AYCL #2 Sustainable Seafood: Barriers and Opportunities in the Fishing Industry – Q&A

1. **Can you share an example of innovative technology in the field of aquaculture that promotes sustainability?**

One example of an innovative technology in the field of aquaculture that promotes sustainability is the use of Recirculating Aquaculture Systems (RAS). RAS is a closed-loop system that allows for the efficient and controlled rearing of fish or other aquatic organisms in a contained environment.

In a traditional open-net fish farming system, large amounts of water are used and discharged into the surrounding environment, leading to the potential for pollution and the transmission of diseases and parasites. RAS, on the other hand, significantly reduces the environmental impact by recycling and reusing water within the system.

Some other innovations are:

- Automated feeding systems: These systems use advanced sensors and computer algorithms to precisely distribute feed to fish based on their nutritional needs. By optimizing feeding efficiency, these systems minimise waste, reduce feed costs, and prevent overfeeding, leading to improved sustainability in aquaculture.

- Land-based aquaculture: Some aquaculture operations are moving away from traditional open-net systems and are being established on land. These land-based facilities often utilise recirculating systems and advanced water treatment technologies to minimize environmental impacts, such as waste discharge and disease transmission.

For more information about innovative technology and sustainability in aquaculture, please check course step 1.15, *The Growth of Aquaculture*, and step 3.11, *Digitalised Tools and Tech Solutions.*

2. **How can we ensure that seafood production is truly sustainable, rather than just using sustainability as a marketing buzzword?**

Ensuring that seafood production is truly sustainable requires a comprehensive and multi-faceted approach. Below are several key aspects to consider:

- Science-based standards: Establishing and implementing science-based standards and certifications for sustainable seafood is crucial. Third-party certifications, such as the Marine Stewardship Council (MSC) and Aquaculture Stewardship Council (ASC), provide credible verification of sustainable practices.

- Traceability and transparency: It is essential to have robust traceability systems in place to track the journey of seafood from the point of capture or production to the consumer. Transparent supply chains allow consumers to verify the sustainability claims made by producers.

- Ecosystem-based management: Sustainable seafood production should consider the broader ecological impacts. It involves adopting ecosystem-based management approaches that take into account the health of the entire ecosystem, including the impacts on other species, habitats, and ecosystems services.

- Responsible fishing practices: Employing responsible fishing practices is crucial to maintain healthy fish populations. This includes avoiding overfishing, implementing proper gear and fishing methods to minimise bycatch (the unintentional capture of non-target species), and adhering to catch limits and seasons. Fishing practices should also consider the impact on endangered species and sensitive habitats.

- Collaboration and stakeholder engagement: Achieving true sustainability requires collaboration among all stakeholders, including government agencies, industry players, conservation organisations, and local communities. Engaging and incorporating the perspectives of different stakeholders fosters inclusive decision-making and facilitates the adoption of sustainable practices.

- Continuous improvement and innovation: Sustainability is an ongoing journey. It is crucial to encourage continuous improvement and innovation in seafood production. This can involve investing in research and development to advance sustainable aquaculture technologies, promoting resource-efficient practices, and staying abreast of evolving scientific knowledge and best practices.

By considering these aspects and embracing a holistic approach, we can go beyond marketing buzzwords and truly promote and support sustainable seafood production. It requires a commitment to long-term stewardship of our oceans and a collective effort to ensure that the seafood we consume is sourced responsibly and with minimal impact on the environment.

For more information about guaranteeing the sustainability of seafood, please check course step 3.4, *Spotlight on SafetyNet Technologies,* and step 3.5, *Guide for Consumers: Labels.*

3. What's the difference between fisheries and aquaculture?

Fisheries and aquaculture are two interconnected sectors involved in the production of seafood.

Fisheries primarily focus on the capture and harvest of fish and other aquatic organisms from natural environments like oceans, rivers, and lakes. This involves various fishing methods and is managed through fish stock assessments, regulations, and conservation measures.

On the other hand, aquaculture, also known as fish farming, entails the controlled cultivation of fish, shellfish, and other aquatic organisms in tanks, ponds, or cages. Aquaculture is conducted in both marine and freshwater environments, as well as on land-based facilities. Its aim is to increase seafood production, meet the growing demand, and reduce pressure on wild fish stocks. The practices involved in aquaculture include artificial breeding, feeding management, disease control, and water quality maintenance.

While fisheries rely on capturing wild fish, aquaculture focuses on controlled cultivation, making these two sectors distinct but important contributors to the seafood industry.

For more information about the fisheries and aquacultures, please check course step 1.4, *Defining Sustainable Seafood*, and step 1.7, *Stakeholder's Mapping.*

4. **How can we ensure that the sustainability of the fishing industry is maintained in the long term, while meeting the increasing demand for seafood?**

Ensuring the long-term sustainability of the fishing industry while meeting the growing demand for seafood requires a multi-faceted approach that balances ecological preservation and responsible harvesting practices.

Firstly, implementing effective fisheries management strategies is essential. This includes setting catch limits, implementing size and gear restrictions, and establishing marine protected areas to allow fish populations to replenish and ecosystems to thrive.

Additionally, promoting sustainable fishing practices such as selective fishing methods and reducing bycatch can minimise the negative impact on non-target species. Collaboration among governments, scientists, and fishing communities is crucial to ensure effective monitoring and enforcement of regulations. Investing in research and technology to improve understanding of fish populations, habitats, and fishing impacts can inform evidence-based decision-making.

Lastly, promoting consumer awareness and responsible seafood choices, such as supporting certified sustainable fisheries and aquaculture practices, can drive market demand towards sustainable options and encourage industry-wide changes. By combining these efforts, we can strive for a thriving fishing industry that meets seafood demand without compromising the health and balance of our oceans.

For more information about the increasing demand for seafood and the sustainability of the fishing industry, please check course step 1.9, *Increasing Demand,* and step 3.5, *Guide for Consumers: Labels.*

5. **Should technology always be the answer, or should we be tackling demand, rather than supply?**

While technology can play a significant role in promoting sustainability, it should not always be considered the sole answer. Addressing the demand side of the equation is equally crucial. Tackling consumer behaviour and preferences can have a profound impact on reducing the strain on fish stocks and promoting long-term sustainability.

Educating consumers about the environmental consequences of their choices and encouraging responsible seafood consumption can help shift demand towards more sustainable options. This can be done through awareness campaigns, labelling initiatives, and promoting alternative protein sources. By addressing both the supply and demand aspects, we can create a more balanced and sustainable fishing industry that aligns with the needs of both the environment and society.

For more information about technology in fishing, demand and supply, please check course step 1.9, *Increasing Demand*, and step 3.11, *Digitalised Tools and Tech Solutions.*

6. **How do fishing quotas work, and what is their role in promoting sustainable fishing practices?**

Fishing quotas are limits set by authorities on the amount of fish that can be caught within a specific period. Quotas are typically based on scientific assessments of fish stocks and aim to ensure the sustainability of fisheries by preventing overfishing.

Quotas can be allocated to individual fishermen, fishing fleets, or nations, and can be expressed as a total allowable catch (TAC) or individual transferable quotas (ITQs). By regulating the amount of fish that can be captured, quotas help prevent the depletion of fish stocks and support their recovery.

When properly implemented and enforced, fishing quotas promote sustainable fishing practices by incentivising responsible fishing behaviour, preventing overfishing, and encouraging long-term planning. They provide a framework for managing fish stocks, maintaining ecosystem health, and ensuring the viability of fisheries for the benefit of present and future generations.

For more information about fishing quotas, please check course step 2.4, *Quotas and Catch Policies.*

7. **Are there some health risks associated to fish farming?**

Fish farming, like any other food production system, can present certain health risks. However, when properly managed, these risks can be minimised.

One potential concern is the use of antibiotics and chemicals in aquaculture to prevent and treat diseases. Overuse or misuse of these substances can lead to the development of antibiotic resistance and the accumulation of chemical residues in farmed fish.

To address this, responsible fish farming practices aim to reduce the need for antibiotics through improved husbandry practices, disease prevention measures, and the development of alternative treatments.

Additionally, the potential for waterborne pathogens and parasites can exist in fish farming systems, especially in open-net pen operations. Proper water quality management, biosecurity measures, and regular monitoring can help mitigate these risks. Regulatory agencies often enforce stringent guidelines and monitoring programs to ensure food safety and minimize health risks associated with farmed fish.

For more information about health risks related to fisheries, please check course step 3.9, *Mitigation and Early Warning of Health Challenges at Aquaculture Sites.*

8. **How can we promote greater transparency and traceability in the seafood supply chain?**

Promoting greater transparency and traceability in the seafood supply chain can be achieved through several measures. First, implementing robust and standardized traceability systems that utilise technologies like barcoding, RFID (Radio Frequency Identification), and blockchain can enable the tracking of seafood products from their source to the consumer. These systems should capture essential information such as the species, origin, catch method, and processing details.

Second, encouraging industry-wide adoption of these traceability systems and promoting collaboration among stakeholders, including governments, seafood producers, retailers, and technology providers, is crucial. This ensures that information is shared consistently and accurately throughout the supply chain.

Third, supporting and recognising certifications and labelling schemes, such as the MSC and ASC, which include traceability as a key component, can incentivise businesses to invest in traceability solutions.

Lastly, consumer demand for transparent and traceable seafood can drive industry changes. Educating consumers about the importance of traceability and supporting their ability to make informed choices through clear labelling and certification programs can encourage businesses to prioritize transparency in their operations.

For more information about transparency and traceability, please check course step 3.12, *Certification Programmes*, and step 3.5, *Guide for Consumers: Labels.*

9. **How important has sustainability been in the post-Brexit fisheries management negotiations between the UK, the EU and Norway? Has the reappearance of the UK as an autonomous maritime entity had any effect on this regard?**

Sustainability has been a key consideration in the post-Brexit fisheries management negotiations between the UK, the EU, and Norway. The re-emergence of the UK as an autonomous maritime entity has had a notable effect on this aspect.

As part of the negotiations, all parties have emphasised the need for sustainable fisheries practices to ensure the long-term health of fish stocks and marine ecosystems. The UK, in particular, has expressed its intent to implement its own fisheries management policies and regulations that align with international sustainability standards. This newfound autonomy has allowed the UK to have more control over its fishing waters, enabling it to tailor its approach to conservation, stock assessments, and quotas.

While the negotiations have been complex, sustainability has remained a common goal, with all parties recognising the importance of working together to achieve it.

For more information about the implications of policy in fishing management, please check course step 3.10, Fisheries Management in the High Seas: The Implications of Policy.

10. **Beyond the course, do you have any recommendations to keep learning about sustainable seafood?**

Below are a few sources to continue learning about sustainable seafood, beyond the course:

- Marine Stewardship Council (MSC) (msc.org): The MSC is a globally recognized certification program for sustainable seafood. Their website offers valuable information on sustainable fishing practices, certified fisheries, and the MSC label, which can help consumers identify and support sustainable seafood options.

- Aquaculture Stewardship Council (ASC) (asc-aqua.org): The ASC sets standards for responsible aquaculture practices. Their website provides information on certified farms, the ASC labeling system, and details about sustainable aquaculture practices and their environmental and social impacts.

- Sustainable Fisheries Partnership (sustainablefish.org): The Sustainable Fisheries Partnership is a non-profit organization that works with seafood companies and stakeholders to promote sustainable fisheries. Their website offers resources, reports, and updates on sustainable fishing practices, fishery improvement projects, and industry collaborations.

- Food and Agriculture Organization of the United Nations (FAO) (fao.org): The FAO provides valuable insights into global fisheries and aquaculture practices. Their website features reports, publications, and educational materials that cover various aspects of sustainable seafood production, including policy recommendations and best practices.

- FoodUnfolded (foodunfolded.com) (FUN): FUN is an online platform and community that aims to promote awareness and understanding of sustainable food systems. It provides information and resources related to various aspects of food production, agriculture, and consumption. FUN offers articles, videos, and interactive content to engage and educate consumers about the environmental, social, and health impacts of their food choices.

- The Scottish Association for Marine Science (sams.ac.uk) (SAMS): SAMS is a research organisation based in Oban, Scotland. The mission of SAMS is to deliver independent scientific research, education, and innovation to understand and promote sustainable marine environments and their resources.