

Hi,

It is difficult to comment on a topic so broad as aquaculture feeds and lacking any specific proposal or plan.

However, my reaction to the initiative is several fold. First, the motivation for finding alternatives to fish meal and fish oil are independent of aquaculture and relate to the more general needs of increasing the availability of protein for human consumption. We have known for decades that population growth would quickly outstrip the resources available from industrial fisheries. Fortunately researchers and corporations have anticipated this and are working on solutions. The attention of NOAA and USDA will only hasten the day when solutions are found.

It needs to be recognized that when you compare pigs, chicken and fish, only the carnivorous forms of the latter have fish as a natural part of their diets. Fish meal and fish oil use in terrestrial livestock feeding could be considered a misuse of a resource that is in limited supply. Yet aquaculture opponents cite use of fish meal as the Achilles heel of the aquaculture industry. They do this in spite of the fact that the conversion efficiency in the aquaculture setting is far superior to the use of that same fish as prey in a wild fishery. I don't make this point to suggest the search for alternatives is not important, only that developments in this area will benefit industries other than aquaculture, as they are and will probably continue to be the majority users of fish meal.

I am glad your press release mentions an interest in making better use of discarded fish parts from fish processing plants for feeds. In 2006, nearly 60 million pounds of sea scallops were landed in the US. Since that is the landed weight of the abductor muscle only, in the prosecution of that fishery over a 100 million pounds of non-abductor soft tissue is thrown overboard in the shucking process. This serves on no benefit to the scallop industry, indeed it attracts scallop predators and brings sea turtles to the fishing grounds where their bycatch is threatening to close parts of the fishery. This is but one example of a wasted resource that is of the highest quality and is occurring on vessels that could easily freeze and land it for use in feed production. US fisheries need to progress towards no discards, and this should include no processing wastes as well.

An interesting article was on Seafood.com today and I have appended it below. It is an example of the way the aquaculture feed "problem" needs to be approached. Even if all fishmeal and fish oil production were diverted to aquaculture, the limited supply would still constrain needed growth in the culture of preferred species. Research on finding feed supplement alternatives has to be a priority. What seems odd to me is that this British scientist has failed to make the aquaculture connection for his important research.

I hope these comments are useful and that you will keep me informed of future activities related to this initiative, future scientific consultations, and in your planning of the national workshop.

Regards,
Cliff

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Appended news item:

>British scientists genetically engineer crops to produce fish oil
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>SEAFOOD.COM NEWS
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>November 19, 2007
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>LONDON, British scientists have genetically engineered crops such as
>oilseed rape to produce fish oil, offering a new approach to
>improving diet.
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>Experiments by British scientists have proved that crops containing
>genes from marine organisms are able to produce omega 3 fatty acids,
>normally found in oily fish, the BBC reported Friday.
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>Scientists at Rothamsted Research in Harpenden, Hertfordshire, north
>of London, isolated key genes from a species of microscopic
>single-celled marine algae known as *Thalassiosira pseudonana*,
>inserted the genes into crops such as linseed and oil seed rape, and
>found that the plants were able to synthesize omega 3 fatty acids in
>their seed oils.
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>'We know that this works, we've done proof of concept studies in
>model plants and also in crop plants and we can see the accumulation
>of some of the fish oils we're interested in,' research group leader
>Johnathan Napier said.
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>Concerns over dwindling fish stocks and marine pollution has led
>researchers to seek an alternative source of long-chain omega 3
>fatty acids.
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>Omega 3 fatty acids are made not by the fish themselves but by the
>marine microbes they consume.
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>Omega 3 fatty acids have important health benefits, especially for the heart.
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>The scientists' eventual aim is to feed GM-enhanced oils to animals
>such as chickens and cattle, in order to produce omega 3-enriched
>meat, milk and eggs.