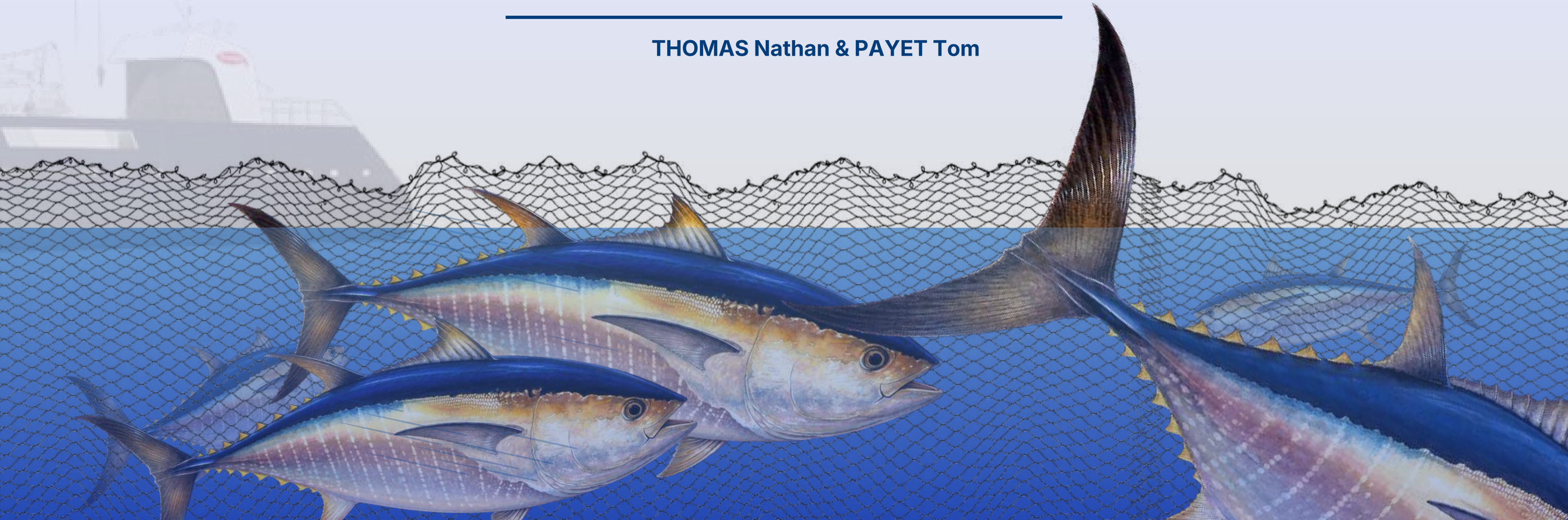
BIOECONOMIC SUSTAINABLE FISHERIES

THOMAS Nathan & PAYET Tom



WHO MADE THE VIDEO



- **University of California Television** : youtube channel dedicated to showcases the latest health and science research and groundbreaking discoveries by université of California.

GEOGRAPHIC CONTEXTE

Where is California ?

United States : American west



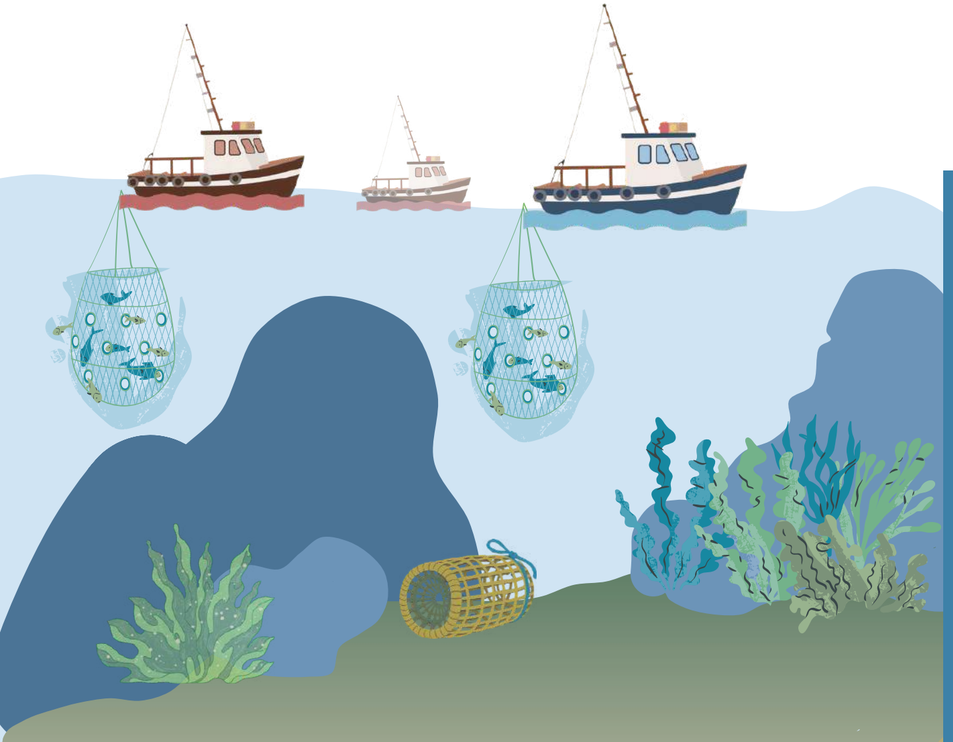


WHAT DOES THE VIDEO EXPLORE ?

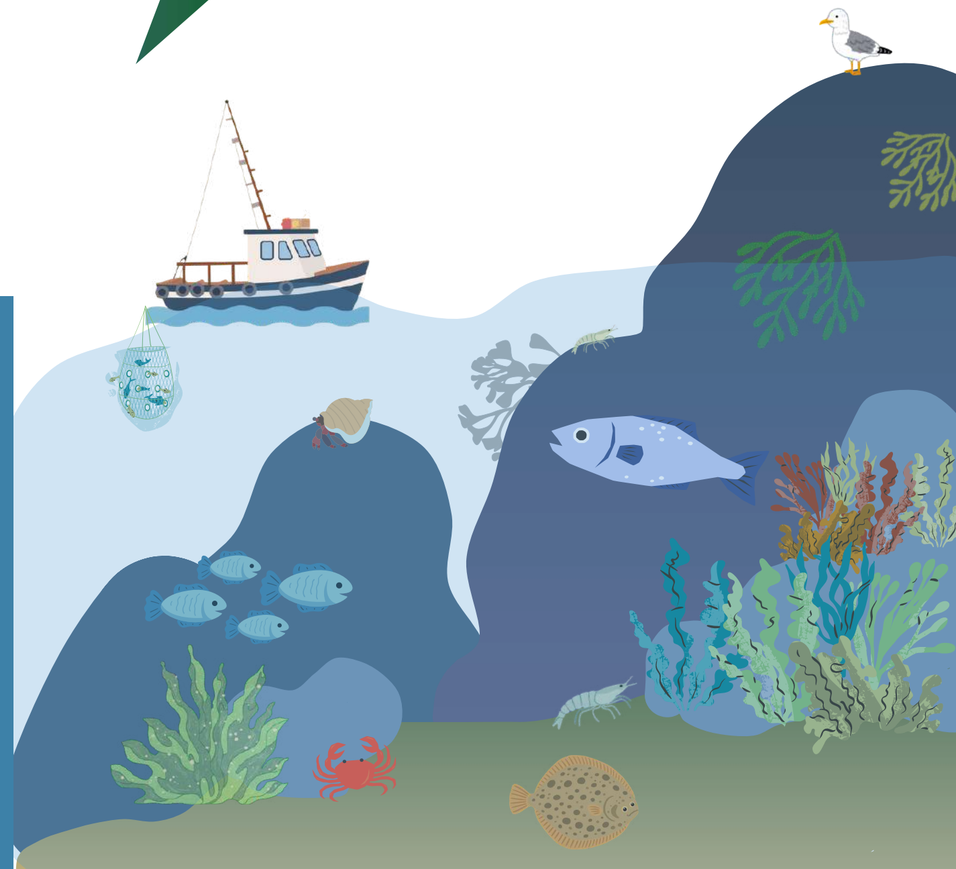
Overconsumption

Fisheries

Sustainable management



Causes
Consequences
Management

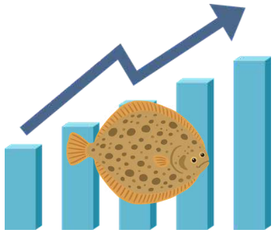


THREE MAIN CONCEPT

1. **In economy :** Fisheries





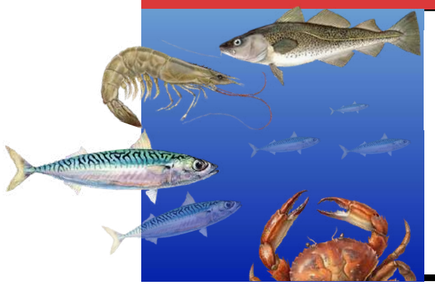


2. **Human activities impact :** Overharvesting of aquatics resources

3. **Sustain développement :** Monitoring of the fish resources

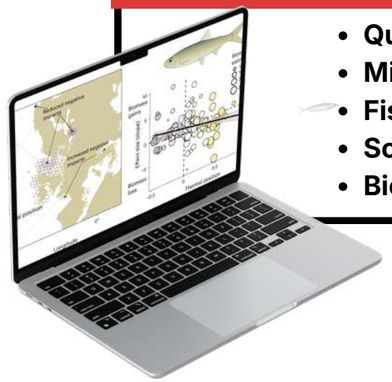
WHAT EXACTLY ARE FISHERIES

Resource



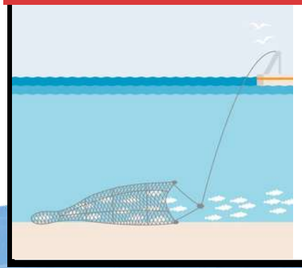
species targeted by fishing, e.g., mackerel, cod, shrimp

Stock management



- Quotas
- Minimum landing sizes
- Fishing seasons
- Scientific monitoring
- Biomass evaluation

Fishing technics



- Fleet and fishing techniques
- Fishing vessels
- Fishers
- Fishing gear used:

nets, lines, traps, trawls, seines, etc.





Economic activity

Revenue

Value generated by fish sales

Employment

- Fishers
- processors
- Traders
- Scientist

...

Value chain

Value-adding processes

Fishing costs

Fuel, labour, vessels, gear, maintenance

Local economy

Income and economic activity generated in coastal communitie



RETROSPECTIVE OF THE FISHERIES IN CALIFORNIA

1970 | 1980 | 2000 | Today

Golden age of fisheries

- No quota
- ~15 M fish pounds along a year





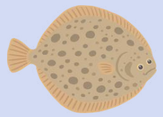
Collapse of fisheries economy

- Collapse of salmon and sardine population
- 2000 : Economic disaster




Management

- Control and management of the fisheries
- Replenish of the fish population




WHEN DOES FISHING BCOME OVERFISHING ?

Fish stocks



species targeted by fishing, e.g., mackerel, cod, shrimp

Effective stock management

Fishing effort adjustment

Stocks remains productive

Insufficient management

Excess fishing pressure



- more effort
- more vessels
- higher fishing pressure

Stock biomass declines

WHAT ARE OVERHARVESTING EFFECT ?

Repercusion of farming



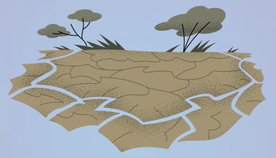
Aquatic resource



agricultural's water consumption



Climate change



Drought



Anadromous species cannot swim up rivers to reproduce

HOW TO MANAGE ?

Specific management



Other

Limite number of trap → Less pressure



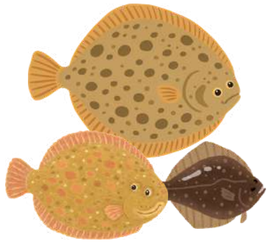
Salmon

Adjust the fishing season and area → Not sufficient due to inland management.



Crabs

Legal minimum size → Increase in abundance



Ground fish

Individual quota → Reconstruction of populations

5

Species come off the over fish species list



A BEST MANAGEMENT BUT CAN WE IMPROVE IT ?



Create a system with owner/operator approach

System limit fishing access

More difficult to start a fishing activity

20 000 $ to start in past at 500 000 $ today

Include fisherman vision in management

VOCABULARY

Fisheries

overharvesting = when you take a resource until depletion.

Anadromous = it's a species who swim up stream to reproduce

Ground fish = it's a species who live on the seabed.

Fish stock = A population of fish managed as one unit.

Fishery decline = A major decline in fish catches or fishery production.

Open access = A fishery without restrictions on who can enter.

Overcapitalization = Too many boats or too much equipment for the available fish resources.

Size-based limits = Rules that determine which sizes of fish can be harvested.

Fishing fleet = A group of fishing vessels operating in an area.

Climate change

Drought = when water resources are depleted or in rarefaction compared to usual.

Harmful algal bloom = A rapid increase in algae that can harm ecosystems or human health.

Other vocabulary

Fairness = justice

hurdles = obstacle

unafforbility = inacessibilité financière

Orchards = vergers

Spawning area : Aire de reproduction

Pronunciation tips

Drought = Drout

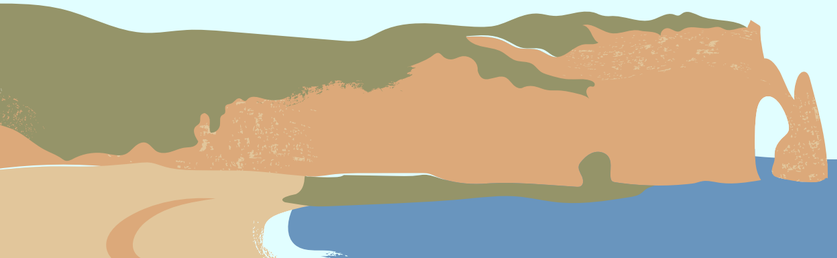
Orchards = 'ôrCHərd

Spawning = spôniNG

Groundfish = GRAOUND-fich











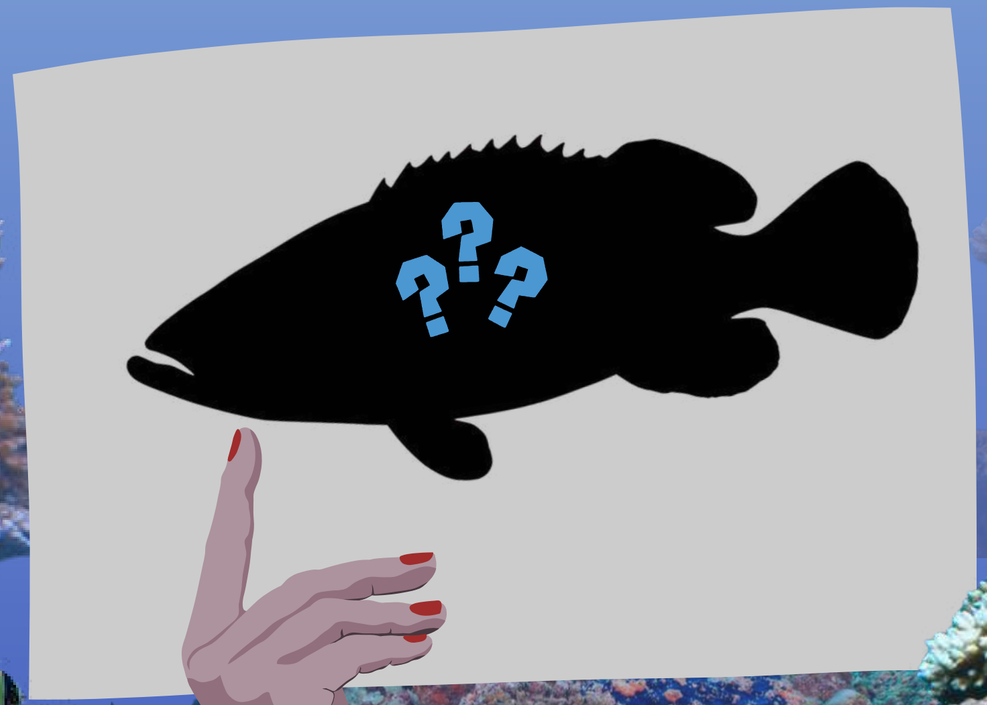




WHO AM I ?



WHO AM I ?



WHO AM I ?



THE CHINOOK SALMON !

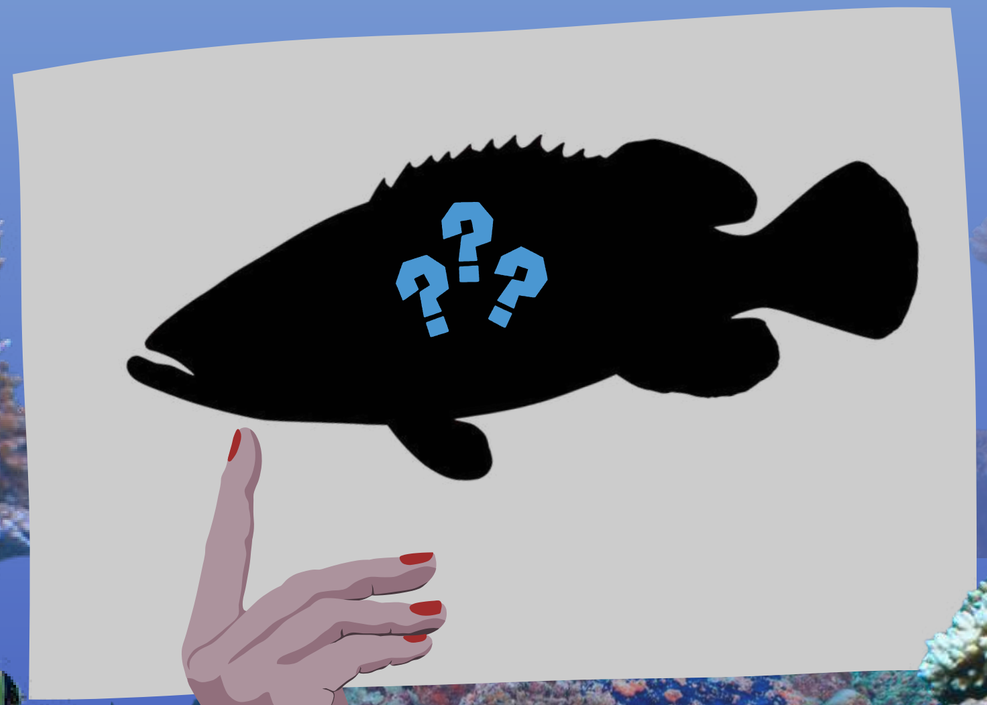
WHO AM I ?



WHY IS MY POPULATION DECLINING ?

WHY DO I NEED TO RETURN IN FRESHWATER ?

WHO AM I ?



WHO AM I ?



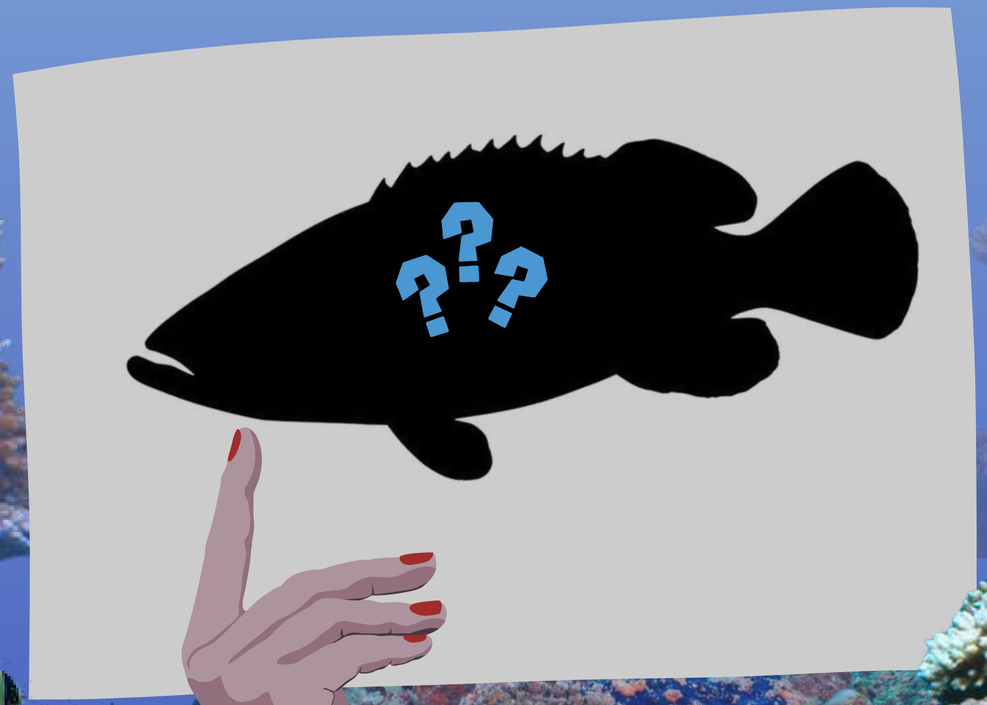
THE SARDINE !

WHO AM I ?



WHAT HAPPENED TO THE SARDINE FISHERY IN CALIFORNIA ?

WHO AM I ?

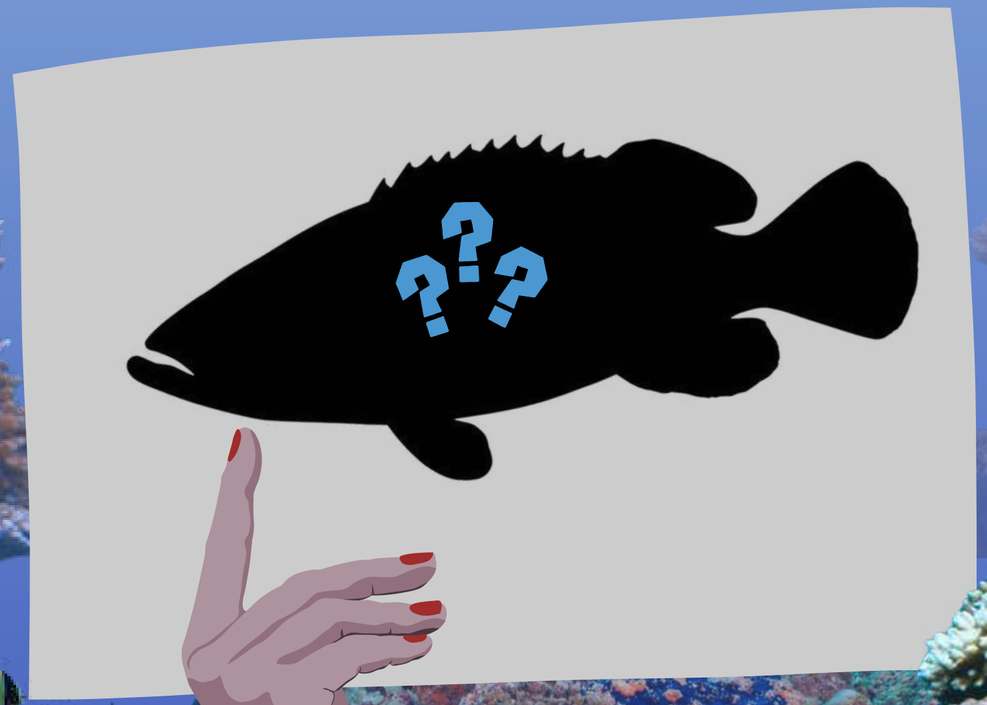


WHO AM I ?



THE SABLEFISH !

WHO AM I ?



WHO AM I ?



THE DUNGENESS CRAB !

WHO AM I ?



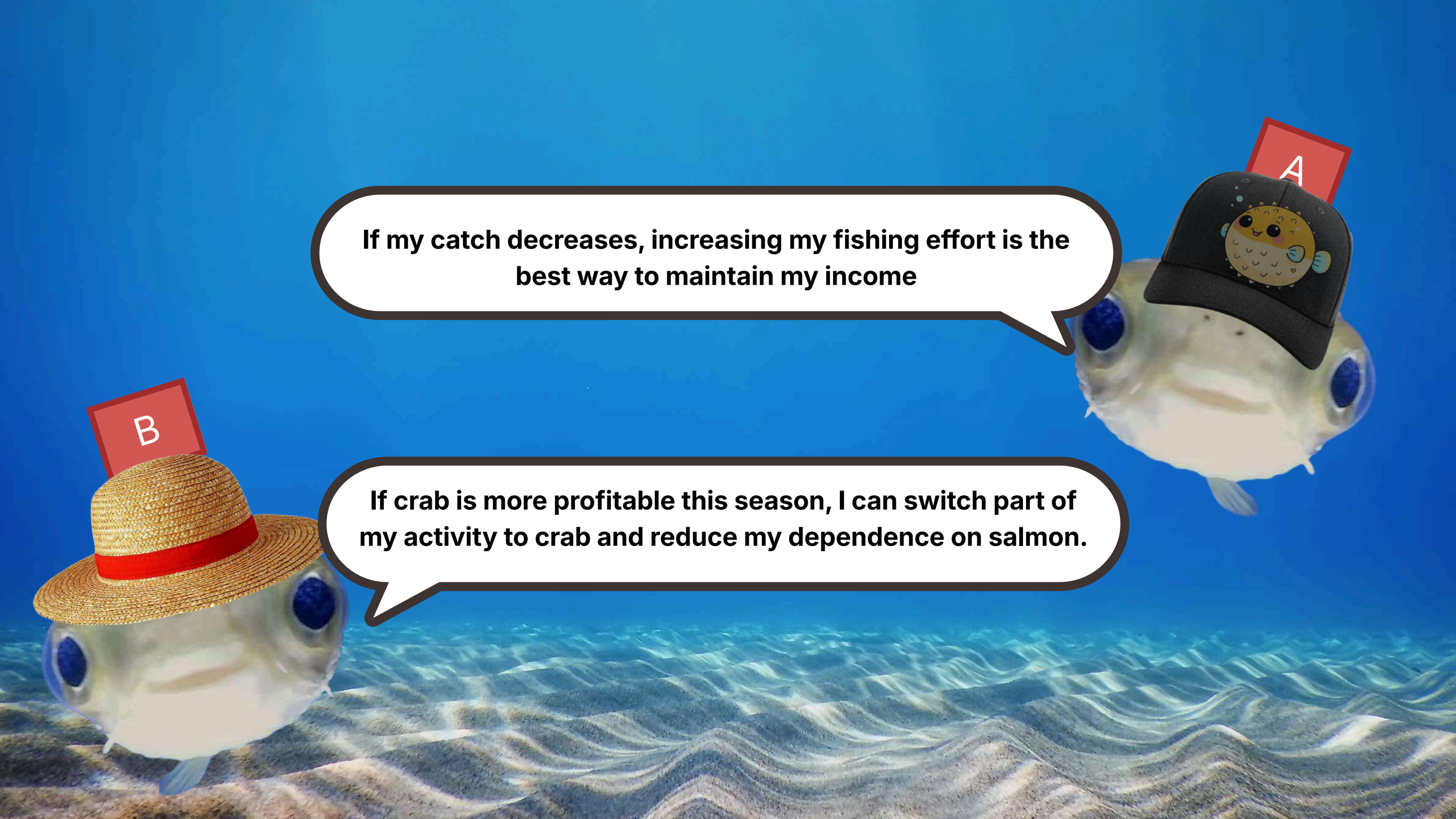
WHO AM I ?

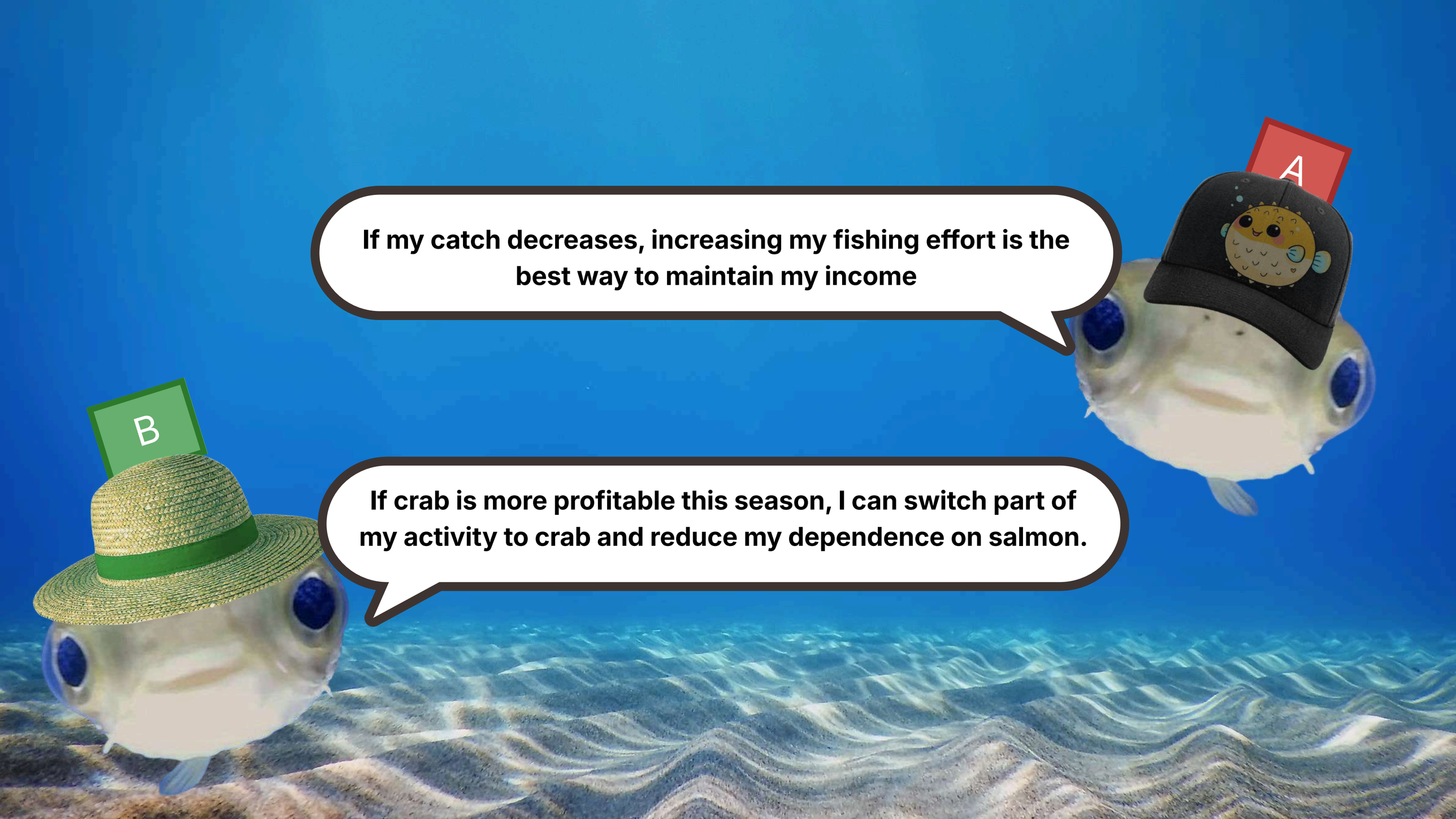


A FISHERMAN !

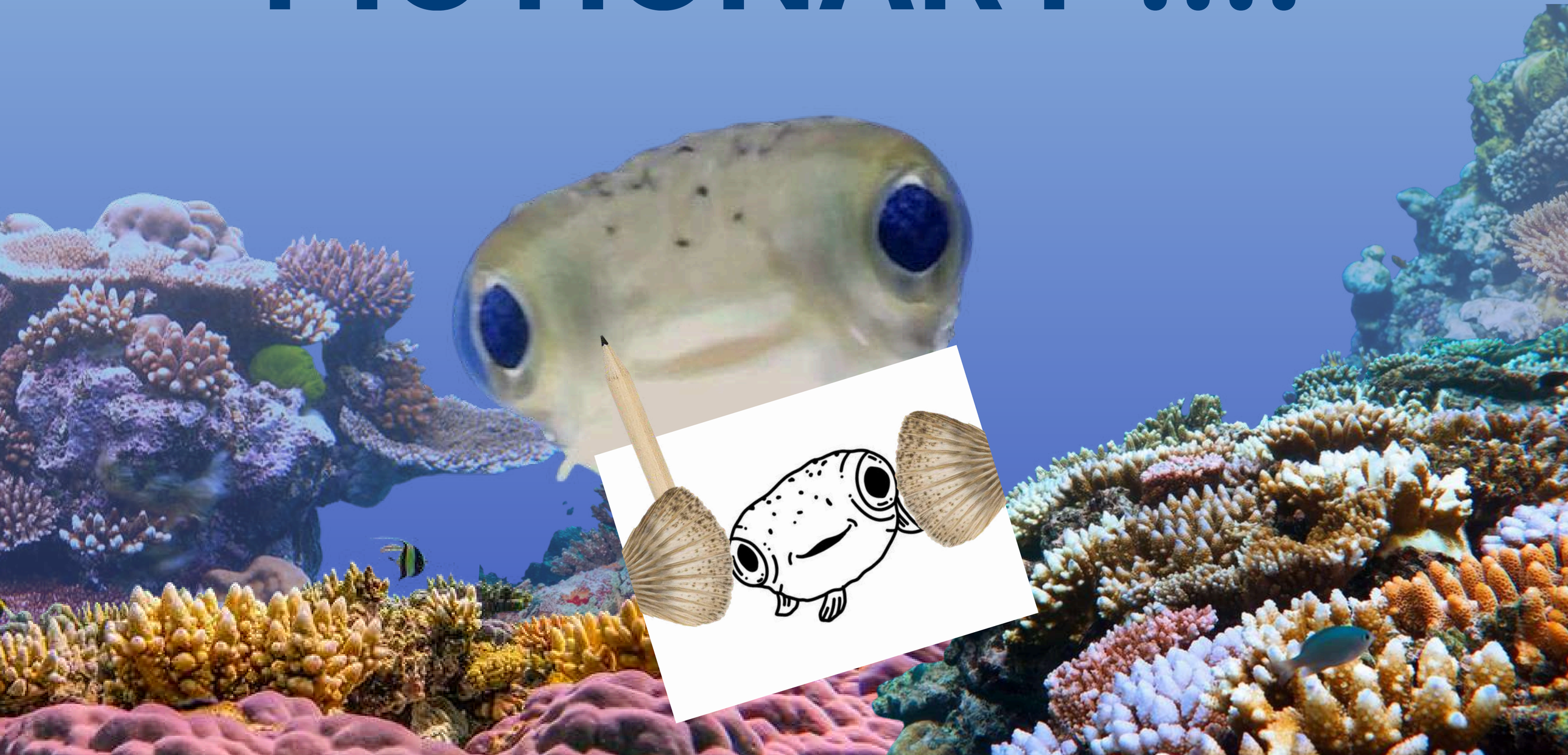
WHO IS THE IMPOSTOR ?




If my catch decreases, increasing my fishing effort is the best way to maintain my income
A
If crab is more profitable this season, I can switch part of my activity to crab and reduce my dependence on salmon.
B


If my catch decreases, increasing my fishing effort is the best way to maintain my income
A
If crab is more profitable this season, I can switch part of my activity to crab and reduce my dependence on salmon.
B

PICTIONARY !!!!



The salmon stock is declining. What can you do at your own level to make the fishery more sustainable?

TEAM 1 : FISHERMAN

TEAM 2 : FISHERY MANAGER

TEAM 2 : CONSUMER



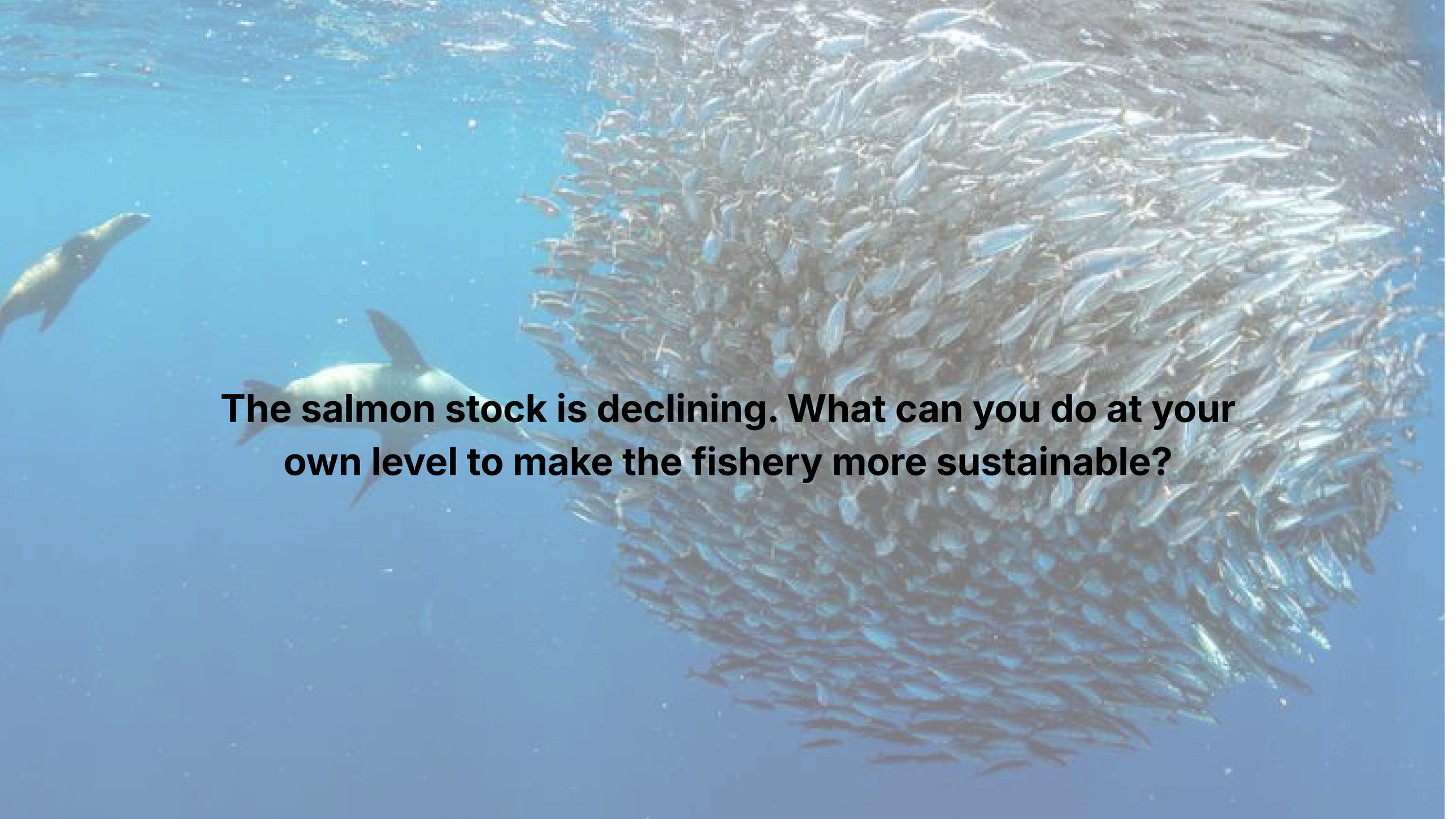
In groups of 2 or 3, rank the 4 actions that promote sustainable fishing and explain which one you consider the most relevant.

- Limite number of trap
- Adjust the fishing season
- Legal minimum size
- Individual quota



There is a major problem with water management regarding salmon conservation, what do you think should be done?





The salmon stock is declining. What can you do at your own level to make the fishery more sustainable?