

Excess Demand for Fish Oil – Farmed Fish still a Healthy Food Product in 2025

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Fish oil has evolved from a cheap and undervalued resource, a by-product from fishmeal production, into an important food and feed ingredient. Today, it is highly valued as a raw material in human dietary supplements that cover our needs for essential fatty acids (ω -3 PUFAs; polyunsaturated fatty acids), with their significant health benefits. In parallel, fish oil clearly has real nutritional value for many farmed aquatic species, which then deliver the PUFA benefits when processed as food.

Like wild caught fish, farmed fish are positioned as healthy and nutritious, costefficient foods that are rich in all essential fatty acids required by humans. FAO predicts the global annual per capita consumption of fish to increase from about 16.6 kg (2004) to 19–21 kg by 2030. The wild catch cannot be sustainably increased, thus consumption growth must be served by aquaculture, where growth is averaging 8 % annually. Combined with the steep increase in consumption of supplements, with their associated purchasing power, this growth means there will be insufficient fish oil for feed producers to maintain inclusion at current levels. It is calculated that, from current resources, fish oil inclusion in fish feed would fall to as low as 5–7 % around 2025. This would significantly reduce the level of the ω -3 PUFAs in farmed fish and increase ω -6 fatty acids from vegetable oil replacements, leading to an unfavourable ratio of ω -6/ ω -3 in fish products for humans. Academia and the industry are searching for solutions to ensure a continued supply of ω -3 PUFAs. Approaches include gene modified plants, industrial production from algae and other microorganisms as well as marine organisms, exploitation of wild caught marine organisms, upgrading of by-products and modification of the metabolism of farmed fish to increase their capacity for synthesizing ω -3 PUFAs. These efforts will all help to maximize fish performance and minimize feed costs, thereby contributing to a sustainable aquaculture industry that can supply healthy, nutritious and well documented food for human consumption in 2025 and beyond.