



Food and Agriculture Organization
of the United Nations



ALÞJÓÐLEGT ÁR
FISKVEIÐA OG FISKELDIS
Í SMÁUM STÍL
2022

Adoption of technological innovations

Lessons learned from the field

4th Fish Waste 2022
FOR PROFIT
Icelandic Fisheries Conference
IN PERSON | ONLINE

9 JUNE | Reykjavik
TO 10 2022 | Iceland

Session 2 – Technology Innovation

Omar Riego Peñarubia

Fishery Officer, Value Chains Development team (NFIMV)



- Introduction
- Challenges
- Lessons learned
- Conclusion



INTERNATIONAL YEAR OF
**ARTISANAL FISHERIES
AND AQUACULTURE**

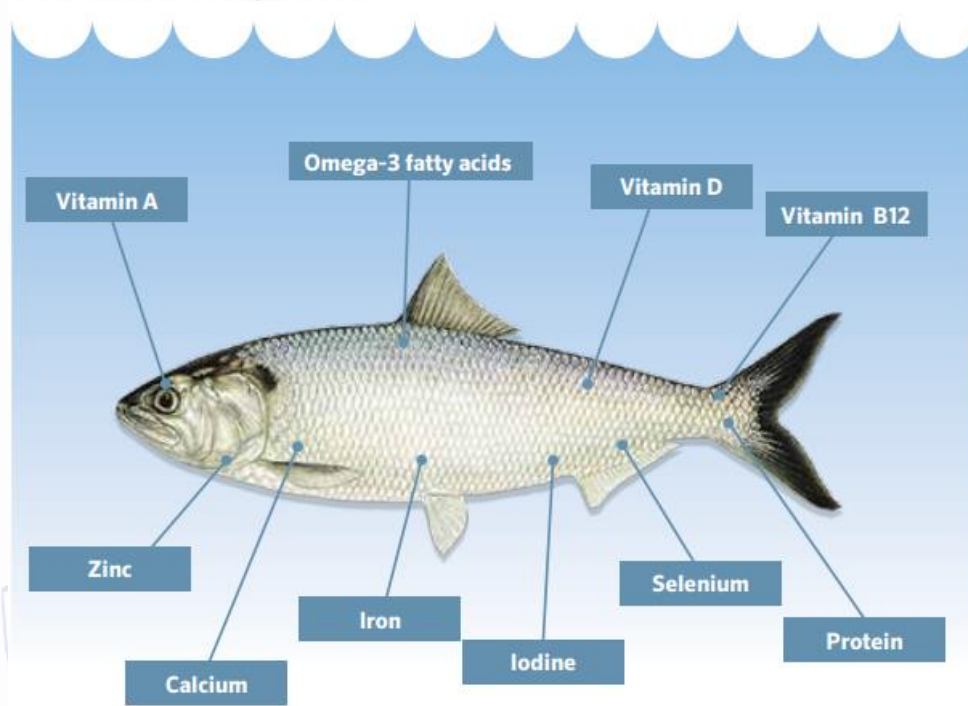
2022



- Aquatic foods, rich source of animal protein, key constituent of nutritious diets

Introduction

Fish: Nature's superfood



		Salmon, farmed	Anchovy, european	Carp, common	Tilapia	Chicken	Beef
Protein	g/100g	220	20	18	20	19	21
Lipids	g/100g	13	4.8	5.6	1.7	15	12
Water	g/100g	65	73	76	78	66	65
Ash	g/100g	1.1	1.4	1.5	0.9	0.8	1.0
DHA + EPA (ω-3)	mg/100g	1962	1449	350	91	40	3



ALPJÓÐLEGT ÁR
FISKVEIÐA OG FISKELDIS
Í SMÁUM STÍL
2022

THE CAUSES OF FISH LOSS AND WASTE

Harvesting

- Discards
- Fish falling from nets while hauling
- Predators while in nets
- Long soaking and hauling back times
- Illegal fishing technique
- Absence of chilling on board

Post Harvest

- Lack of appropriate storage infrastructure and services
- Delays in sales
- Poor handling/ Cold chain
- Infestation /predation

Processing

- Infestation/ predation
- Poor quality raw material
- Scarce or absent of packaging
- Low quality/ traditional processing technique
- Low processing capacity
- Poor water quality

Distribution

- Excess supply/ Lack of buyers
- Poor quality packaging
- Careless handling/ stacking
- Delays
- Poor roads and transport facilities
- Remoteness of landing sites

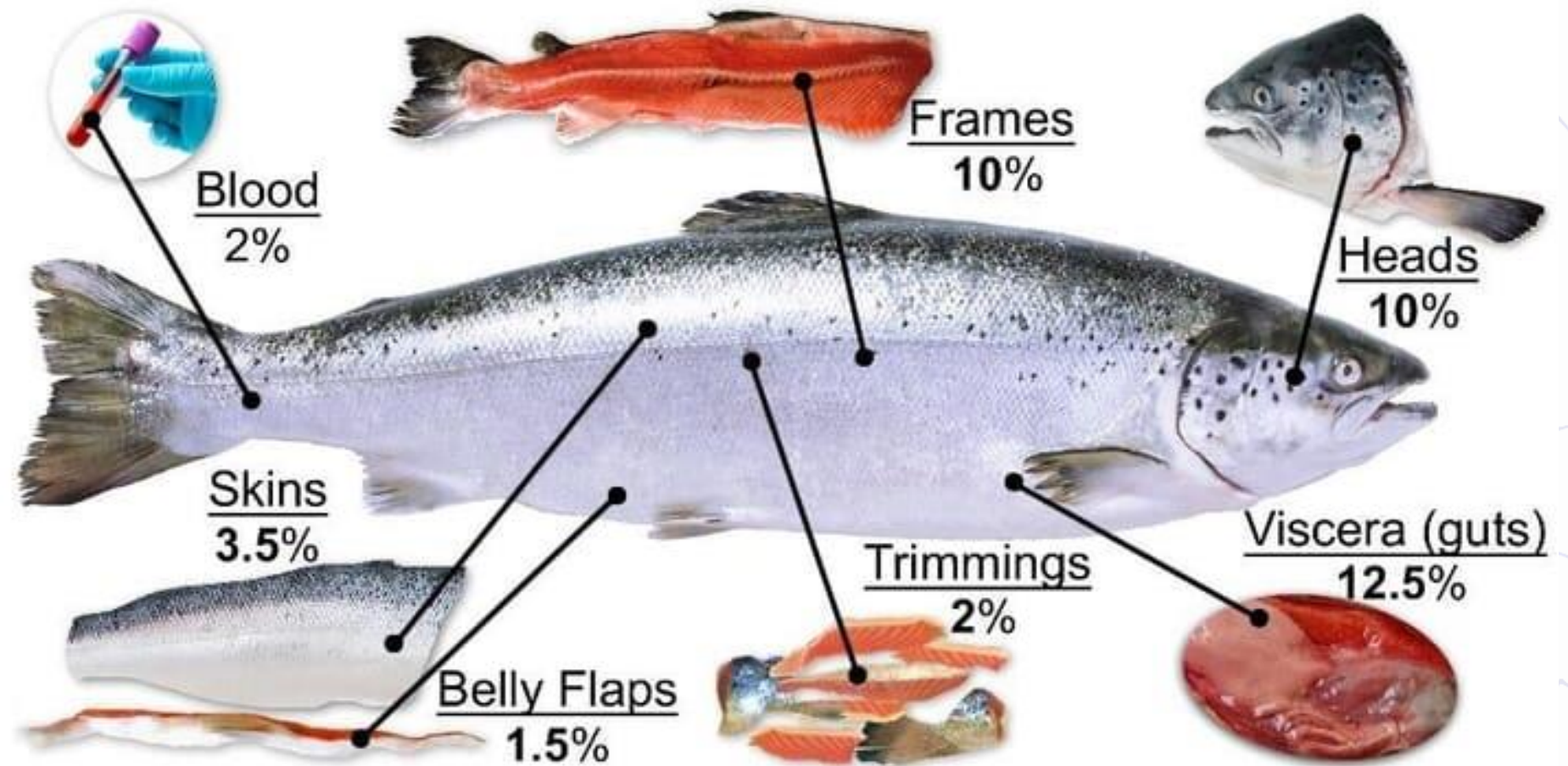
Consumption

- Excess
- Spoilage
- Discards
- Best Before? Expiration date?
- Consumer confusion



- up to 70 percent of fish processed

Introduction



<https://thefishsite.com/articles/dont-bypass-the-value-of-aquaculture-by-products>



ALÞJÓÐLEGT ÁR
FISKVEIÐA OG FISKELDIS
Í SMÁUM STÍL
2022



© FAO/B. Adrien



©FAO/M. Jakiul Islam



INTERNATIONAL YEAR OF
**ARTISANAL FISHERIES
AND AQUACULTURE**
2022

Technological Innovations



Food products

- Surimi
- Flour/powder
- Gelatin
- Edible films/coating



Biotechnology/Pharmaceutical

- Fish oil
- Collagen
- Gelatin
- Hydrolysates



Other applications

- Fish meal
- Fish silage
- Biodiesel
- Leather

THE NEW BIOPLASTIC
FROM FISH SCRAPS



Challenges

- Existing markets



Figure 2. Examples of different consumer products from fish processing wastes that are commercially available in the Philippines (a = dried marinated fish bones from Iloilo City; b = tuna skin crackers from General Santos City; c = dayok or fermented fish entrails from Cebu City)



- Supply of high quality by-products available on a regular basis



ALÞJÓÐLEGT ÁR
FISKVEIÐA OG FISKELDIS
Í SMÁUM STÍL
2022

200 miður | mbl | 23.3.2022 | 14:17

Heimilt til að henda hveljunum fyrir borð



Löndun grásleppu úr Garðari ÞH á Þórshöfn í fyrra. Ljósmynd/Líney Sigurðardóttir

[Heimilt til að henda hveljunum fyrir borð \(mbl.is\)](https://mbl.is)

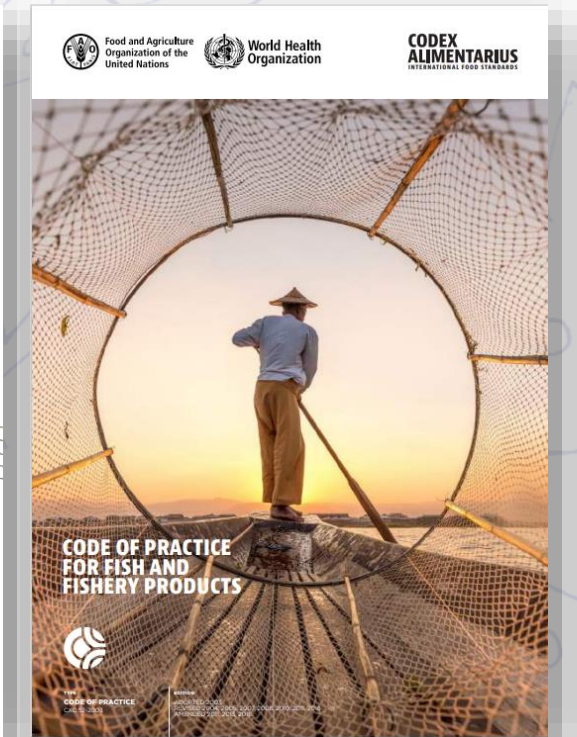
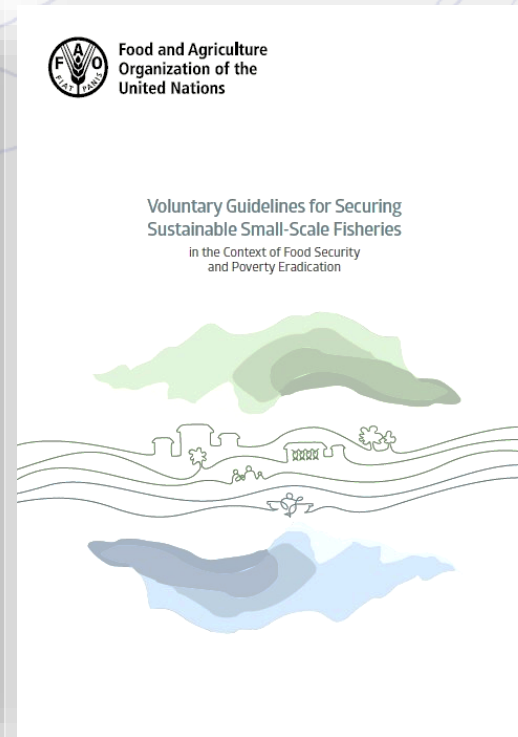
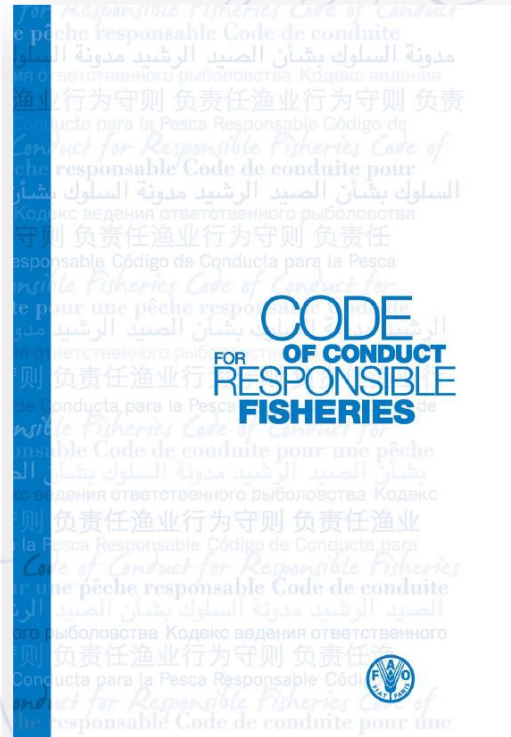
- Investment and operational costs





○ Enabling environment

<p>SOCIAL AND GENDER EQUITY</p> 	<p>SERVICES AND INFRASTRUCTURE</p> 
<p>REGULATORY ENVIRONMENT</p> 	<p>POLICY</p> 



Lessons learned

- Effective stakeholder and community participation



- Empowering the target groups



INTERNATIONAL YEAR OF
ARTISANAL FISHERIES
AND AQUACULTURE
2022

- Consistent technical specifications



- Technology management



- Markets linkages



- Sensitization and public education



INTERNATIONAL YEAR OF
**ARTISANAL FISHERIES
AND AQUACULTURE**
2022



Multi-dimensional and
multi-stakeholder approach

CONFERENCE

Forty-second Session

2021

Voluntary Code of Conduct for Food Loss and Waste Reduction

Executive Summary

Following the request of the 26th Session of the Committee on Agriculture (COAG), FAO has developed the Voluntary Code of Conduct for Food Loss and Waste Reduction (CoC) that is reproduced in Annex I. The CoC was developed through an inclusive process under the overall direction and guidance of the COAG Bureau. Inputs for the CoC and feedback on its contents were obtained through consultations that were organized at global and regional levels and involved different stakeholders who deal with food loss and waste (FLW) issues.

The CoC presents the actions and measures that countries, national and sub-national authorities, food supply chain actors, the private sector, producer organizations, civil society organizations, academic and research institutions, and other relevant stakeholders should take or put in place in order to contribute to FLW reduction. The CoC also presents guiding principles that should be followed in implementing these actions and measures, as well as the role that FAO and other stakeholders will be expected to play in supporting its implementation.

The document is submitted to the FAO Conference for consideration and endorsement.



ALÞJÓÐLEGT ÁR
FISKVEIÐA OG FISKELDIS
Í SMÁUM STÍL
2022

<https://www.fao.org/3/nf393en/nf393en.pdf>



Thank you very much

Food Loss and Waste in Fish Value Chains

Home Overview Value Chain Loss and Waste Scenarios Solutions Projects Resources Join Us

Join us!
Sign up for the
FLW in Fish Value Chains
Newsletter

The image shows a video player with a navigation bar at the top containing a home icon and links for Overview, Value Chain, Loss and Waste Scenarios, Solutions, Projects, Resources, and Join Us. The main video content shows a fish market with wooden crates filled with fish. A semi-transparent white box is overlaid on the video, containing an envelope icon and the text 'Join us! Sign up for the FLW in Fish Value Chains Newsletter'. The video player has standard playback controls at the bottom.

Omar Riego Peñarubia, NFIMV

OmarRiego.Penarubia@fao.org

<https://www.fao.org/flw-in-fish-value-chains/en/>