



Food and Agriculture  
Organization of the  
United Nations



# Virtual Regional Workshop on bivalve molluscs sanitation

November 2, 3 and 4 2021

**Global importance of bivalve molluscs as a safe, sustainable foodstuff**

Cefas – FAO Reference Centre for  
Bivalve Mollusc Sanitation

Rachel Hartnell

# Fish consumption

Globally fish contribute 15-20% of animal protein to the diet, trebled since the 1960s.

Seafood per capita consumption continues to rise – average annual growth (1961-2017) of 3.1% (population growth 1.6%), outpacing other commodities (meat, eggs and milk)

Global per capita fish consumption has risen to above 20.3 kg/yr (FAO 2020). In Latin America and The Caribbean Region approx. 10.5 kg/yr, growing at >1% yr.

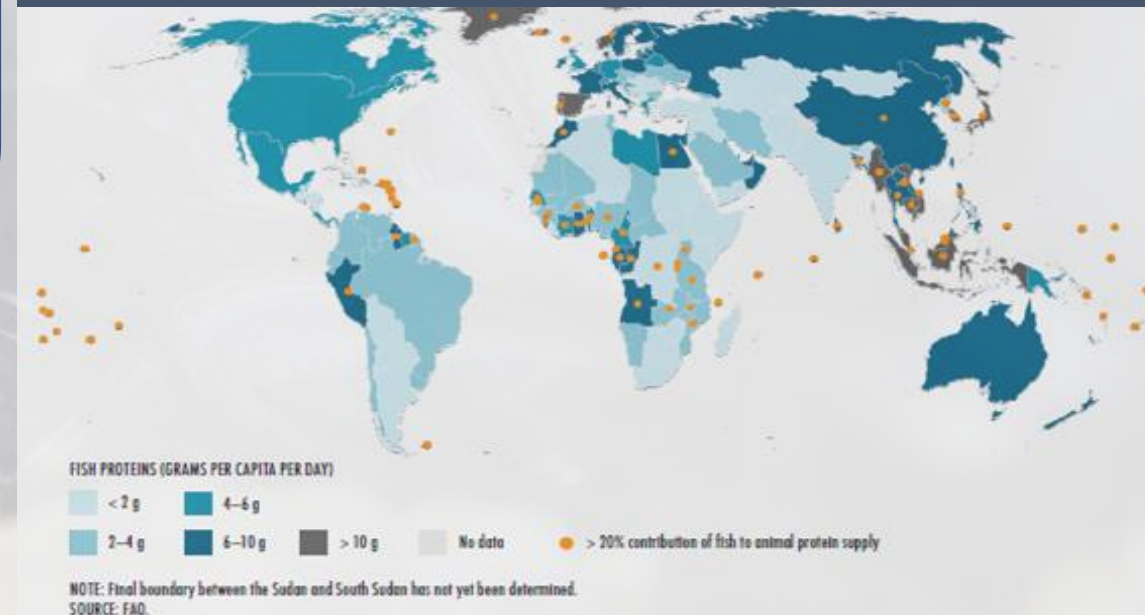
Provides over 3 billion people with >20% of daily animal protein intake, with 50%+ in some countries

Fish and fisheries products are a very important and increasing source of animal protein for billions of people around the world

Apparent fish consumption per capita (2015-2017) source FAO



Contribution of fish to animal protein supply (2015-2017) source FAO



# Fish production

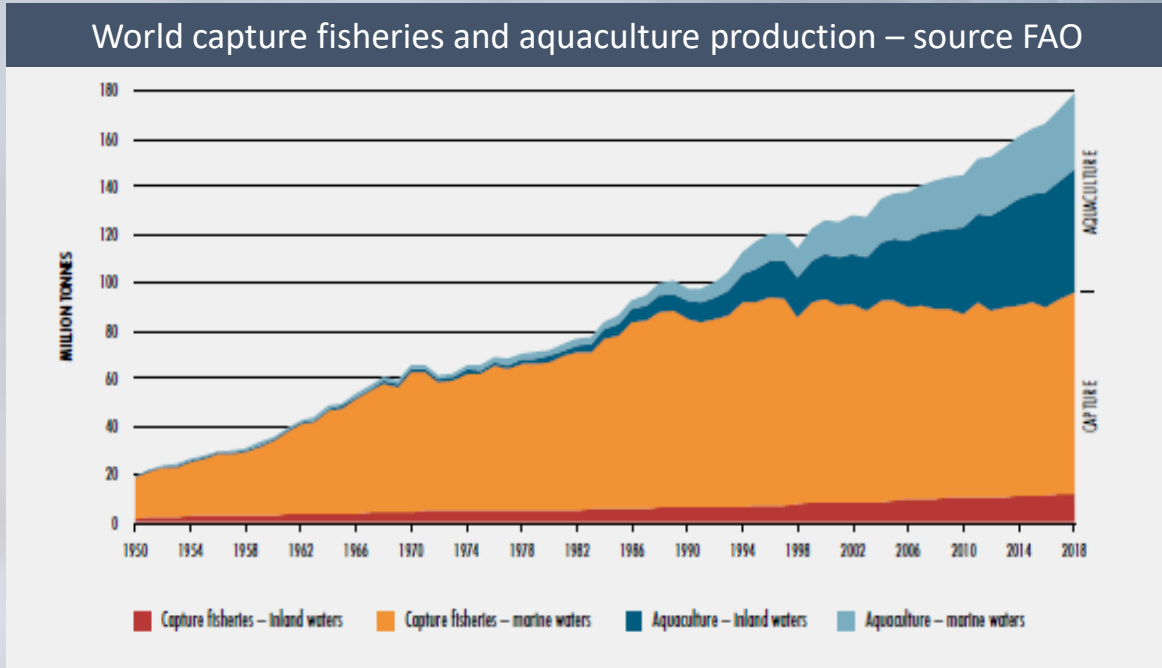
Growth in demand is driven by increased population wealth, availability (aquaculture), improved fisheries management, improved distribution networks and health benefits

Global fish production approx. 179 million tonnes in 2018, with a first sale value of USD 401 billion around 156 million tonnes was sold for human consumption

Aquaculture now accounts for approximately 52% of total global production.

Large growth in aquaculture predicted in Latin America and The Caribbean region – with up to 40% increase estimated by 2025 (3.7 million tonnes)

Fish production and value is increasing to meet increasing global demand, aquaculture is increasing in many world regions to offset flatlining of capture fisheries



A. LOVATELLI, FAO

*Harvesting of mussel off the Chiloé Island*

## Trade of fish and fishery products

Highly traded product, 38% of production (67 million tonnes) enters the international market, export value of USD 143 bn

EU (34%), US (14%) and Japan (9%) - top 3 markets (total value). LMIC export value USD 76 bn. More than meat, tobacco, rice and sugar

Globally there are complex trade flows and imbalanced import and export profiles. Latin America and The Caribbean is a net exporter of fish.

CoP for fish and fishery products helps to protect consumers and ensure fair practices in trade

Fish and fishery products are some of the most highly traded foodstuffs, with a global export value in excess of 140 billion US dollars. Europe, North America and Japan the largest importers

## Imports and intraregional trade flows

### LATIN AMERICA AND THE CARIBBEAN



Codex Alimentarius, Code of Practice for Fish and Fishery products



# Bivalve mollusc production

Increase in production over 50 years - 1m tonne in 1950, 17.7m tonnes in 2018, most approximately 80% of bivalve production is through aquaculture

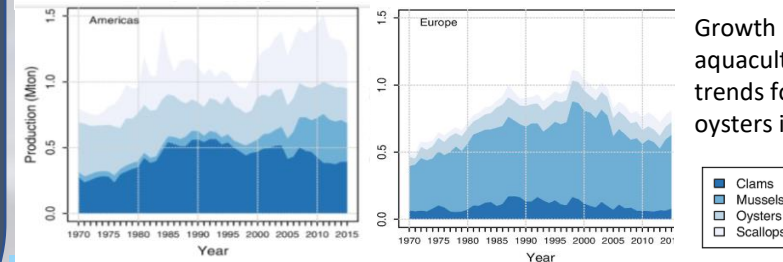
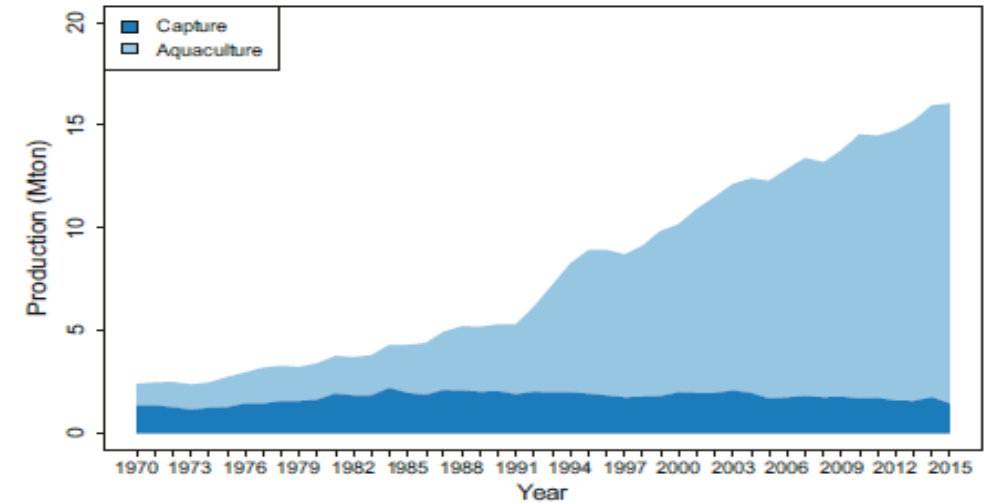
Value of aquaculture production approx. USD 34.6 billion in 2018. Production dominated by China (90% of Asian production), but also Japan, Republic of Korea, and Europe

Bivalve production requires good quality marine environment and good governance by Responsible Authorities, but has relatively low industry start up costs

Offers employment opportunities for women in rural communities

Bivalve production, mainly from aquaculture, has increased but not as rapidly as some sectors. In many countries there are potential with economic benefits to be gained through bivalve aquaculture

Total global production of bivalve molluscs (fishery and aquaculture) – source Wiseman *et al* 2019



Growth in bivalve production through aquaculture since 1970, upward trends for mussels, scallops and oysters in the Americas



**Rs 6,000 investment and 15 months later, 10 women reap huge dividends from oysters**  
These women are among the first oyster farmers in the state.

## Bivalve mollusc production benefits

### Environmental benefits,

- Unfed
- No antimicrobial or chemicals used in production
- Extractive species = clean the water
- Can be grown in multitrophic systems
- Relatively low carbon footprint compared to other forms of protein production – 340 tonnes CO<sub>2</sub> per tonne beef vs 11 tonnes bivalve protein.
- a green BLUE food!

### Nutritional and health benefits,

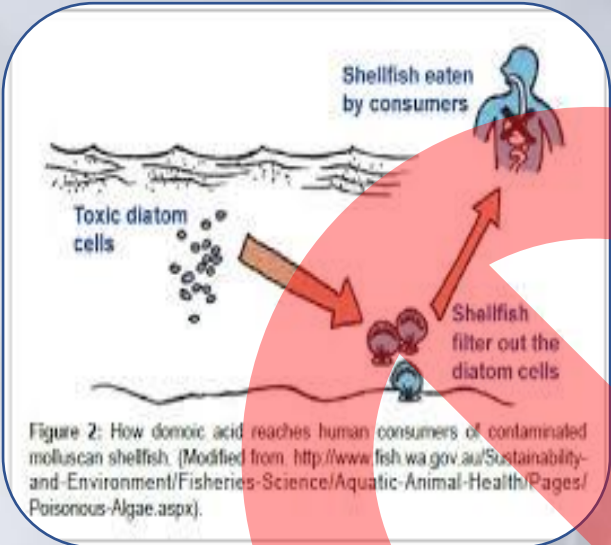
- Health benefits to the consumer

Bivalve production can confer nutritional, environmental and health benefits

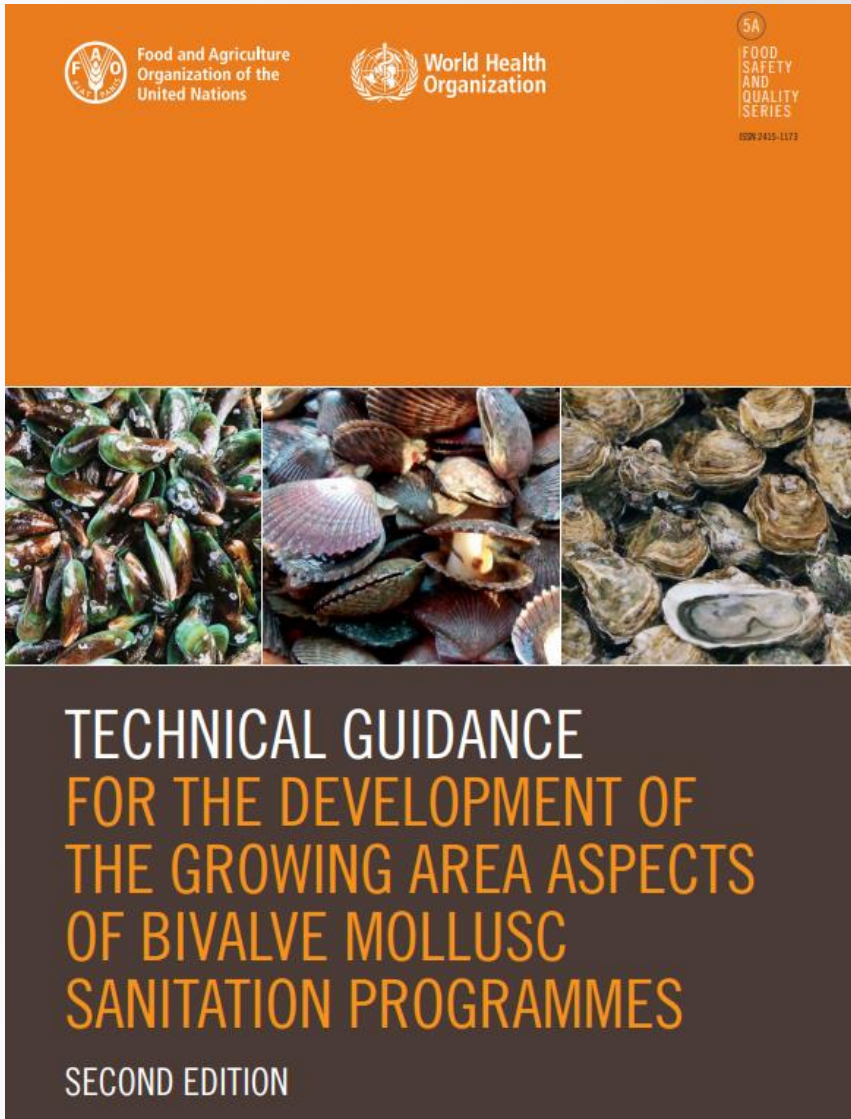


From the raw bar to the bench:  
bivalves as models for human health.  
Fernandez-Robledo *et al* 2019

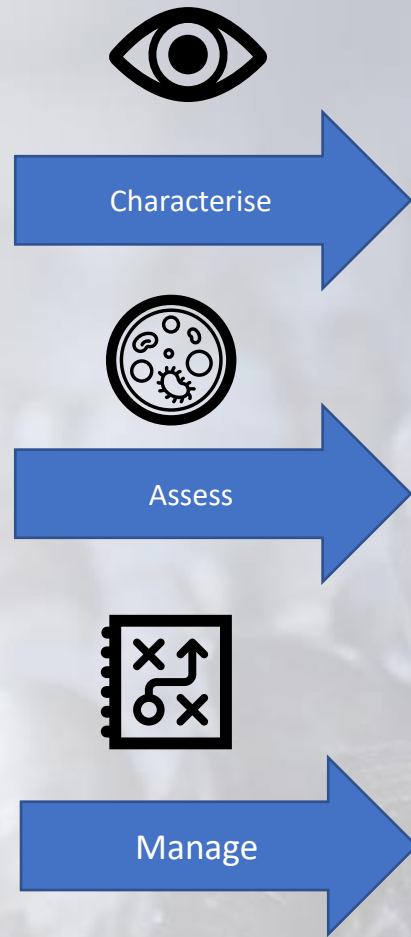
# But safety of bivalve molluscs is not certain



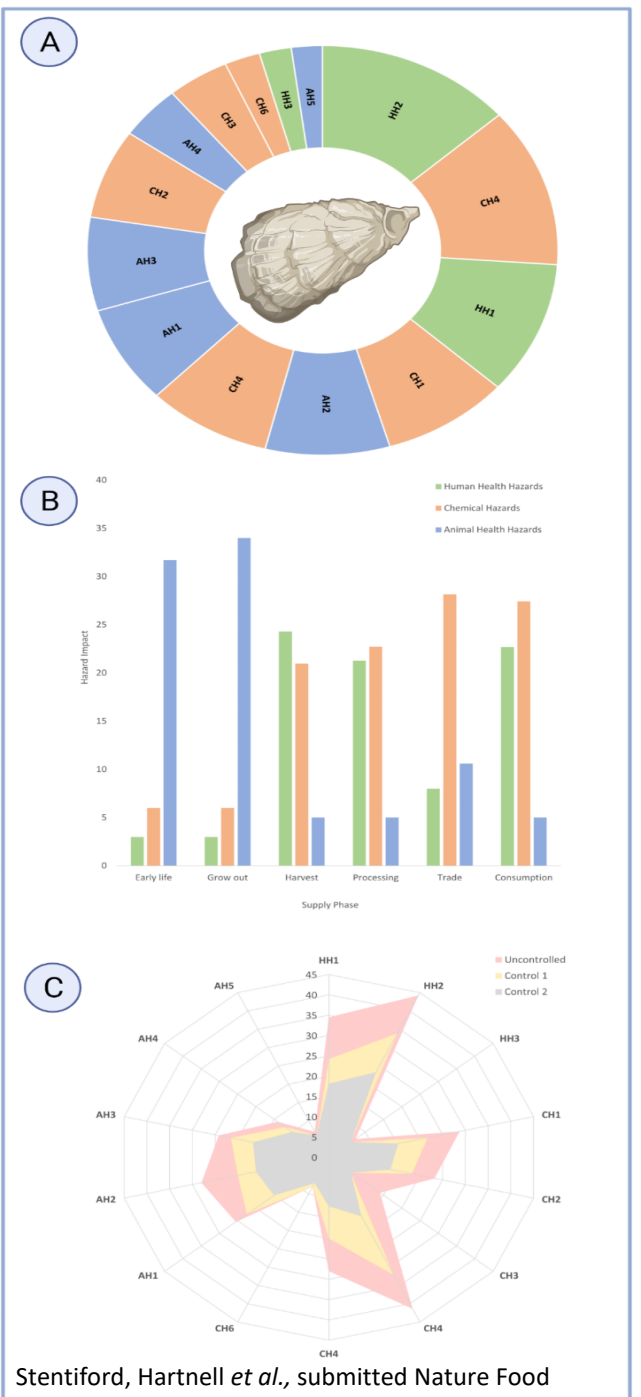
Bivalves are filter feeder which means a hazard in the environment either microbial or chemical = Hazard in the bivalve and a potential risk to the consumer



# How can risks be managed



Technical guidance for the development of the growing area aspects of bivalve mollusc sanitation programmes, Second edition (who.int)



Stentiford, Hartnell *et al.*, submitted Nature Food



## How are these potential risks managed?



**WTO** requires that countries base their **sanitary and phytosanitary (SPS)** measures on **international standards**



Under SPS agreements for food safety (including bivalve molluscs) is **Codex Alimentarius Commission (CAC)**



**Codex Code of Practice for Fish and Fishery** products includes a section on live and raw bivalve molluscs – lacks details



Separate trading blocks (e.g. EU, US, Japan, Russia) all have different additional Food Hygiene Law

**Only around 3% of the total bivalve mollusc production (raw or processed) is traded outside of the country of production (500,000 tonnes)**

Over the next three days we'd like to introduce to ways that FAO and Cefas can assist



Thank you for  
listening