



REVIEW OF INFORMATION FOR OTHER NERITIC TUNA SPECIES – *Auxis thazard*

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Frigate tuna – *Auxis thazard*

Classification :-

Kingdom : Animal

Phylum : Chordata

Class :

Actinopterygii

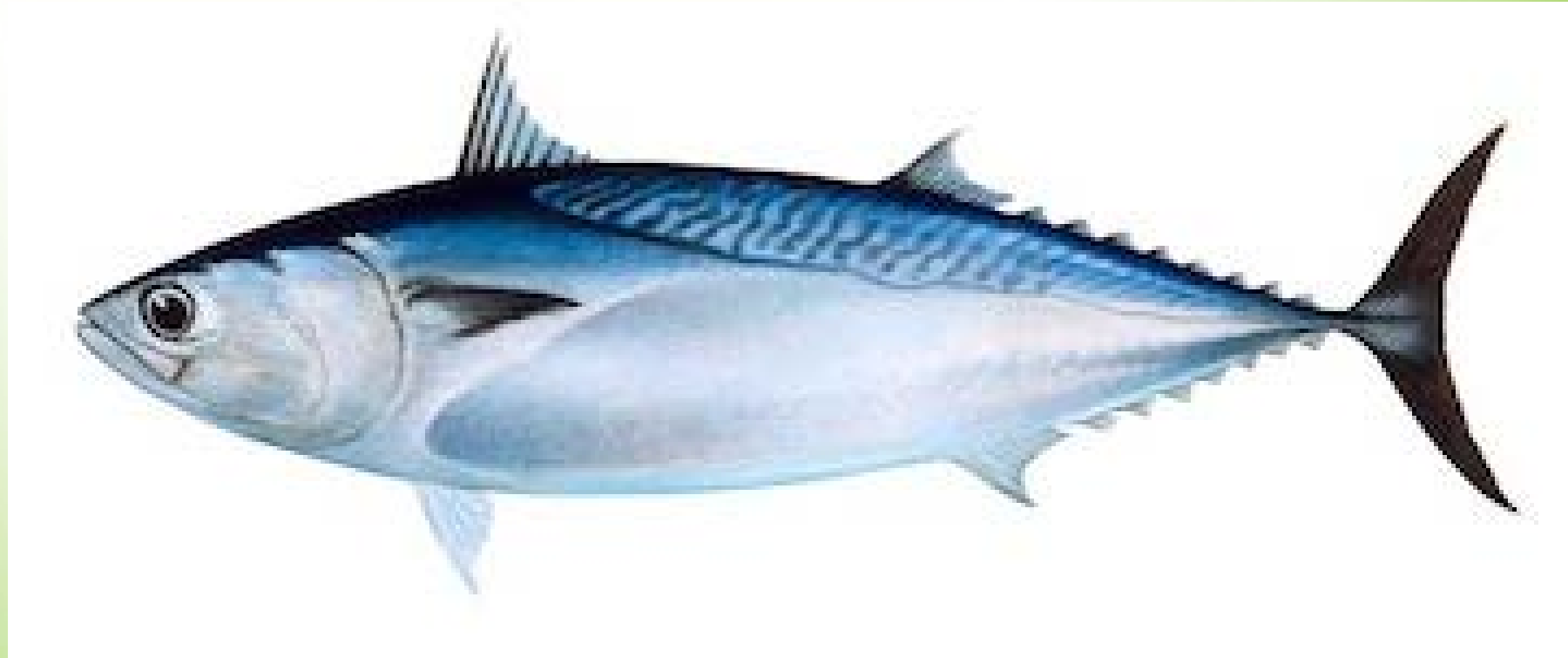
Order : Perciformes

Family :

Scombridae

Genus : *Auxis*

Species : *Thazard*



DIAGNOSTIC FEATURES

Pectoral fins short, but reaching past vertical line from anterior margin of scaleless area above corselet

Corselet well developed and narrow in its posterior part (no more than 5 scales wide under second dorsal fin origin).


First and second dorsal fins widely separated, the space between them at least equal to length of first dorsal fin base; 10 to 12 spines in first dorsal fin; interpelvic process single and long, at least as longest pelvic fin ray.


Colour : a pattern of one or more narrow, oblique to nearly horizontal, dark wavy lines in the scaleless area above lateral line.





Legend

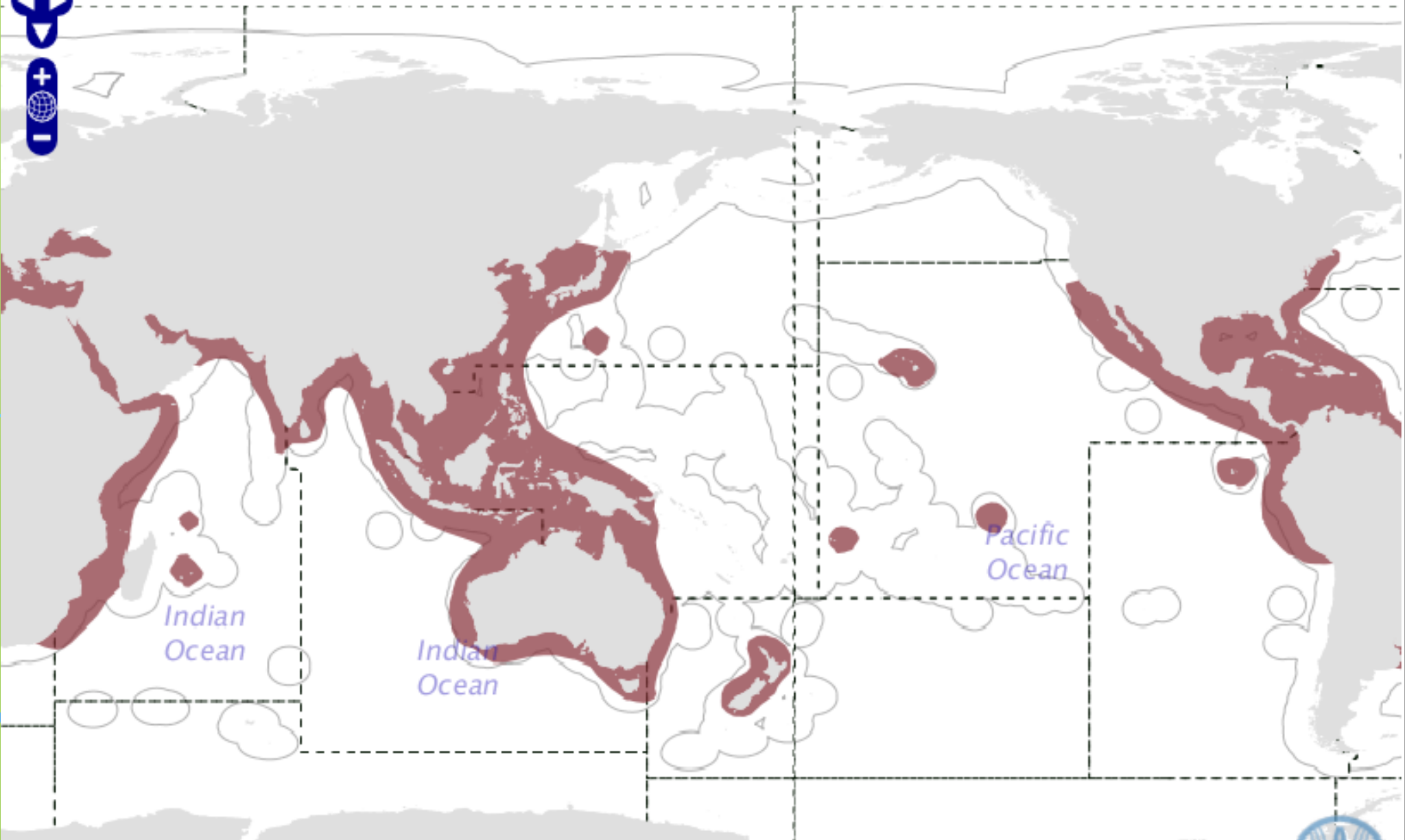
Frigate tuna

 certain

 not certain

 FAO fishing areas

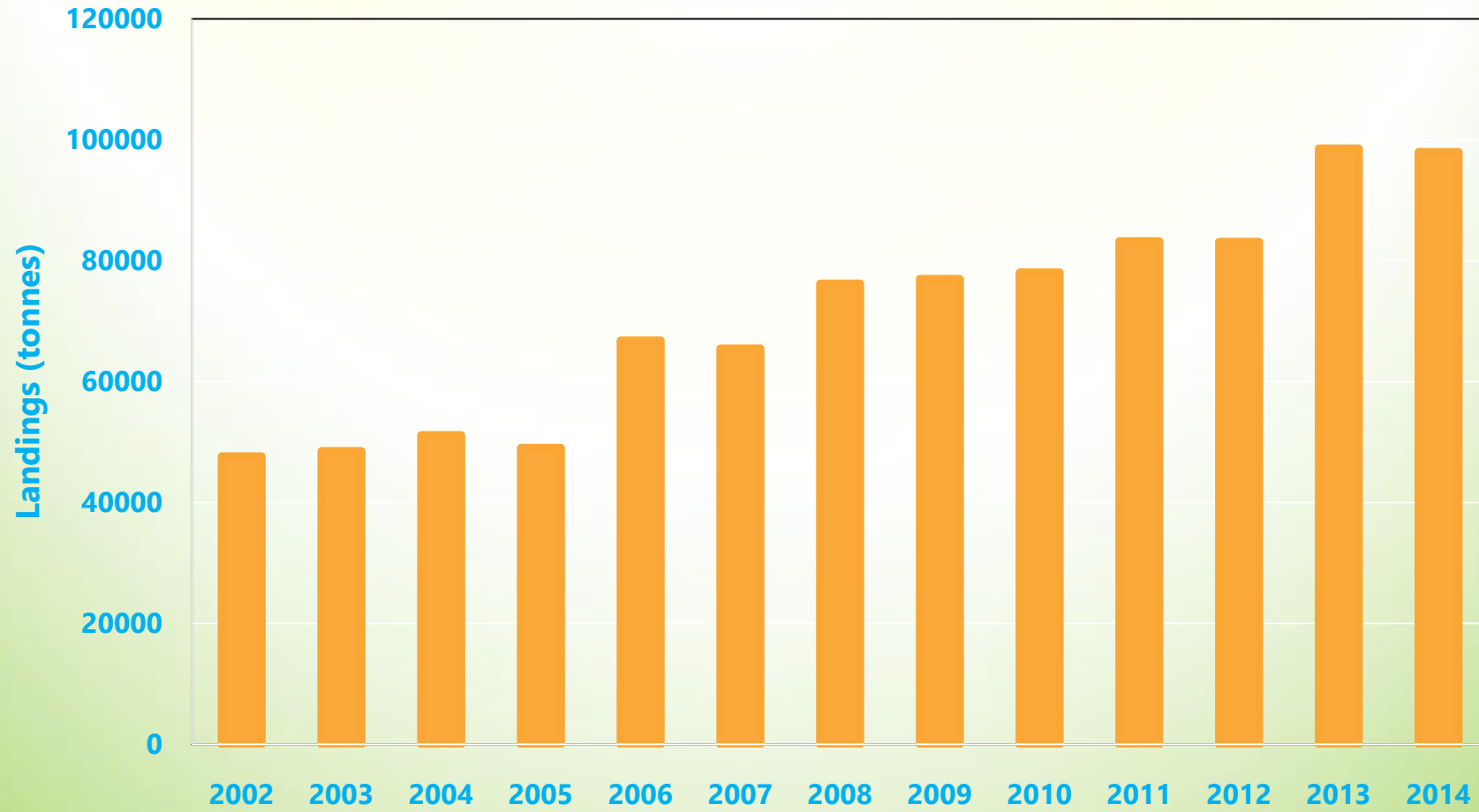
 200 nautical miles arcs



5000 km



Trend landings of Auxis Thazard in the Indian Ocean



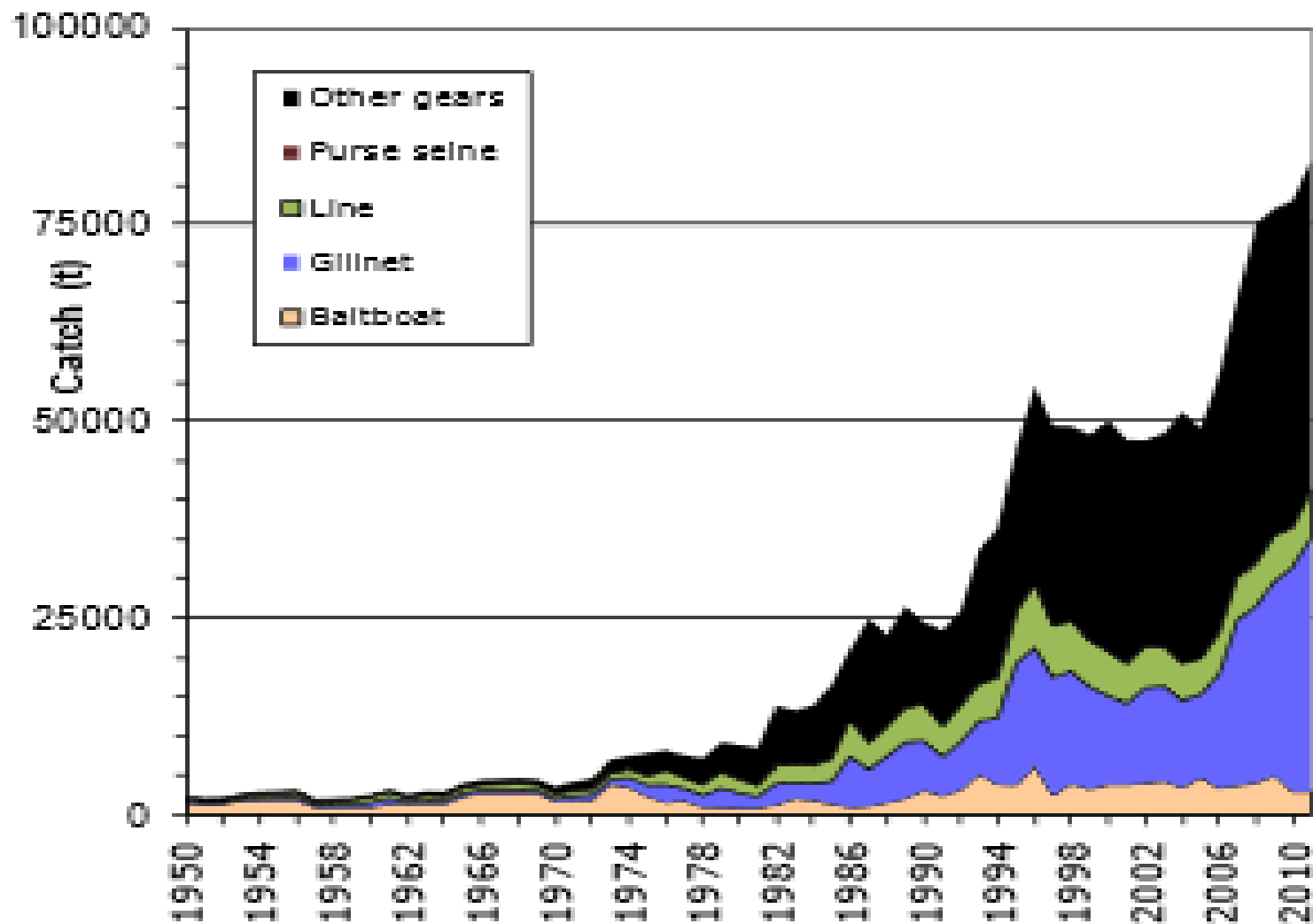
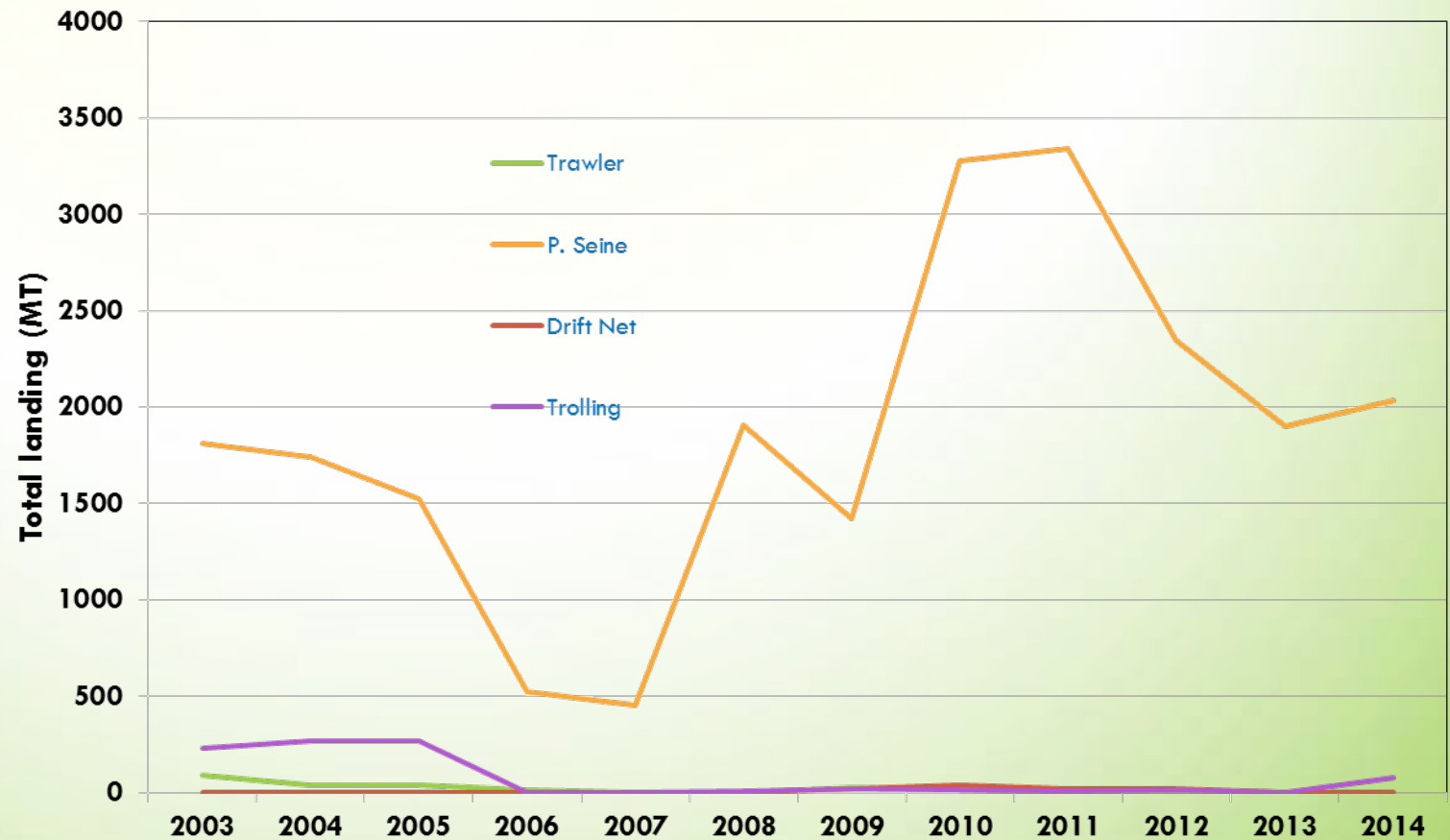


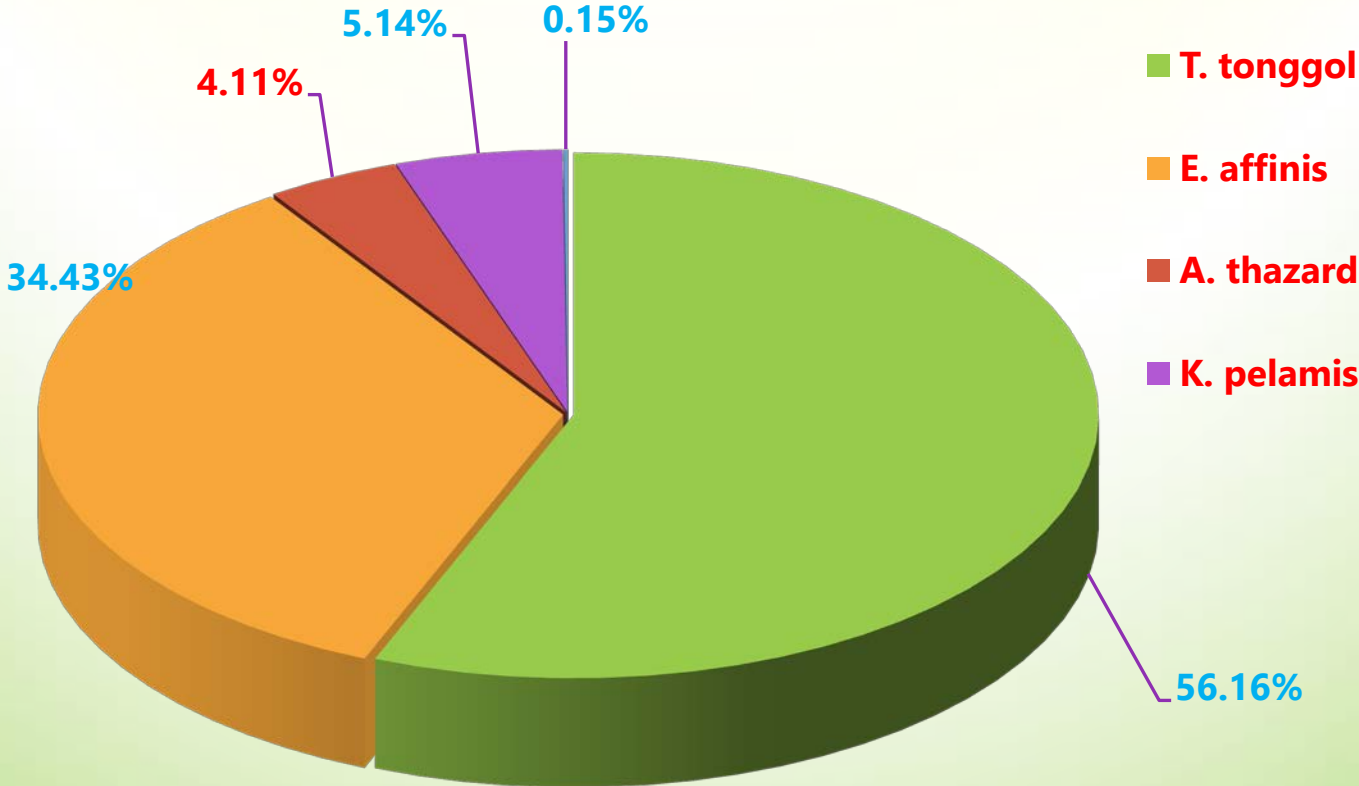
Fig. 1. Frigate tuna: Annual catches of frigate tuna by gear recorded in the IOTC Database (1950–2011)

- Purse seine is the major fishing gear for catching neritic tuna in Malaysia
- Trolling the second choice

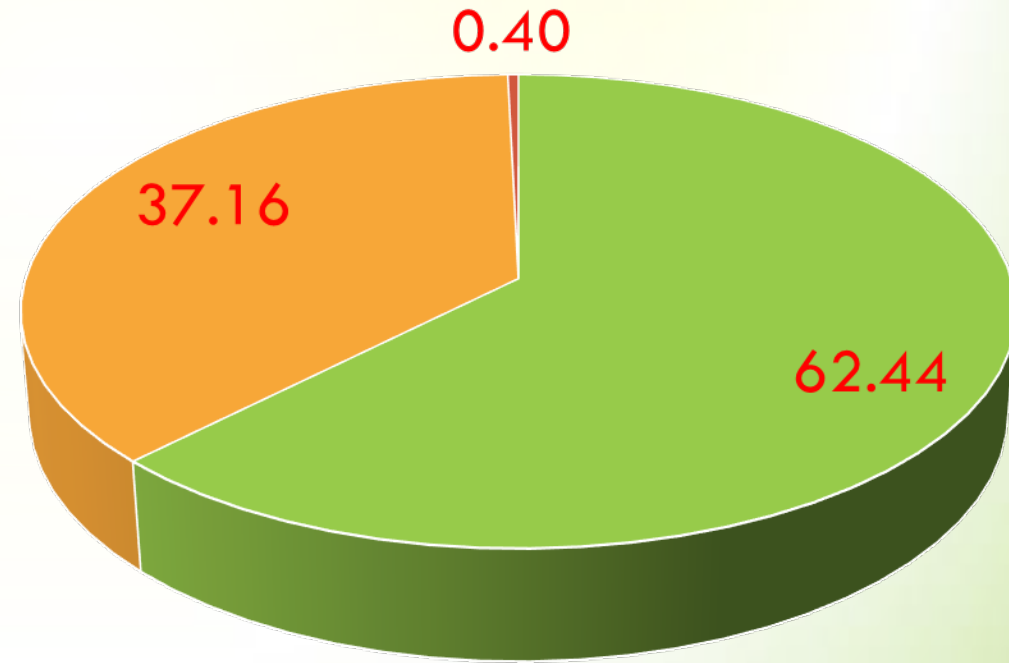
Catches (MT) of *Auxis thazard* by 4 Major Gears in Malaysia (2003 - 2014)



Catch Composition By 5 Major Tuna Species in Purse Seines Fishery in Malaysia (2003-2014)

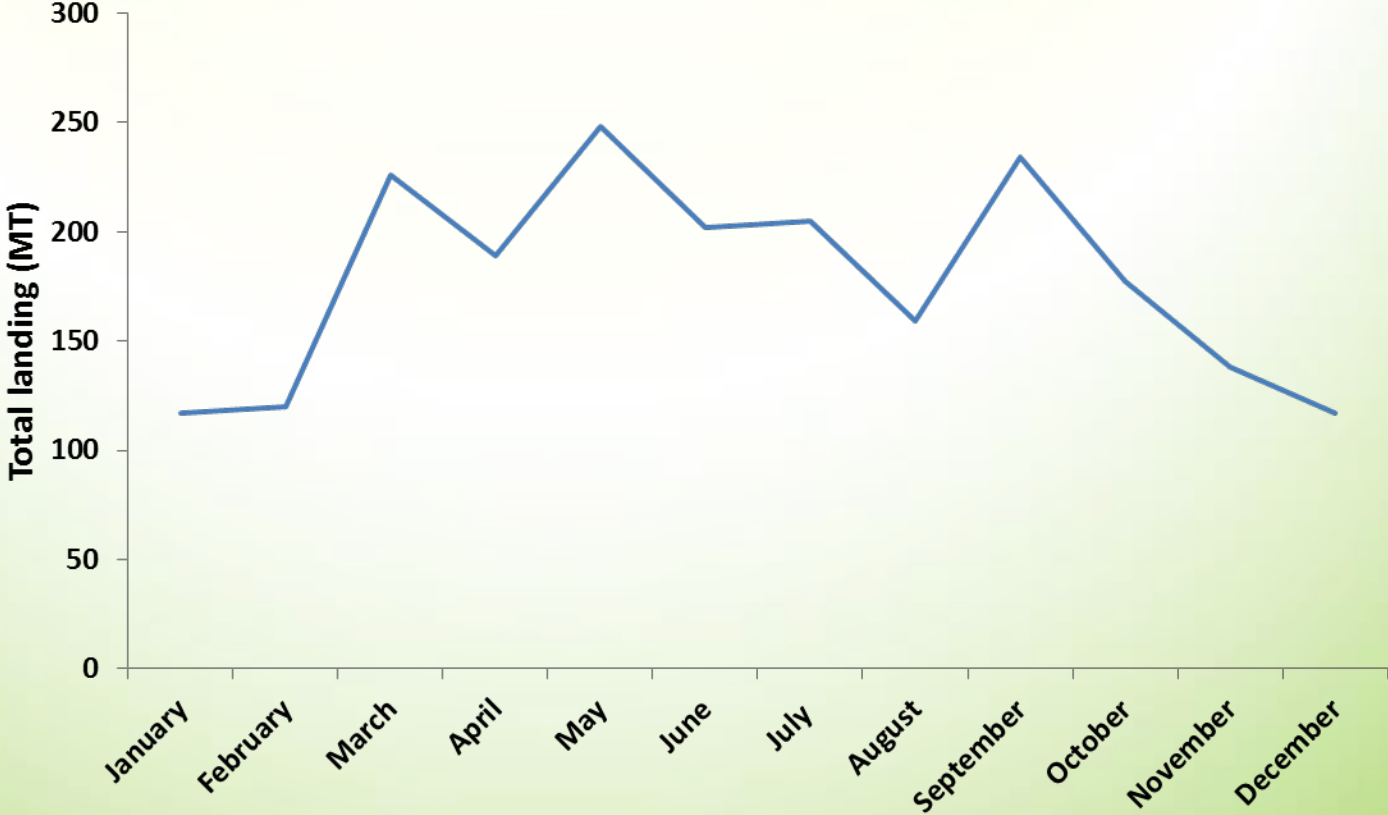


Percentage of neritic tuna caught by trolling in Malaysia



■ **KAW** ■ **LOT** ■ **FRI**

Average Monthly Catch for *Auxis thazard* in Malaysia, 2003-2014



HABITAT AND BIOLOGY

- An epipelagic and neritic species.
- In the eastern Pacific, mature fish occur throughout the year, though off Costa Rica spawning is from December through April, while in Japanese waters it peaks in July as expressed by the index of sexual maturity (Yasui, 1975).
- In the southern Indian Ocean, the spawning season extends from August to April; north of the equator it is reported from January to April
- Fecundity was estimated at about 1.37 million eggs per year in a 44.2 cm FL female.
- Fecundity of fish in Indian waters ranged between approximately 200 000 to 1.6 million eggs per spawning in correlation with size of females.

Biological Parameters

- **Size :** Minimum fork length from driftnet records in the Indian Ocean is 51cm, but off Sri Lanka it is 58 cm; the common size in catches ranges between 25 and 40 cm, but depends on the type of gear used and may also vary seasonally and by region.
- Maximum size about 65cm (FL) , > 4 kg
- Size at first maturity is reported at about 29 cm fork length in Japanese waters, but about 35 cm around Hawaii. The species grows larger than A. rochei.

Stock Status

No quantitative stock assessment is currently available for frigate tuna in the Indian Ocean, and due to a lack of fishery data for several gears, only preliminary stock status indicators can be used. Aspects of the fisheries for frigate tuna combined with the lack of data on which to base a more formal assessment are a cause for considerable concern. Stock status in relation to the Commission's BMSY and FMSY target reference points remains uncertain, indicating that a precautionary approach to the management of frigate tuna should be applied.

MIGRATION ASPECT

Recovery rates by species

(Tagging program – 1990 - 1996)

- *Euthynnus affinis* – 6.89 %
- *Thunnus tonggol* – 0.21 % and
- *Auxis thazard* – 1.06 %

Overall recovery – 4.39 %

- *Auxis thazard* is associated with other neritic tuna species – LOT & KAW
- Migration pattern not clear due to low recovery and short time at liberty

Schooling and Association

- Schools of *A. thazard* are known to mix with those of *A. rochei*, other tunas, and tunalike fishes.
- In Hawaiian waters, *Auxis* are occasionally found mixed with schools of kawakawa (Gosline and Brock 1960), and both *A. thazard* and *A. rochei* have been reported captured from one school (Matsumoto 1960a).
- Similar observations were made by Kishinouye (1915) of *Auxis* in Japanese waters and by Jones (pers. commun, with Matsumoto in 1959) of those that occur in Indian waters.
- Imamura (1949) observed that *A. thazard* in Japanese waters are also found occasionally mixed with skipjack tuna.