Sustainable aquaculture through the One Health lens

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#OneHealthAquaculture





Source: Historical data 1950-2010: FAO. 2014. "FishStatJ." Rome: FAO. Projections 2011-2050: Calculated at WRI, assumes 10 percent reduction in wild fish catch between 2010 and 2050, and linear growth of aquaculture production at an additional 2 million tons per year between 2010 and 2050.

See www.wri.org/publication/improving-aquaculture for full paper.



Aquaculture Adoption Index (AAI)



Five AAI Types described – ranging from those nations whose aquaculture sector produced >100% of national per capita seafood demand (**Type 1**) to those nations where less than 5% of current demand is represented by the existing national industry (**Type 5**).

Stentiford & Holt (2022). Global adoption of aquaculture to supply seafood. Environmental Research Letters 17 041003

	Sub-type A: High volume consumers. Mainly eating marine fish but with significant sourcing from other seatood sub-sectors	Sub-type B: Average volume consumers. Mainly eating marine fish with occasional sourcing from other seafood sub-sectors	Sub-type C: Below average volume consumers. Mainly eating marine and treshwater fish with litie sourcing from other seatood sub-sectors	Sub-type D: well below average volume consumers. Mainly eating marine rish with very little sourcing from other seatood sub-sectors	Sub-type E: Negligible volume consumers. Mainly eating treshwater tish with low to negligible sourcing trom other seatood sub-sectors
Type 1: National per capita aquacuiture production exceeds national per capita total seatood consumption	Norway, Vietnam	Chile	Dominican Republic, Honduias	Ecuador, Lesotho, Guatemaia, Armenia, India,	Uzbekistan, Atghanistan, Nepal
Type 2: National per capita aquacuiture production between 50% and 100% of national per capita seatood consumption	China, Thailand	New Zealand, Nicaragua, Greece	Tuikey	Indonesia, Bangladesh, Egypt, Itan, Colombia	Lao
Type 3: National per capita aquaculture production between 25% and 50% of national per capita seatood consumption	Talwan, Maita, Republic of Kolea	Cyprus, iteland, Denmark	Albania, Buigatia, Cambodia, Cuba, Costa Rica, Croatia, Btazil, Philippines, Democratic People's Republic of Korea	Myanmar, Hungary, Bosnia and Heizegovina	Paraguay, Pakistan, Zambla, Zimbabwe
Type 4: National per capita aquaculture production between 5% and 25% of national per capita seatood consumption	Canada, Peru, New Caledonia, Australia, Malaysia, Italy, Japan, French Polynesia, France, USA, Spain	Mexico, United Kingdom, Netherlands, Belize, Mauritius	Czechia, Montenegio, Panama, Slovenia, Venezuela, Israel, Russian Federation, Finland, Belarus, Sri Lanka, Estonia,	Moldova, El Salvador, Kyrgyzstan, Iraq, North Macedonia, Saudi Arabia, Tunisia, Serbia, Poland, Romania, Nigetta, Kazakhstan, Ghana, Eswathi, Georgia, Shara	Sudan, Uganda, Tajikistan, Bolivia, Kenya, Rwanda, Malawi, Tanzania
Type 5: National per capita aquacuiture production below 5% of national per capita seatood consumption	Brunel Darussalam, Sweden, Portugal, Hong Kong SAR, Antigua and Barbuda, Saint Kitts and Nevis, Belgium	Jamaica, Unitied Arab Emirates, Switzerland, Lahvia, Argentina, Saint Lucta, Baibados, Vanuatu, Trinidad and Tobago, Sarnoa, Cape Verde, Bahamas	Germany, Lilhuania, Austria, Ukraine, Lebanon, Namibia, Fiji, Uruguay, Senegal, Sletta Le Je	Mali, Madagascar, Benin, Halti, Algerla, Jordan, Azerbaljan, South Artica, Timor-Leste, Liberla, Suilname, Ivory Coast, Guyana, Mozambique, Ornan, Cameroon, Congo, Angola, Botswana, Kuwait, Burkina Faso, Morocco, Guinea-Bissau, Gambia, Gabon	Ethiopia, Togo, Guinea, Niger, Central Atrican Republic; Chad, Turkmenistan
Quantity and diversity of seatood cons.					



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One Health Aquaculture*



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One Health aquaculture

Aquaculture, the farming of aquatic animals and plants, is one of the fastest developing food sectors globally, and in recent years has become the main source of fish available for human consumption. Applying the principles of One Health – the interconnectedness of human, animal and planetary health – could well support enhanced sustainable production in aquaculture; facilitating food and nutrition security, poverty alleviation, economic development and the protection of natural resources.

See Stentiford et al. show less

nature food

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*Stentiford, G.D. et al (2020). Sustainable aquaculture through the One Health lens. Nature Food 1, 468–474

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De-risking supply

OPEN



A new One Food model



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2

Scenario ID

Food Sector

Figure 1. The One Food project will develop (1) a systems-based approach to comprehensively mapping terrestrial and aquatic food sectors and scenarios (– e.g., trade, consumption patterns) - sectors collectively forming the national 'food system', and those sector-specific and cross-sector hazards (chemicals, pathogens) with potential to interrupt safe and sustainable supply chains. By analysing supply phase-specific options for hazard mitigation, the project will outline a mitigation plan that may be appropriate to specific hazards acting upon specific sectors through to multiple hazards impacting multiple sectors within a given food system. Whilst benefits realisation of hazard control is generally articulated via improvements in yield, trade or food safety (2), the One Food Project proposes to extend the concept to benefits to natural systems/biodiversity (3) and, to development of more climate-efficient food sectors (4). The One Food concept argues therefore that sufficient hazard identification and control, designed in to interlinked food sectors operating on land and in water, offers tangible benefits which extend beyond safe and sufficient food, to improved biodiversity and climate-related efficiency associated with the food system.

Department for Environment Food & Rural Affairs







One Food Workshop, October 2022