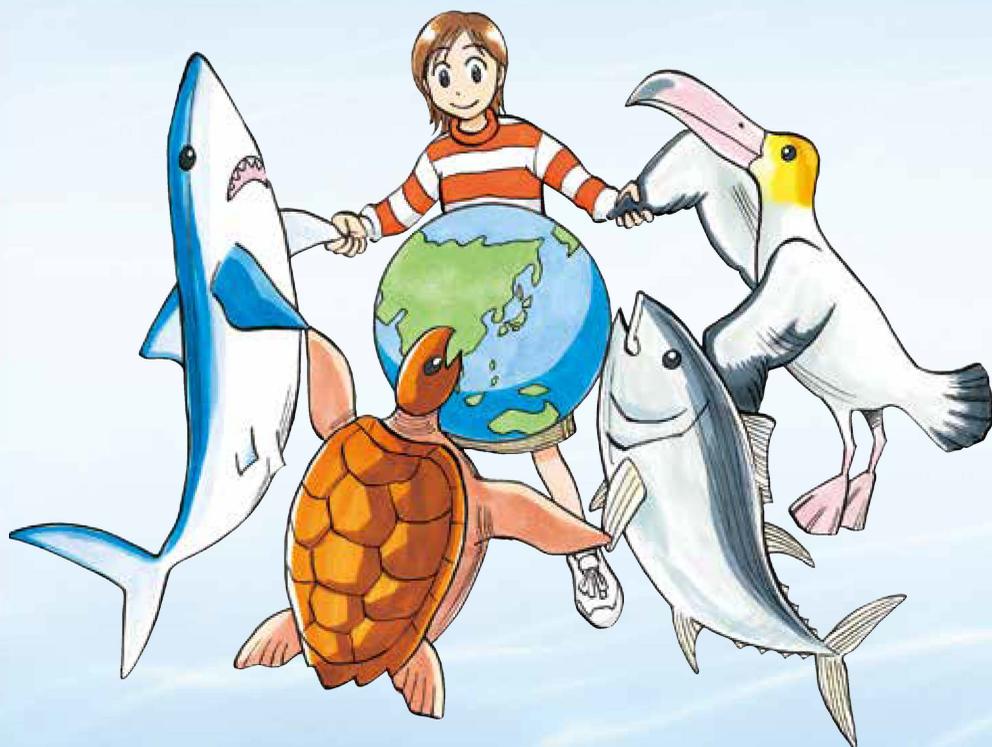


# Manga: Lessons on the Bycatch Problem



Drawings by Michiteru Kusaba  
Translated by Shelley Clarke

### Profile of the Author

## Michiteru Kusaba

Manga Artist

Born in Isahaya City, Nagasaki Prefecture

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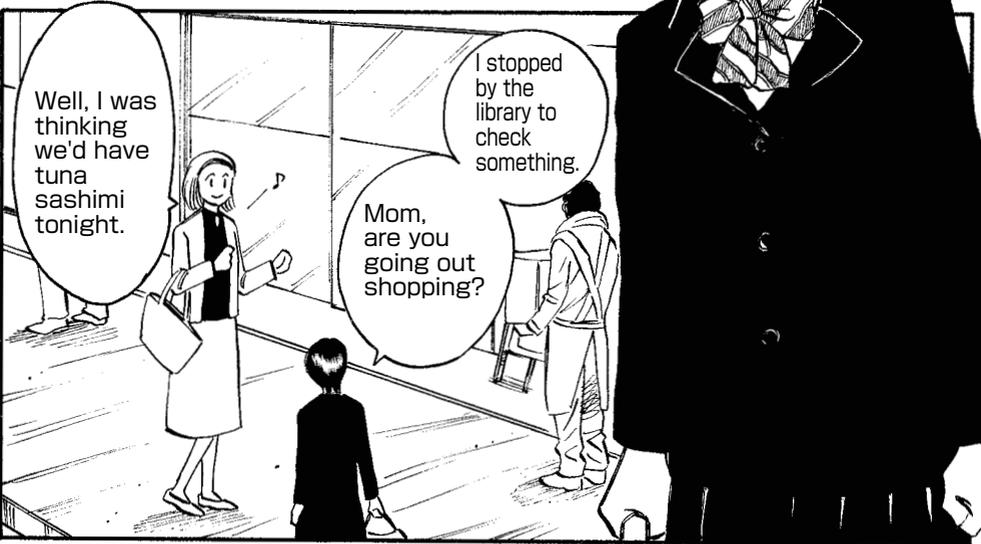
Signature Works: FANTAJISUTA, MIAGETEGORAN, etc.

In writing this manga, many specialists provided their advice and suggestions. They are warmly thanked for their input.

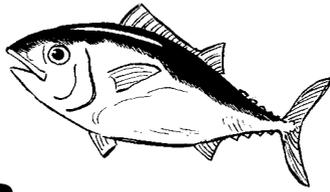
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# Bycatch?



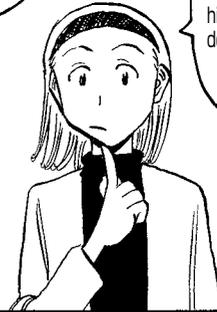
Its about the bycatch problem in tuna fisheries.



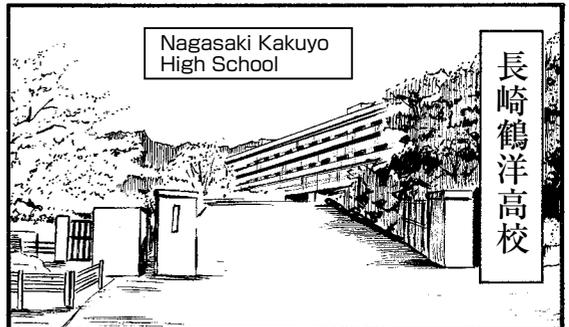
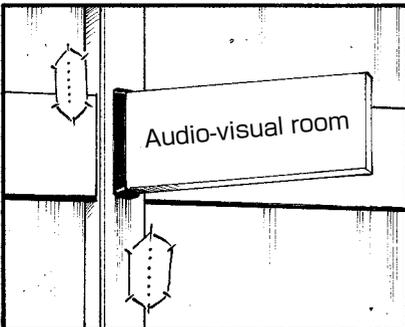
But that's what a special instructor who came to the school told us about

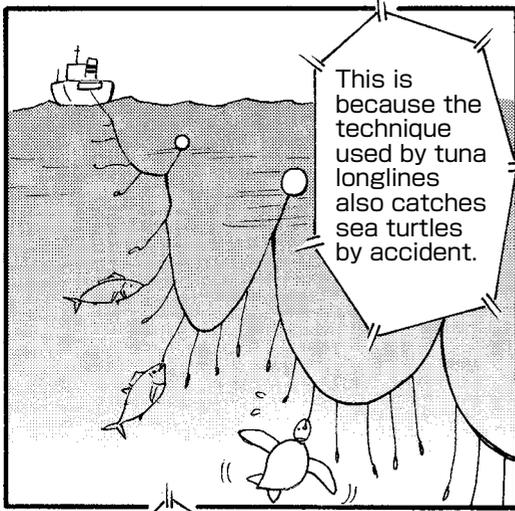
But what is "bycatch"?

Earlier today I was thinking the same thing.

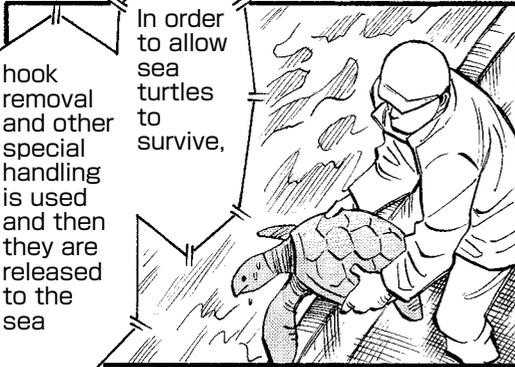


Hmm, tuna fisheries...well, you do attend a fisheries high school don't you?



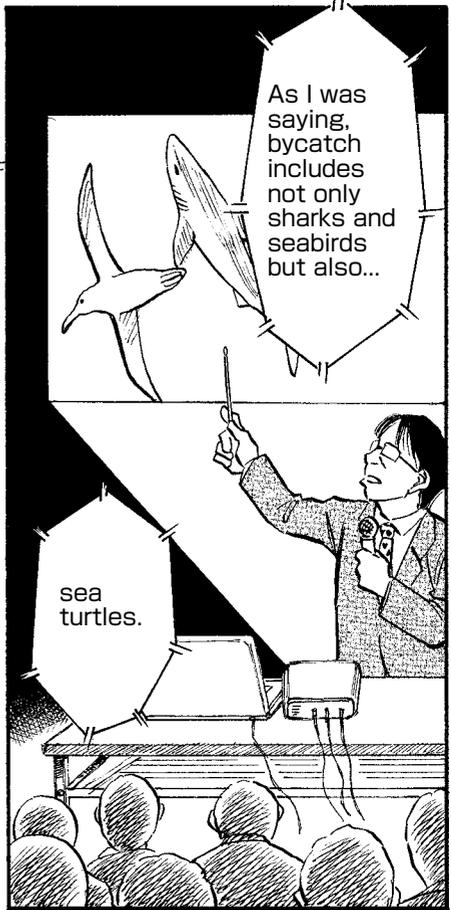


This is because the technique used by tuna longlines also catches sea turtles by accident.



In order to allow sea turtles to survive,

hook removal and other special handling is used and then they are released to the sea

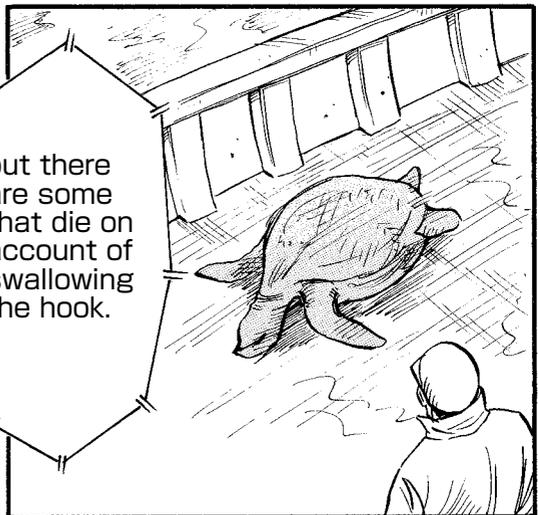


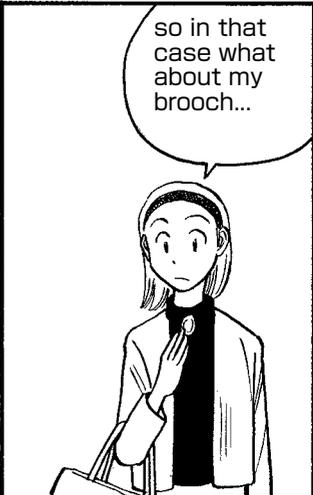
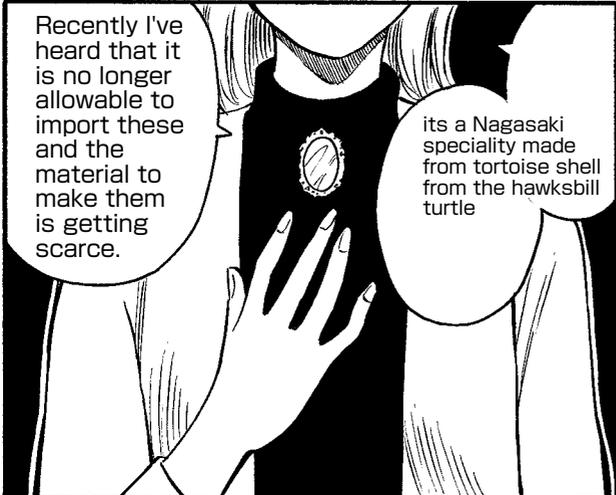
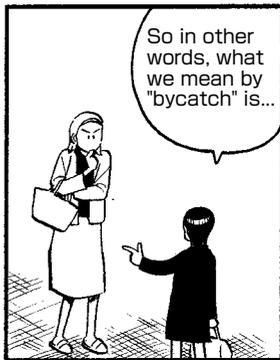
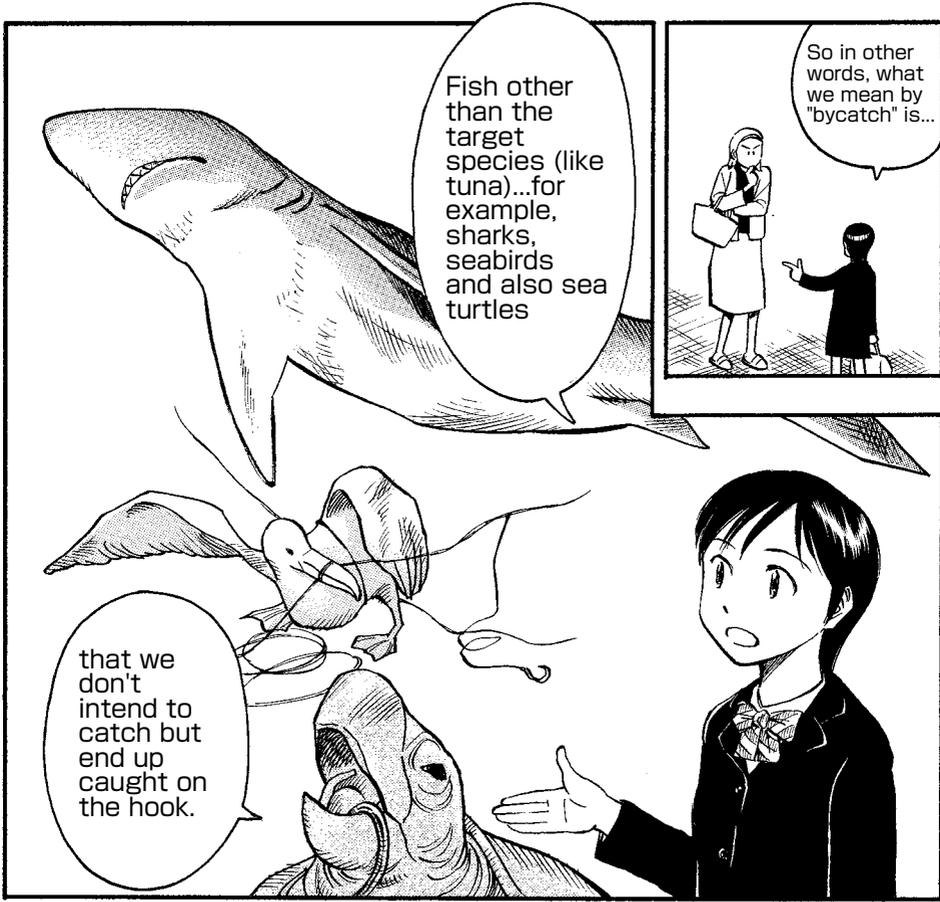
As I was saying, bycatch includes not only sharks and seabirds but also...

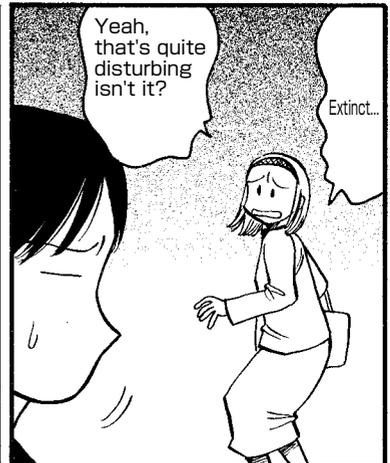
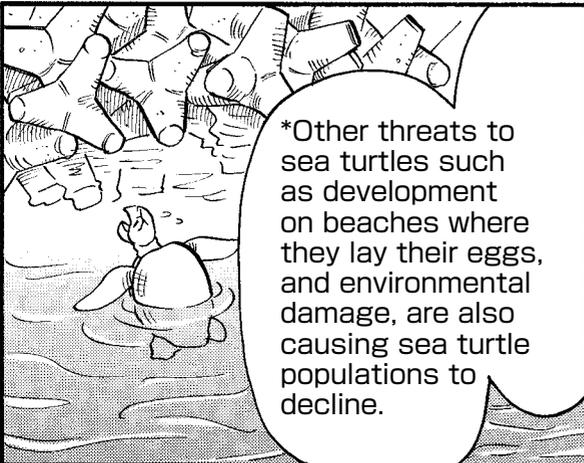
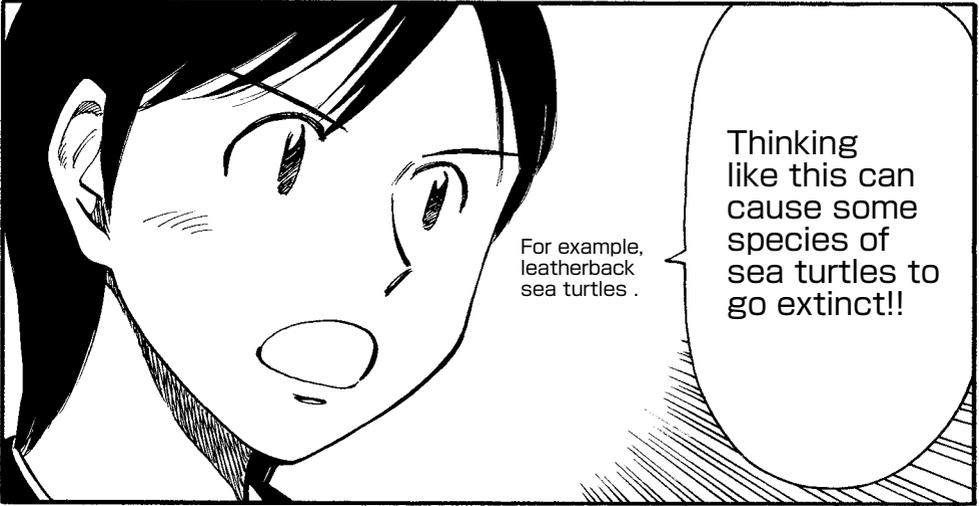
sea turtles.



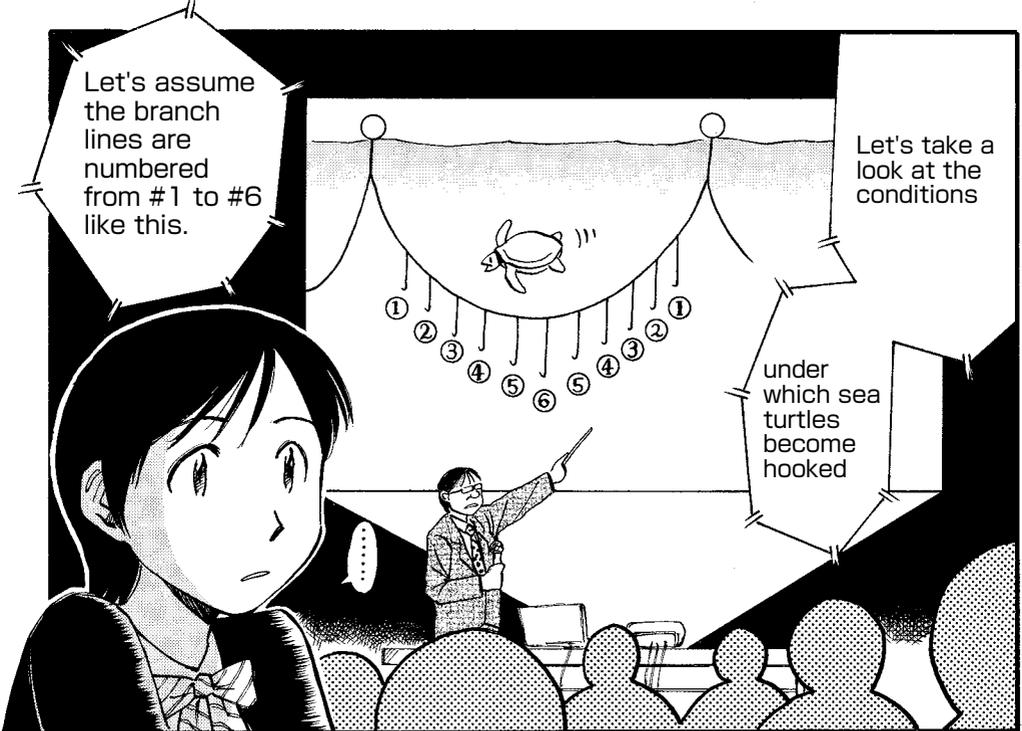
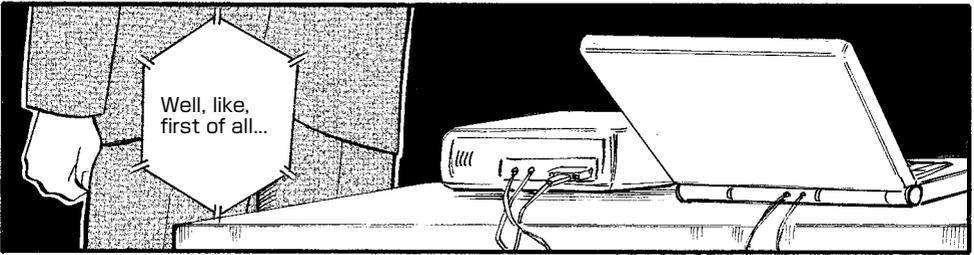
but there are some that die on account of swallowing the hook.

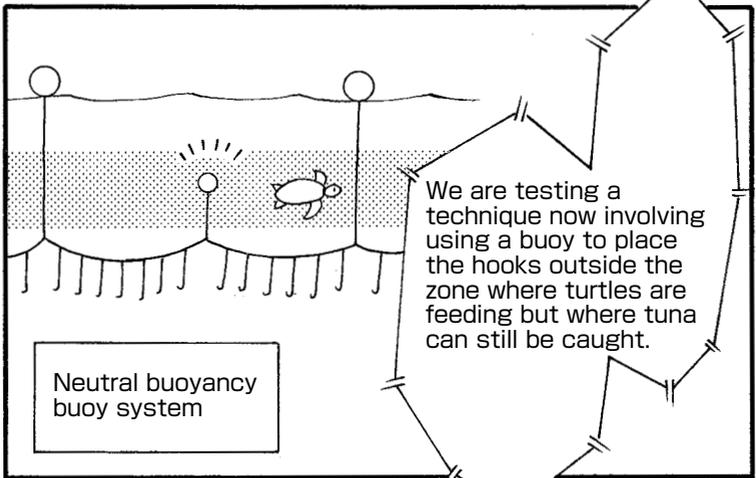
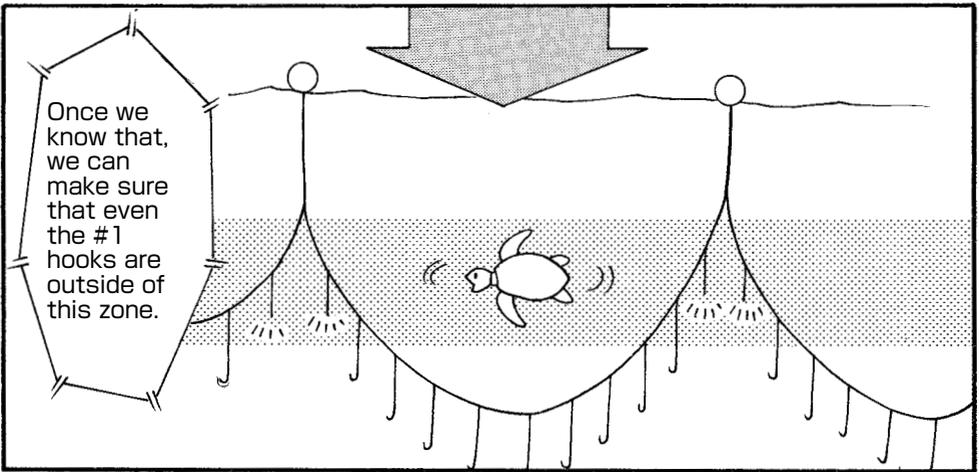
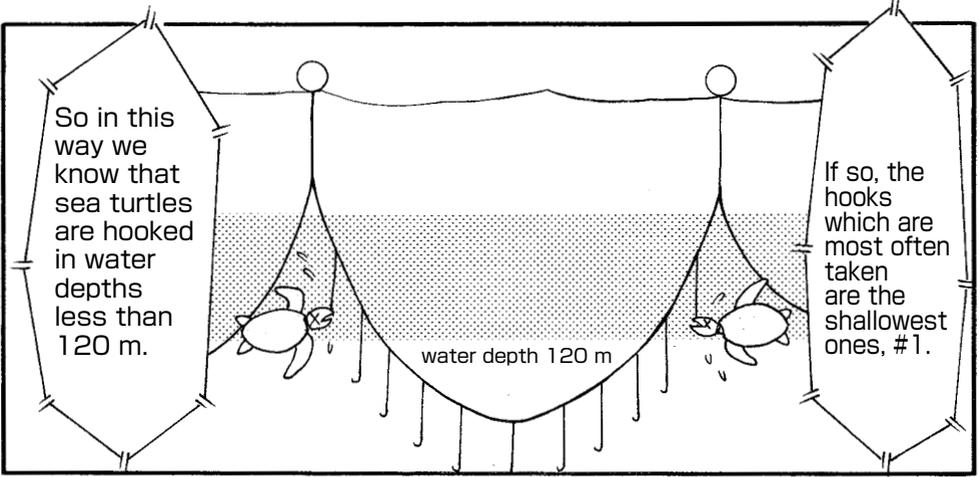


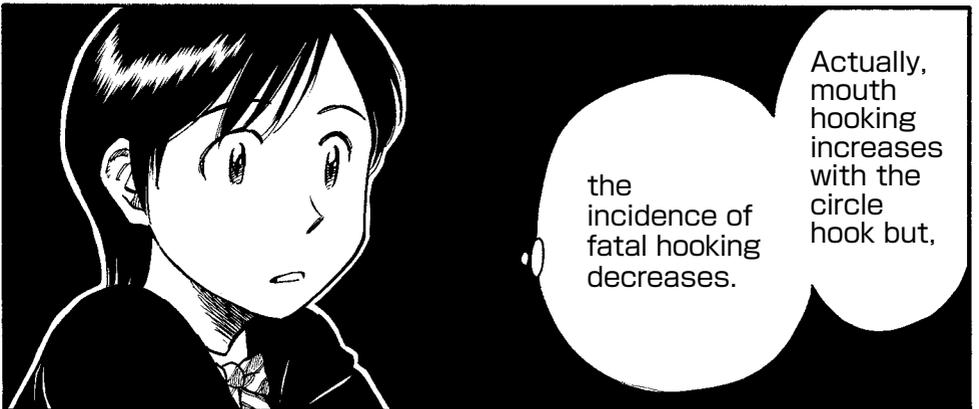
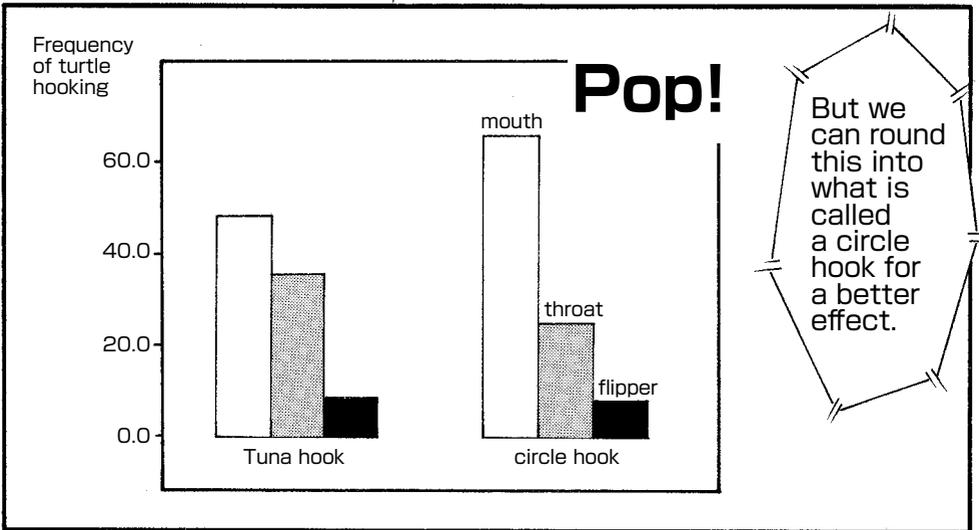
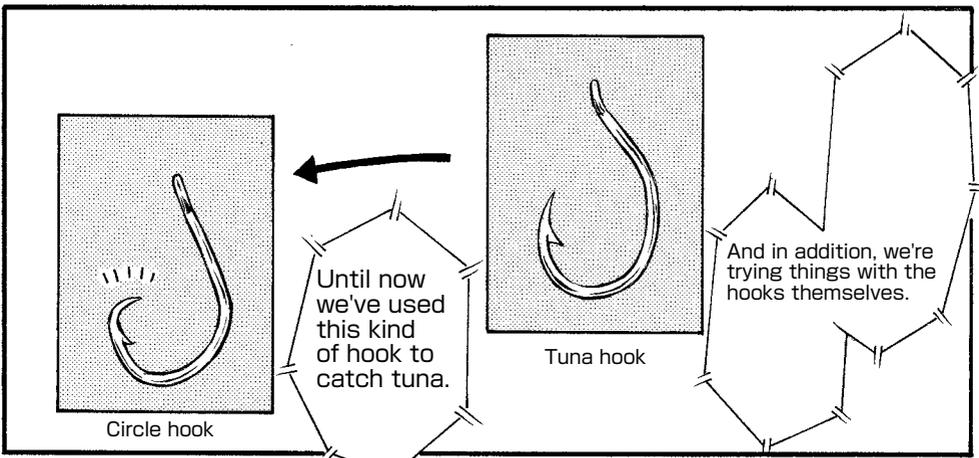




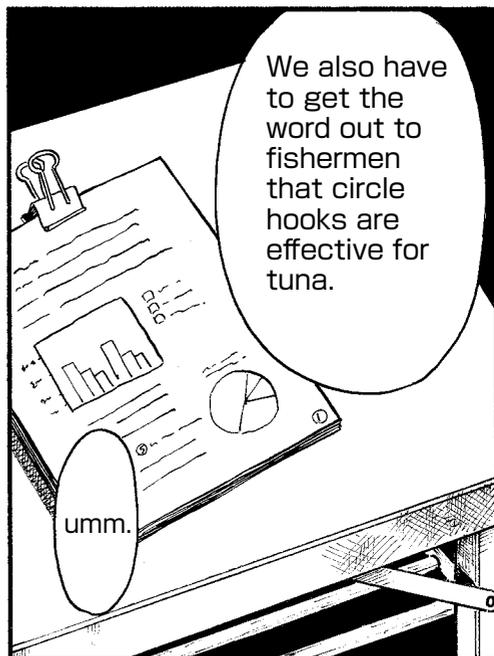
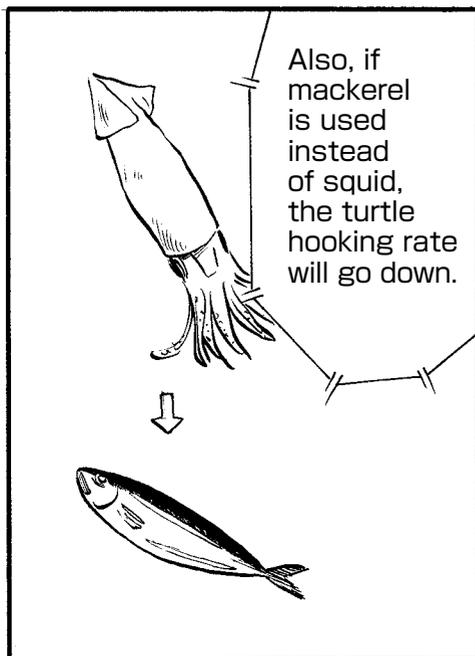
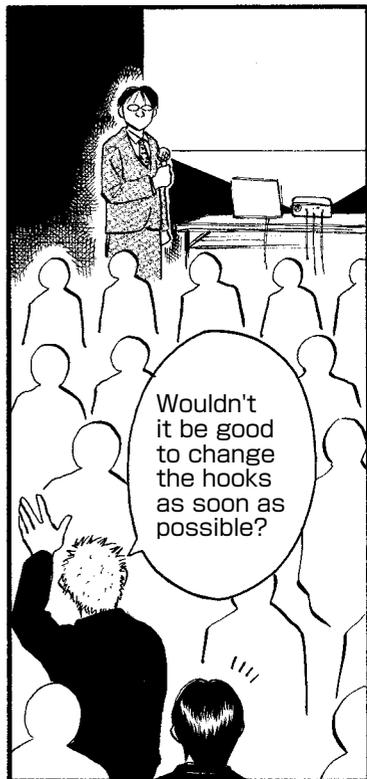
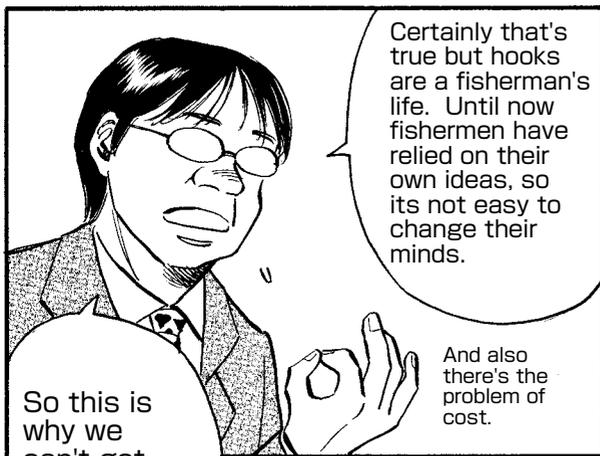
\*It's also said that global warming might be a contributing factor.

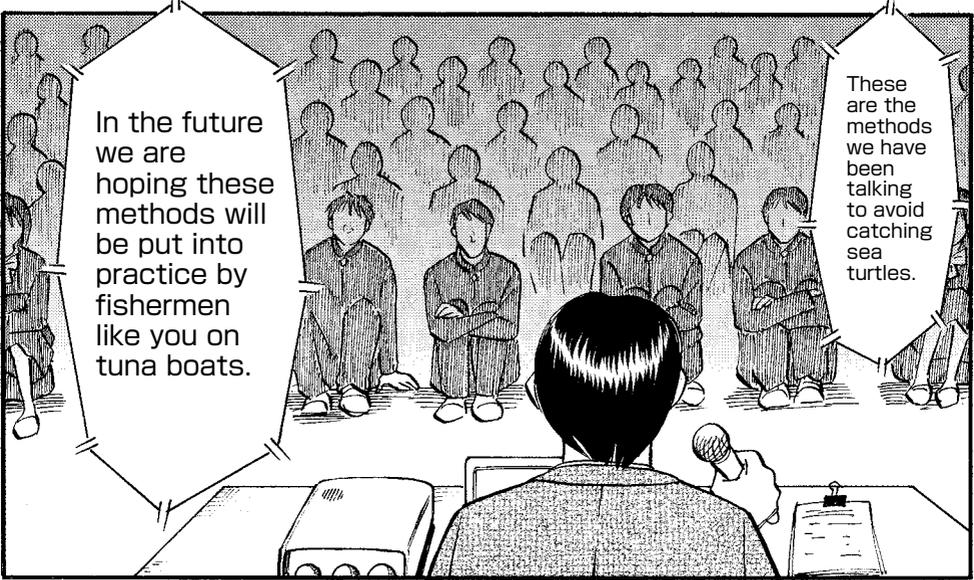
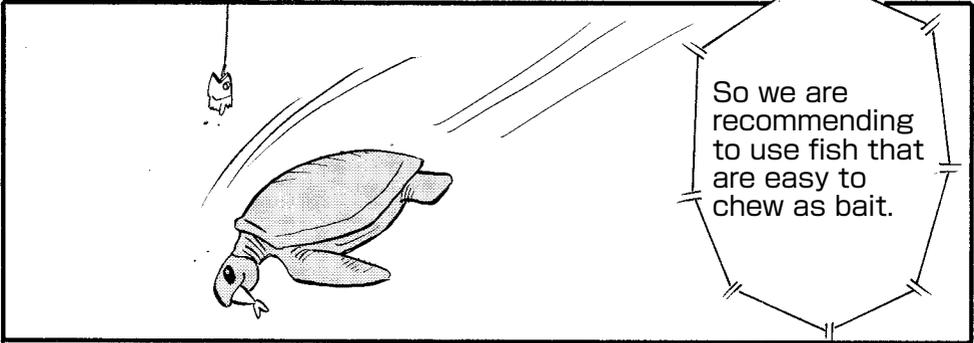
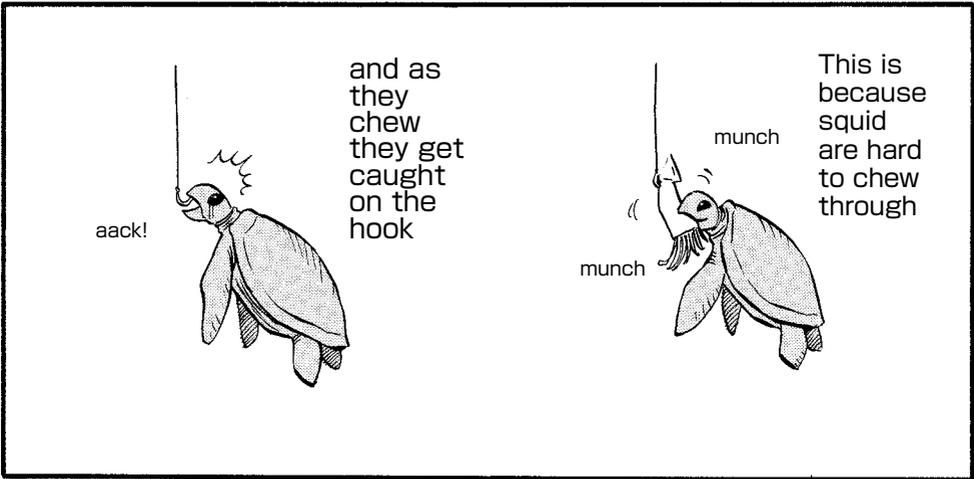


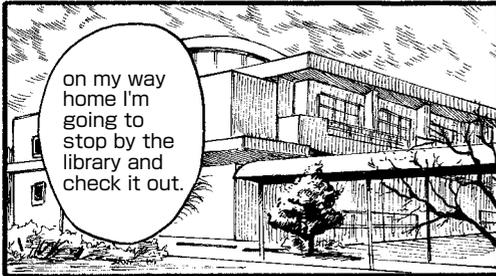
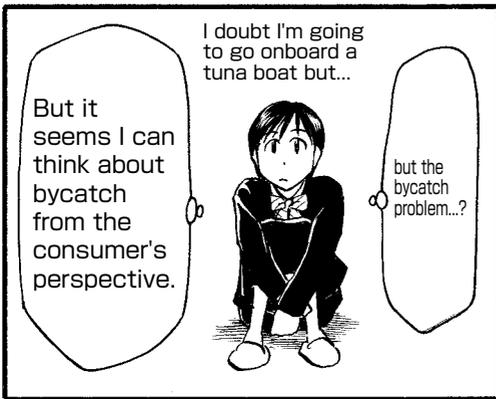


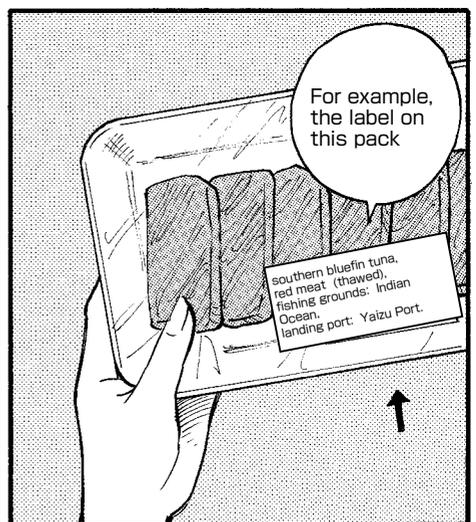
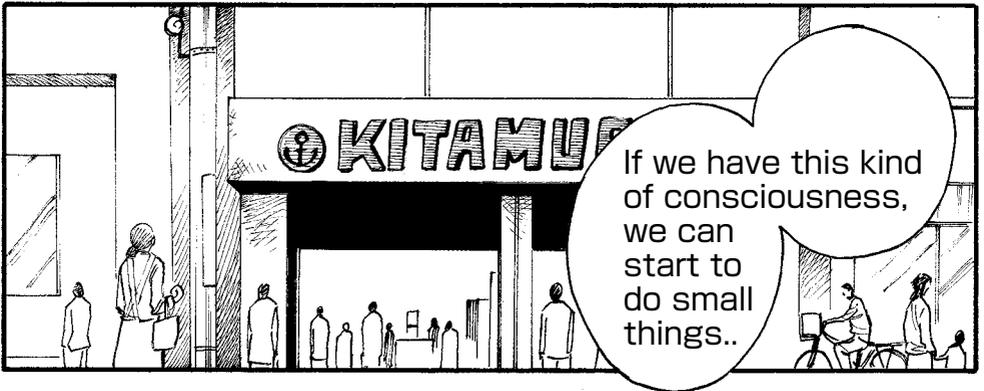


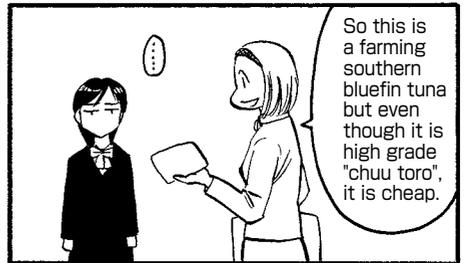
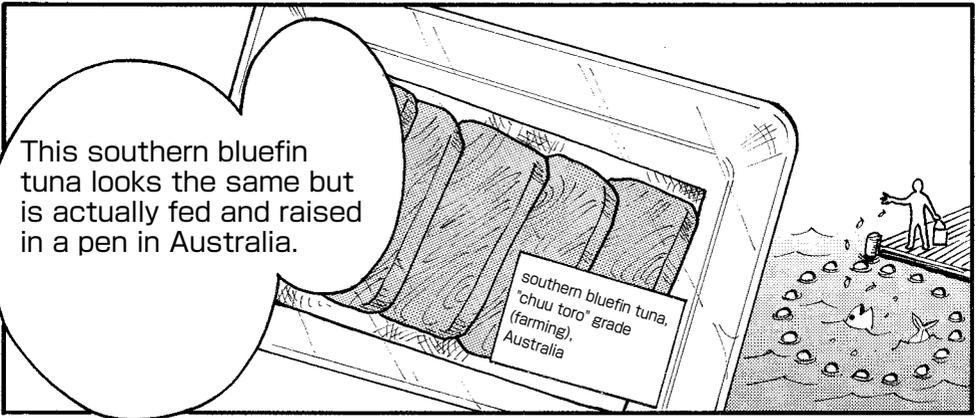
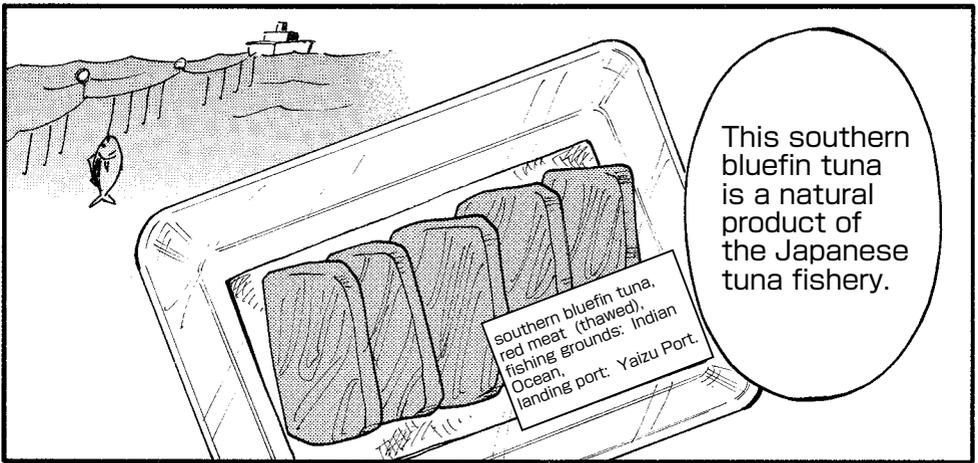
\*Although the incidence of mouth hooking with the circle hook is high, in these cases it is easy to remove the hook.







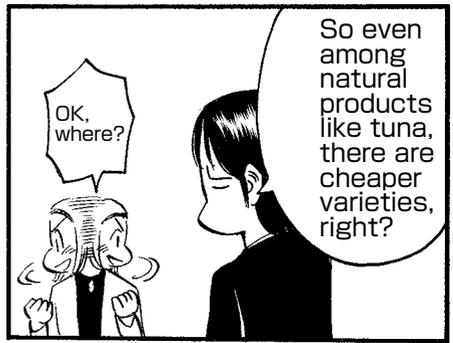




The farming method involves catching and putting lots of small fish in a pen, and as a result it is easy for this to contribute to overfishing problems.



Well, there are fishing boats that don't completely obey the rules but are still catching fish.

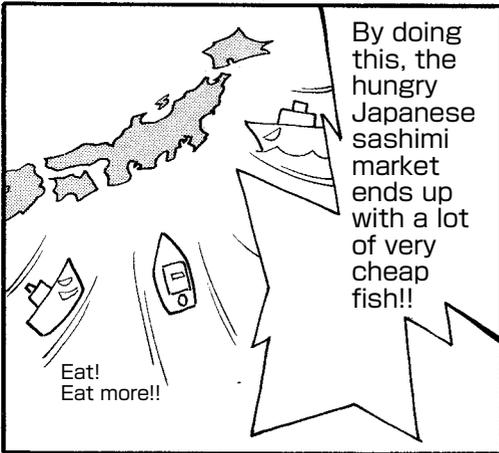


OK, where?

So even among natural products like tuna, there are cheaper varieties, right?



what's wrong with you?



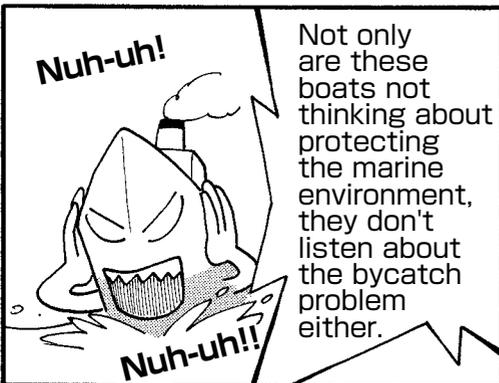
By doing this, the hungry Japanese sashimi market ends up with a lot of very cheap fish!!

Eat!  
Eat more!!



While they are not obeying the rules, they are secretly catching tuna.

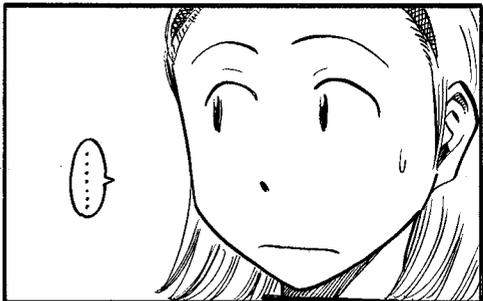
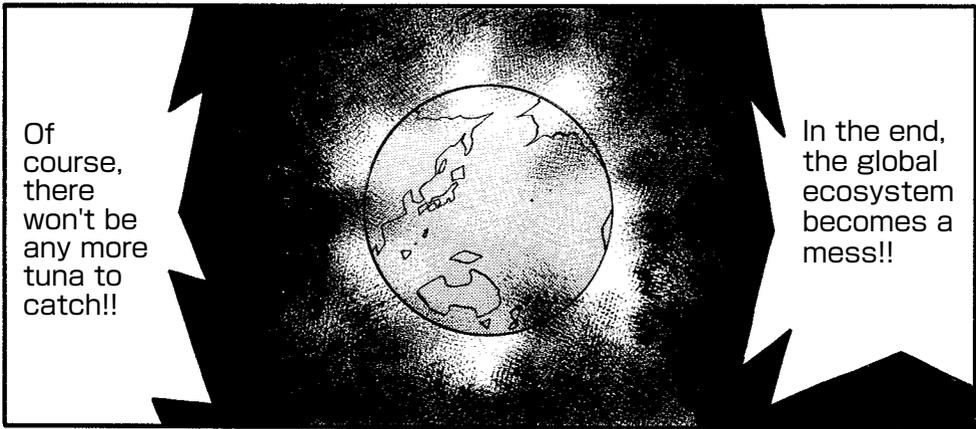
**gulp!**

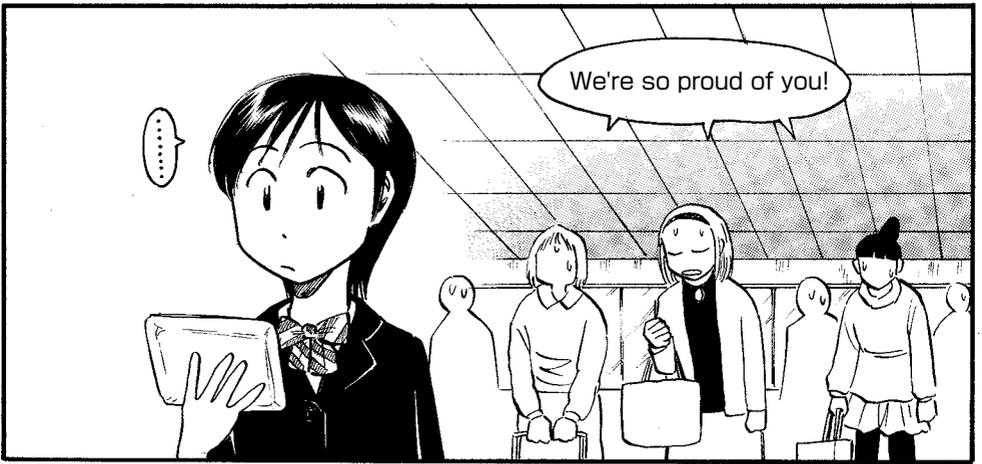


Nuh-uh!

Nuh-uh!!

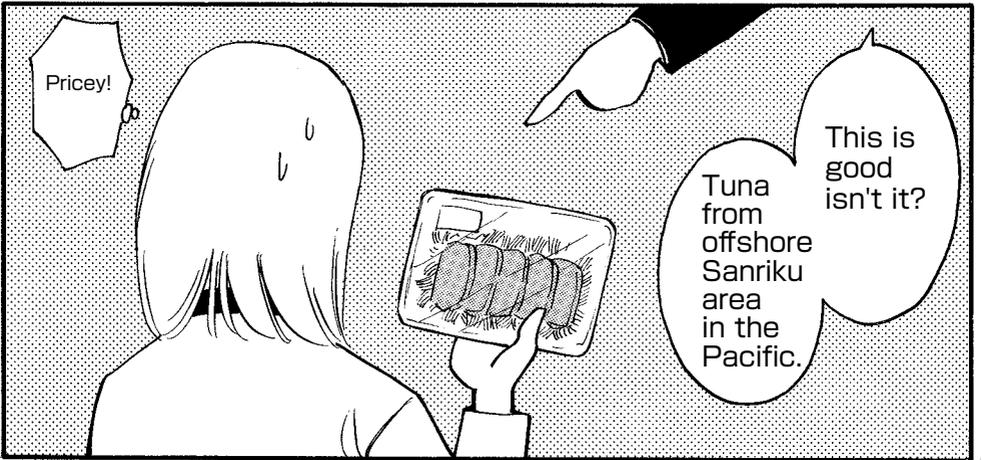
Not only are these boats not thinking about protecting the marine environment, they don't listen about the bycatch problem either.





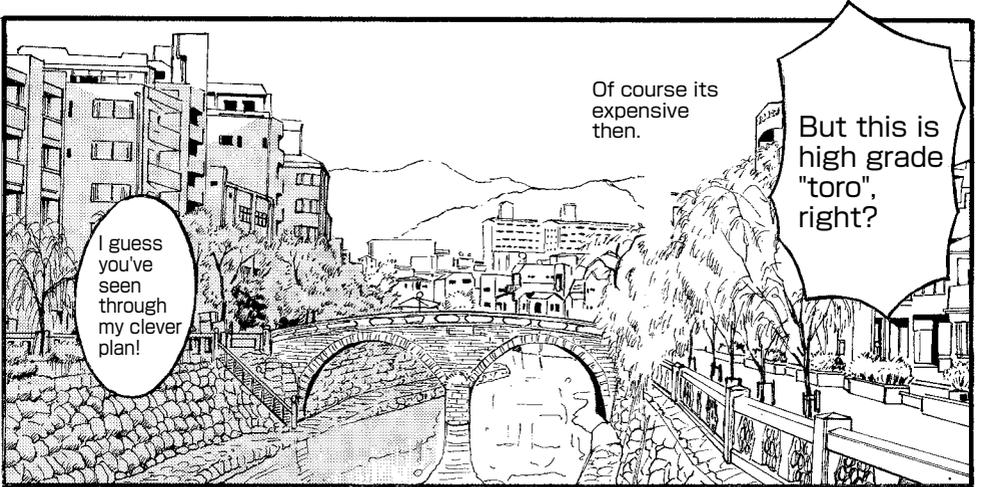
We're so proud of you!

...



Pricey!

This is good isn't it?  
Tuna from offshore Sanriku area in the Pacific.



I guess you've seen through my clever plan!

Of course its expensive then.

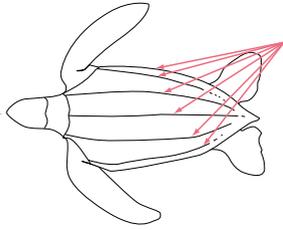
But this is high grade "toro", right?

# Characteristics of Sea Turtle Species

## leatherback sea turtle

dark colored,  
rubbery carapace

toothed beak



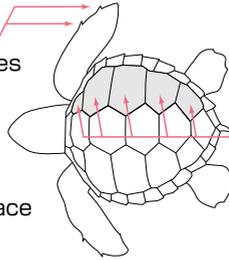
5 to 7 ridges

## loggerhead sea turtle

two notches

large head with thick neck

heart-shaped carapace

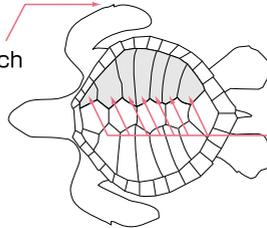


carapace edge  
with 5 plates

## olive Ridley sea turtle

one notch

carapace edge  
with 5-9 plates

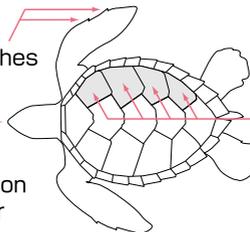


## hawksbill sea turtle

two notches

hawk-like beak

carapace plates lie on  
top of each other

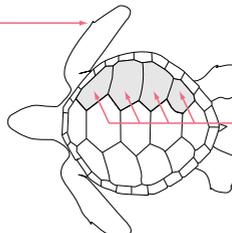


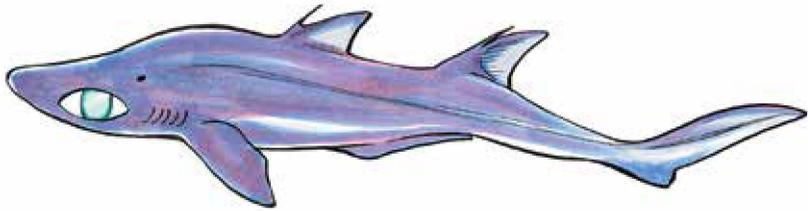
carapace edge  
with 4 plates

## green sea turtle

one notch

carapace edge  
with 4 plates





Lantern shark (*Etmopterus lucifer*)

Body length about 60 cm. In front of each dorsal fin there is an extremely sharp spine. Lives in deep sea environments at around 200-800 meters. The English name is "lanternshark" because it is unusual among shark species in possessing a light-emitting organ. Once dead it becomes a dark black color but when alive, against a black backdrop it has a shimmering light purple color and is extremely beautiful. Nevertheless, its emerald-colored eyes and eerie face conjures up images of the devil (lucifer).



For the benefit of species and people

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