How can feeding strategies in finfish mariculture be more sustainable?

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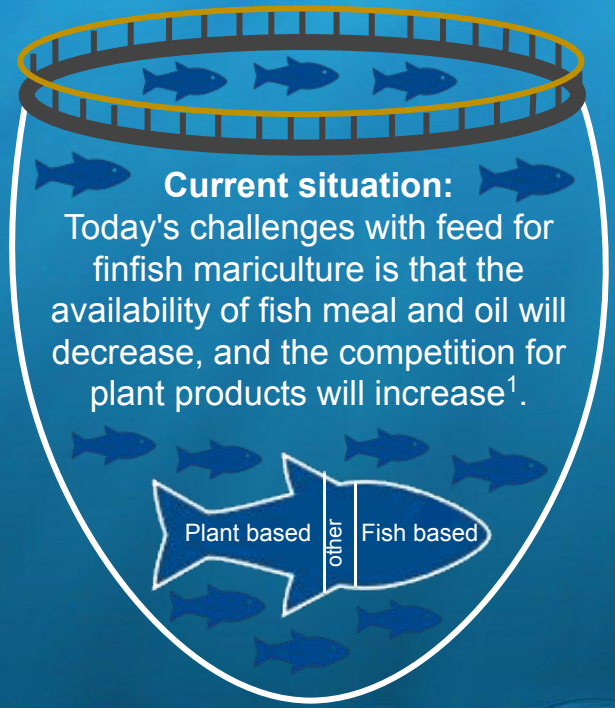

Solutions:

- Produce feed from low trophic levels (Fig. 1).
- Avoid feed from the human food chain[1].

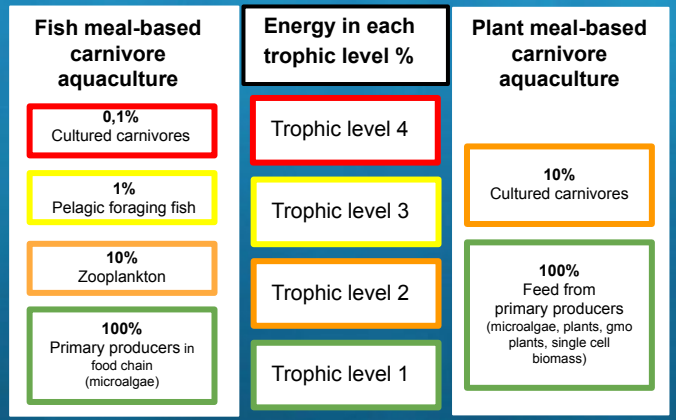

Figure 1: When moving from a lower trophic level to a higher, 90% of the energy is lost. Theoretically, feed from primary producers would therefore yield 100 times more energy from cultured carnivores (finfish) than fish meal-based feed.

Future:

The feed should continue to contain plants, but finfish require additional nutrients. For example, insects, macroalgae and zooplankton have shown promising results for use in finfish mariculture feed[2,3].

References: (1) Olsen, Y., 2011, Resources for fish feed in future mariculture. *Aquaculture Environment Interactions* 1(3):187-200.
(2) Bandara, Tharindu. 2018. "Alternative Feed Ingredients in Aquaculture: Opportunities and Challenges." *~ 3087 ~ Journal of Entomology and Zoology Studies* 6 (2).
(3) Rust, M. *et al.* (2011) *NOAA/USDA Alternative Feeds Initiative The Future of Aquafeeds*. Available at: http://aquaculture.noaa.gov (Accessed: May 2, 2021).

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