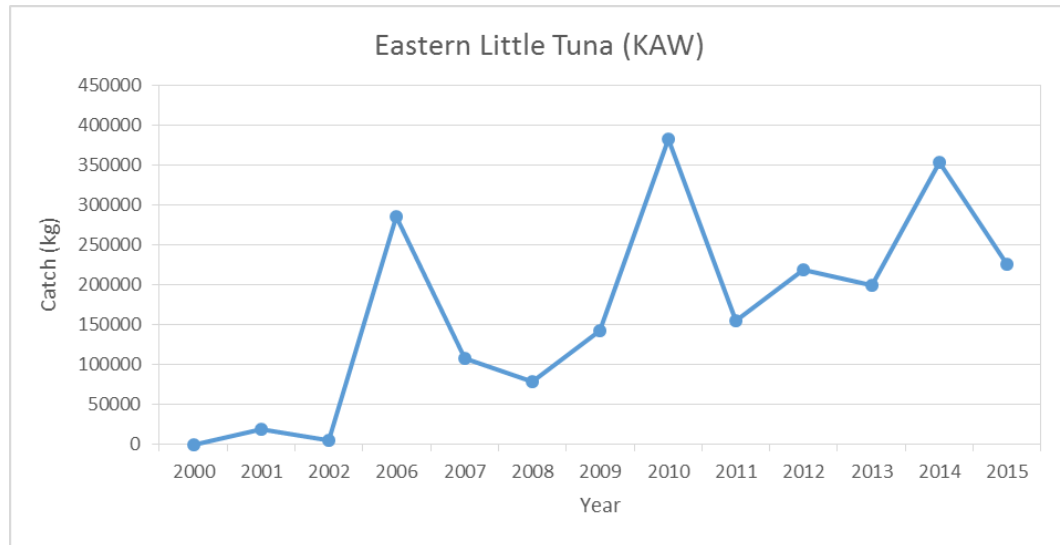
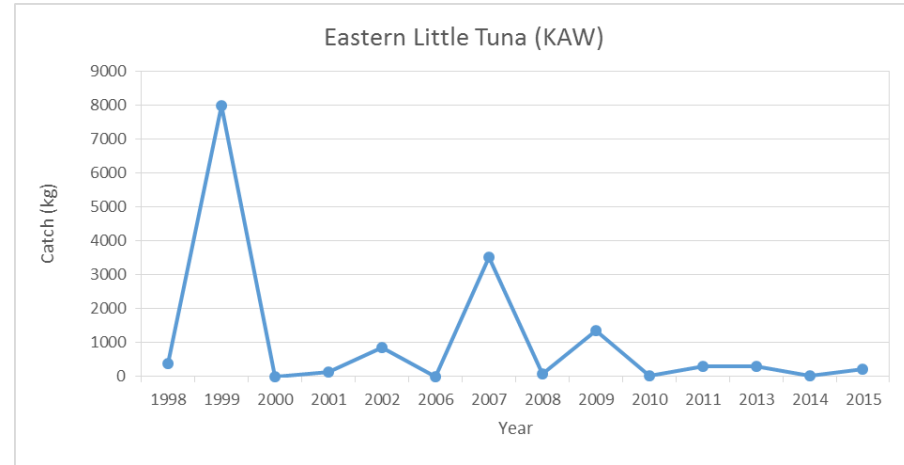


# Annual Landed Catch of KAW

## CARAGA Region (Mindanao)- Hinatuan Passage



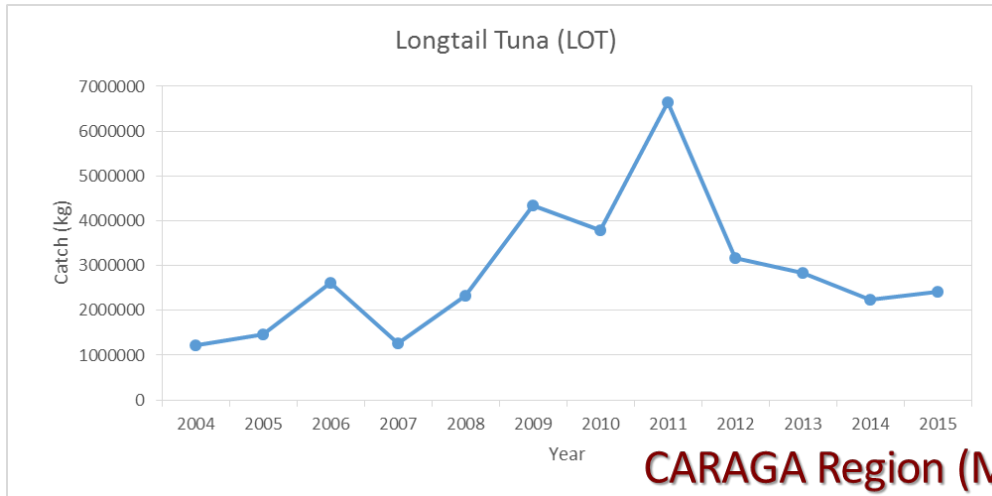
## ARMM Region (Mindanao)- Illana Bay



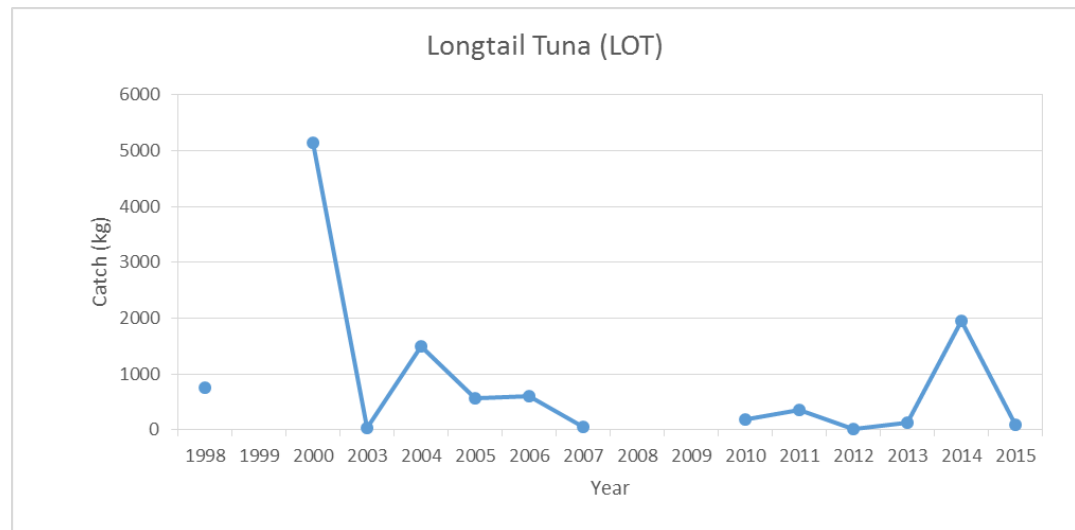
## ARMM Region (Mindanao)- Sulu Sea

# Annual Landed Catch of LOT

## Region 11 (Mindanao)- Davao Gulf



## CARAGA Region (Mindanao)- Hinatuan Passage





Fishing Gear		Size Ranges (cm)
Bagnet	BN	9.0-52.0
Beach seine	BS	24.0-35.0
Danish seine	DS	23.5-50.4
Fish corral	FC	25.0-69.5
Bttom gillnet	BGN	26.0-49.0
Drift gillnet	DGN	16.0-67.3
Encircling gillnet	EGN	16.7-25.0
Gillnet	GN	20.0-78.0
Surface gillnet	SGN	16.3-70.0
Hook & Line	H&L	16.1-56.7
Handline	HL	10.0-68.0
Longline	LL	23.4-64.5
Multiple hook & line	MH&L	12.0-57.0
Multiple handline	MHL	10.6-59.0
Multiple troll line	MTL	15.3-63.5
Single hook & line	SH&L	21.0-59.5
Single handline	SHL	22.0-60.0
Troll line	TL	13.8-81.3
Purse seine	PS	8.0-49.0
Ringnet	RN	9.0-66.0
Trammel net	TN	44.0-55.0

**Size ranges of  
*Euthynnus affinis*  
caught by gear in  
the Philippines  
(1999-2014)**

**Size ranges of *Thunnus tonggol* caught by gear in the Philippines (2008-2014)**

Fishing Gear		Size Ranges (cm)
Drift gillnet	DGN	25.0-72.0
Surface gillnet	SGN	20.3-25.4
Hook & Line	H&L	30.0-111.0
Handline	HL	16.0-46.0
Multiple Hook & Line	MH&L	17.4-98.0
Multiple handline	MHL	12.0-50.0
Single Hook & Line	SH&L	23.1-190.0
Single Handline	SHL	57.8-178.7
Troll Line	TL	22.1-91.0
Purse seine	PS	31.0-41.0
Ringnet	RN	18.0-64.5

# Update on the other neritic tunas and seerfishes

- 7 regions (out of 15) already submitted NSAP data on the other neritic tunas and seerfishes (Regions: 1, 2, 4B, 5, 7, 8 and 12)
  - Checking the data
  - With lacking months/years
  - Incomplete effort (e.g. “days”)

# Relative abundance of other neritic spp

Area	Region	BLT (kg)	%
Mindanao	R12	3560.47	62.56
Visayas	R7	1348.38	23.69
Luzon	R2	564.06	9.91
Luzon	R1	125.34	2.20
Luzon	R5	89.75	1.58
Visayas	R8	3.49	0.06
Luzon	R4B	0.20	0.00
<b>Total</b>		<b>5691.69</b>	<b>100</b>

Area	Region	FRI (kg)	%
Mindanao	R12	4310.13	63.78
Visayas	R7	1296.02	19.18
Luzon	R2	846.22	12.52
Luzon	R1	156.35	2.31
Luzon	R5	127.34	1.88
Luzon	R4B	20.05	0.30
Visayas	R8	1.37	0.02
<b>Total</b>		<b>6757.47</b>	<b>100</b>

Area	Region	STB (kg)	%
Visayas	R7	5.85	56.05
Luzon	R1	2.64	25.25
Luzon	R2	1.09	10.40
Mindanao	R12	0.51	4.85
Luzon	R5	0.22	2.12
Luzon	R4B	0.13	1.23
Visayas	R8	0.01	0.08
<b>Total</b>		<b>10.44</b>	<b>100</b>

Area	Region	NSM (kg)	%
Luzon	R1	93.03	55.56
Luzon	R4B	25.04	14.96
Luzon	R2	20.93	12.50
Luzon	R5	18.83	11.25
Visayas	R8	9.41	5.62
Mindanao	R12	0.19	0.11
Visayas	R7		
<b>Total</b>		<b>167.44</b>	<b>100</b>

Area	Region	IKM (kg)	%
Luzon	R2	7.26	50.72
Luzon	R1	6.03	42.08
Luzon	R5	0.98	6.85
Mindanao	R12	0.04	0.29
Visayas	R8	0.01	0.05
Luzon	R4B	0.00	0.01
Visayas	R7		
<b>Total</b>		<b>14.317</b>	<b>100</b>

# Distribution/market of tuna catches:



## Neritic tunas

- usually consumed locally.

## Municipal Tuna Catch:

- Mostly landed as wet fish in different landing sites of the country.
- processed by drying, salting, smoking etc.
- some would enter large scale commercial processing

**Maraming  
Salamat!**