

Jade Perch, Rich in Omega-3 Fish Oil, has Great Potential in Aquaponics

Geoff Wilson discusses the potential of Jade Perch, a fish native to Australia and rich in Omega-3, in aquaponics.

Omega-3 oils from fish and vegetable production via aquaponics are beginning to excite many scientists I meet.

They are recognizing the world's food production problems now coming into clearer view as a result of the "peak oil" syndrome, the over-fishing of most of our seas and the need to consider more local food production using much-reduced supply lines and more local feed inputs.

Importantly, the focus of many scientists is identifying urban agriculture in its wider, total food production capability, which includes urban aquaculture and urban aquaponics.

Yet it is a world-wide phenomenon that seems to still be escaping the purview of most existing macro food producers. Perhaps they are thinking that ignoring the signposts is the less pleasant way of coping.

Whatever is the real problem, I find it heartening that the omega-3 oil story is emerging as a harbinger of better practice in aquaponics – where the important interaction of food fish and food plants makes the production of this healthy essential oil well integrated with common sense.

One of the scientists/educators I have much respect for in field is **Dr Mike Nichols**, a retired lecturer in hydroponics at Massey University, who is using his retirement to try to interest many fellow New Zealanders in setting up a New Zealand aquaponics group.

But Mike's transition from hydroponics expertise (a

agriculture to good financial advantage), to less costly and more eco-friendly aquaponics, has been no less than enlightened discovery.

He wrote to me late last year about his recent study of the value of omega-3 oils from fish:

"I have been giving a great deal of thought to aquaponics -- particularly with reference to the health giving properties of the correct source of



Dr Mike Nichols (right) with Dr Nick Savidov, when they spoke in Singapore several years ago on the advantages ahead for aquaponics. Dr Nichols has since identified Omega 3 oil as a major advantage possible in aquaponics production - not only because of Australian fish species such as jade perch and silver perch having high Omega 3 oil content naturally, but also because of new feeding techniques now being studied. Dr Nichols is a New Zealand hydroponics scientist who is trying to develop aquaponics in New Zealand, while Dr Savidov is Canada's leading research scientist in aquaponics.

Omega-3 -- the key fatty acid found in fish--particularly oily fish. The difficulty is that the Omega-3 present in plant oils (eg hemp seed, canola etc) is not quite the same as that found in the oily fish.”

“That found in the oily fish is much more desirable, by a factor of at least five times. The Omega-3 found in oily fish is not however manufactured in the fish, but is derived directly from the plankton and phytoplankton that the fish consume.”

“Thus, to have high levels of omega 3 on farmed fish, it is necessary to feed the fish with fish meal (NOT land based plant derived foods), which means that with the current decimation of fish the oceans will run out inevitably there will be no more fish meal. Much of the health giving reasons for eating fish will then disappear.”

“The answer must lie in developing sound methods of producing high omega 3 phytoplankton which can then be fed to fish. Perhaps one of the plant components of aquaponics might be to produce the phytoplankton to feed the fish, as the consumption of the correct Omega-3 appears to have such huge health advantages for humans”.

His final piece of interesting advice to me was: “Have a look at www.omega-3centre.com”

What I found was that scientists are supporting a most interesting and enlightened action on Omega-3 education in Australia and New Zealand. The website is owned by The Omega-3 Centre (O3C), a not-for-profit health organization promoting the



Jade perch, pictured above, is an Australian native fish species that has been developed as an important new aquaculture species. It's next advance is most likely to be in aquaponics. The fish has the highest natural levels of Omega-3 oil in its flesh and carries stomach sacs of Omega-3 oil. Although a little too fatty for most non-Asian tastes, jade perch has found ready markets. It has also found acceptance in a number of other countries, especially throughout Asia. It's extraordinarily high omega-3 level has made it a popular table fish in these countries.

benefits of long chain Omega-3 fatty acids. It was founded in 2006.

In its first two years the O3C says it has become a well-recognized and credible source of information on issues related to long chain Omega-3s.

“Our activities include an annual scientific symposium, consensus workshops for members and consumers and health-care practitioner media campaigns. These have helped to en-

hance the understanding of the role that long chain Omega-3s have on optimum health maintenance and disease prevention.

A management committee of noted scientists determines the priorities and direction of the O3C, which is coordinated by the center's Executive Director.

What has this to do with aquaponics ?

My answer to this question is:

Potentially the Omega-3 Centre is a vital means of showing how the science and technology of food production focused on food value (in a number of contexts) can be expected to greatly shape what foods we will produce in future, for better health and for lower costs.



*Monique Cashion,
Executive Director
Omega-3 Centre*



Top: Bruce Sambell, President of the Aquaculture Association of Queensland, holding a jade perch.

Middle: Aquaculture Association of Queensland breeding-fish collection team setting up nets to catch jade perch on the Barcoo River in inland Queensland.

Bottom: Market-size, farmed jade perch

Aquaponics is the food production technology with the most to gain from this important new way of judging the true value of what we eat.

Shamefully, at present the Omega-3 Centre in Australia has little or nothing much to do with aquaponics. Yet the center's stated vision clearly supports the fish and vegetable combination that we understand aquaponics to be. The Center says: "Our vision is to be recognized as the leading Australian and New Zealand authority on long-chain Omega-3s and their benefits for nutritional health by the media, health professionals, government, educators, seafood, food and complementary medicines organizations and ultimately the consuming public."

"The Omega-3 Center is dedicated to improving the health status of Australians and New Zealanders by:

- Promoting optimal consumption of long chain Omega-3s;
- Championing a clear message differentiating shorter chain Omega-3s and long chain Omega-3s;
- Coordinating authoritative evidence-based advice to regulatory and health authorities;
- Supporting the development of the market for fish and seafood, healthy foods and dietary supplements containing long chain Omega-3s; and Facilitating and promoting research and development in this area.

The Omega-3 Center says on its website:

"It is imperative that sound science underpins all communications from the Omega-3 Center. To help keep the center abreast with new research and regulations regarding long chain Omega-3s we have appointed five scientific advisers."

These are:

- **Prof Andy Sinclair**, Deakin University – Scientific Adviser, Research
- **Dr Laurence Eyres**, Auckland University – Scientific Adviser, Lipid Chemistry
- **Dr David Roberts**, formerly Australian Food & Grocery Council – Scientific Adviser, Policy & Regulatory Affairs
- **Dr Peter Nichols**, CSIRO – Scientific Adviser, Seafood
- **Ms Wendy Morgan** – Scientific Adviser, Nutrition

Australia's Omega-3 Center is thus a major, unintended supporter for aquaponics producers to promote their specialized food-production technology because there are very close parallels in the aims of the noted food scientists and what aquaponics producers are trying to do.


Future aquaponics production around the world will be influenced by the Omega-3 story that is now very strongly being put forth by food science professionals, especially those trying to make better sense of food production in a world facing climate change problems and the tragedy of developed-country obesity epidemics.

Australia's strong scientific approach to promoting the Omega-3 story can be expected to trigger considerable me-too approaches around the world. Please write to "Aquaponics Journal" if you see in your country what Mike Nichols has observed in Australia and New Zealand.

About the Author: Geoff Wilson is a journalist and communicator in aquaponics, green roofs and walls and in urban agriculture. He contributes regularly to "Aquaponics Journal", but most of his current work is focused on green roofs, especially those moving towards aquaponics. See www.greenroofs.wordpress.com

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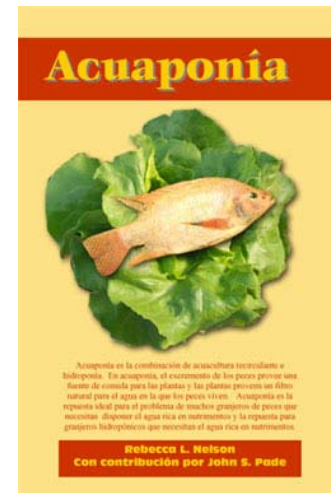
For further information on the benefits of long chain omega-3s please email info@omega-3centre.com or visit the website www.omega-3centre.com

The Omega-3 Centre is planning the next Omega-3 Centre Scientific Consensus meeting on 'omega-3s for baby boomers', which will be held in Sydney on Monday July 28, 2008. The report and recommendations for the baby boomer generation will be available in September. Last year the Centre was very active in promoting the "Omega-3 Index" as well as our report on omega-3s for children. 

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