

Curriculum Vitae: October 2006

Albert G.J. Tacon

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Education:

- B.Sc. with Honours (Upper Second) in Botany & Zoology (specializing in marine zoology during the final year), Westfield College, University of London (1970-1973; awarded 1973);
- Ph.D. by Research, University College (Cardiff), University of Wales. Thesis title: The use of activated sludge as a supplementary protein source in the diet of rainbow trout. Ph.D. scholarship grant awarded by the Science Research Council, External examiner Dr. C.B. Cowey, Institute of Marine Biochemistry, Aberdeen, Scotland, UK (research period 1973-1976; examination/awarded 1978);

Expertise summary:

- 11 years of doctoral/post-doctoral research and teaching experience in aquaculture nutrition and feed development within Universities within the United Kingdom (UK), including 1) University College, Cardiff, Wales (1973-1976) - Ph.D student in fish nutrition, 2) University of Aston in Birmingham, Birmingham, England (1976-1980) - Lecturer in Nutrition with the Department of Biological Sciences, and researcher in fish nutrition, and 3) Institute of Aquaculture, University of Stirling, Stirling, Scotland (1980-1984) – Research Fellow in fish nutrition;
- 14 years of aquaculture development and training experience with the Food and Agriculture Organization of the United Nations (FAO) within National, Regional, and Inter-regional Aquaculture Development Projects, and within the Regular Program at FAO HQ, including 1) Inter-regional Aquaculture Development and Coordination Programme Project, Rome, Italy (1984-1986) - Fish Feed Technologist, 2) Support to the Regional Aquaculture Activities of Latin America & the Caribbean Project, Brasilia, Brazil (1986/1987) - Aquaculture Nutrition & Feeding Expert, 3) National Seafarming Development Project, Bandar Lampung, Indonesia (1987/1988) – Feed and Nutrition Advisor, 4) Inland Fishery Resources and Aquaculture Service, Fishery Resources Division, FAO Fisheries Department (1991-1998) - FAO Fishery Resources Officer (Feed Specialist);
- 7 years of aquaculture research and development experience within private/non-profit US institutions and companies, including 1) The Oceanic Institute, Waimanalo, Hawaii (1998-2001) - Technical Director and Program Manager of the Aquatic Feeds and Nutrition Program, and 2) Aquatic Farms Ltd, Kaneohe, Hawaii (2001-present) – Aquaculture Research Director and International Aquaculture Consultant;
- 40 in-country work experiences with FAO & other agencies in aquaculture and nutrition related activities, including: *Africa* - Egypt, Kenya, Madagascar, Malawi, Nigeria, Tunisia; *Americas* - Bolivia, Brazil, Chile, Costa Rica, Cuba, Ecuador, Mexico, Nicaragua, Panama, Peru, USA, Venezuela; *Asia/Oceania* – American Samoa, China, Fiji, India, Indonesia, Iran, Saudi Arabia, Malaysia, Nepal, Papua New Guinea, Philippines, Thailand; *Europe* – Belgium, Cyprus, Hungary, Ireland, Italy, Norway, Portugal, Sweden, UK, Yugoslavia; and
- 190 publications and one patent on aquaculture technology, including publications related global aquaculture development trends, food security and poverty alleviation, aquaculture nutrition and feeding, and feed technology.

Professional affiliations:

- Member, Aquaculture Working Group, National Organic Program (NOP) Aquatic Species Task Force (USDA), May 2005 to present
- Scientific Advisor on Aquatic Resources, International Foundation for Science (IFS), Stockholm, Sweden, 1998-present
- Member, Seafood Watch Board of Scientific Advisors, Monterey Bay Aquarium, Monterey, California, USA, Mar 2004-Dec 2005

- Member, Industry Advisory Council of the Center for Tropical and Subtropical Aquaculture (Hawaii), January 2002-2003
- Inaugural President, International Aquafeed Association, July 2001-present
- Member, Nutrition Council, American Feed Industry Association (1999-2001)
- Membership of Professional Associations – Asian Fisheries Society, British Fisheries Society, World Aquaculture Society, American Association for the Advancement of Science

Editorial board membership/journals:

- Member, Editorial Board of the Scientific Committee of the Second International Symposium on Cage Aquaculture in Asia (CAA2), July 2005 to present
- Editor, International Aquafeed, 2003 to present
- Associate Editor, Global Aquaculture Advocate, 1999 to present
- Member, Editorial Board, Aquaculture Nutrition (Blackwell Publishing), 1998 to present
- Member, Editorial Board, Aquaculture Research (Blackwell Publishing), 1984 to present
- Member, Editorial Board, Aquaculture International, 1999 to 2003

Teaching experience:

- International training courses on aquaculture nutrition and feeding, May 2002-Mexico, October 2002-Venezuela
- Member, Scientific Committee of the *International Master of Science in Aquaculture*, University of Las Palmas, Gran Canaria, Spain, 1998 to present
- FAO undergraduate and post-graduate courses on aquaculture nutrition and feeding, numerous countries, 1984-1999
- University undergraduate and post-graduate courses in human and animal nutrition, UK, 1976-1984

Research grants:

- Co-Principal Investigator - Development of New Organic Culture Techniques for Native Hawaiian Seaweeds, USDA/CREES Hawaii Aquaculture Grant, \$ 50,000 (commenced November 2003-ended 2004)
- Co-Principal Investigator - Alaska Fisheries By-Product Utilization Program, ARS/USDA, multi-year project, level of OI funding \$0.3 million/year, 2000-2001
- Principal Investigator - Tropical Aquaculture Feeds and Culture Technology Development Project II : Development of Shrimp Feeds, ARS/USDA, level of OI funding \$1.4 million/year, 1998-2001

Strengths:

- Internationally respected expert in aquaculture, with 30 years of hands-on research and training experience in aquaculture and nutrition/feed research and development, including 14 years of experience with FAO, 40 in-country work experiences, and 190 scientific publications;
- Excellent technical communication skills, and ability to manage and motivate staff to work in tandem as multi-disciplinary research and development teams.

Professional experience

Technical Director - Aquaculture Research & Development, Aquatic Farms Ltd, Hawaii, USA

(October 2006 – Present)

Activities and consultancies conducted to date have included:

- Marine Stewardship Council – special services consultant agreement concerning the provision of strategic advice to the MSC Board of Trustees concerning aquaculture certification (on-going);

UH System Aquaculture Coordinator, The University of Hawai'i, Hawai'i, USA

(Jan/2006 – Sept 2006)

- Duties/Responsibilities: - primary responsibilities include 1) to improve communication and collaboration between scientists and educators, departments and colleges and to increase funding opportunities of aquaculture research and training throughout the system, 2) to serve as the aquaculture focal point and communicator for the university, and 3) to serve as the catalyst for the implementation of cutting edge research and graduate training programs in aquaculture at the University (one year appointment).

Technical Director - Aquaculture Development, Aquatic Farms Ltd, Hawaii, USA

(April 2001 – December 2005)

Activities and consultancies conducted to date have included:

- Fisheries Department of FAO – special services agreement in support of the FAO Code of Conduct for Responsible Fisheries, for the technical editing and preparation of FAO Technical Guidelines on Good Aquaculture Feed Manufacturing Practice;
- World Bank (WB), Network of Aquaculture Centers in Asia (NACA), Food and Agriculture Organisation of the United Nations (FAO), World Wildlife Fund (WWF) – authors contract for the preparation of a global review paper on feeds and feed management practices in shrimp aquaculture;
- Industria de Nata, S.A. (INASA), Panama – consultant concerning shrimp nutrition and feed management – the company operating the largest feedmill and shrimp farm ca. 1,150 ha in Panama (continuing);
- International Food Policy Research Institute (IFPRI) – authors contract for the preparation of a global review on fish meal and fish oil use and trends;
- FAO – special services agreement to compile ‘Global Review of the State of World Aquaculture’ and to act as Lead Technical Consultant for a joint FAO/China study on Aquaculture Development in China;
- FAO – authors contract to write a review on Organic Aquaculture for insertion into an FAO publication on Organic Agriculture, Environment and Food Security’ for the Environment and Natural Resources Service (SDRN) of FAO
- Denofa (Norway) – consultant on aquafeed development and concerning market opportunities for use of fishery byproducts in aquafeeds, including shrimp feeds in Asia;
- Zeigler Bros Inc (USA) – consultant on aquatic feeds and nutrition (concluded March 2003);
- Panorma Acuicola (Mexico) – consultancy to undertake a training course on shrimp feeds and feeding for shrimp farmers;
- Alimentos Procria, C.A. (Venezuela) – consultancy concerning shrimp nutrition & feed management – company operating the largest animal feedmills in the country;
- FAO – special services agreement to compile ‘Global Review of the State of World Aquaculture’ for the Inland Fisheries and Aquaculture Service (FIRI) of FAO;
- Oregon State University/Pond Dynamics/Aquaculture Collaborative Research Support Program - professional services contract to write supporting documentation on aquaculture for a new 5-year grant from USAID;
- Matforsk (Norway) – consultant concerning market opportunities for use of rendered animal products (meat and bone meal) in aquafeeds;
- Perendale Publishers (UK) – Editor, International Aquafeed magazine (continuing);
- DFID Aquaculture and Fish Genetics Research Programme (Department for International Development, UK) – authors contract to write a review on ‘Nutrient Resources for Aquaculture Development in Asia: Strategic Perspectives);
- University of Hawaii Sea Grant Extension Service (US) – consultancy to ascertain the potential for aquaculture development in American Samoa, with particular to the availability of local feed resources and feed requirements, and potential future funding opportunities (one consultancy and field visit to date);
- Marine Products Exports Development Agency (MPEDA, India) – consultancy for setting up a commercial scale Specific Pathogen Free (SPF) Tiger Shrimp broodstock production facility, including site selection, construction and implementation, including the development of appropriate SPF feeds and feeding regimes (one consultancy and field visit to date);
- Higashimaru Feeds (India) Ltd (India) - consultancy concerning shrimp nutrition, feed technology and on-farm feed management (one consultancy and field visit to date);

- Nicaragua Sugar Ltd (Nicaragua) - consultancy concerning shrimp feeds and on-farm feed management (two consultancies and field visits to date);
- Ervik Marine Services AS (Norway) - consultant concerning market opportunities for use of krill meals and products in aquafeeds;
- Associacao Brasileira de Criadores de Camarao (Brazil) – consultant concerning the nutritional merits and demerits of shrimp feeds used by the association;
- External examiner (Charles Darwin University) – Ph.D. thesis of Pohan Panjaitan (Field and laboratory study of *Penaeus monodon* shrimp culture with zero exchange and limited water exchange model using molasses as a carbon source);
- Implementation of USDA/CREES Seaweed project ‘Development of New Organic Culture Techniques for Native Hawaiian Seaweeds’ with Denis Yee (Opihi Ventures, Kaneohe);
- Molinos Champion SA (Ecuador) - consultant concerning shrimp feeds and feeding;
- Diamond V Mills (USA) - consultant concerning market opportunities for use of Diamond V Mills yeast products in aquafeeds;
- University of Hawaii Sea Grant Extension Service (US) – consultancy to develop a Communications Strategy to enhance the relevance and long-term viability of Sea Grant’s aquaculture extension and research program through the encouragement of outside investment in aquaculture within the State and Region through the attraction of a major national/multi-national corporation;
- FAO – authors contract to write an FAO Fisheries Technical Paper on ‘Use of Fishery Resources as Feed Inputs for Aquaculture Development: Trends and Policy Implications’ for the Inland Fishery Resources and Aquaculture Service (FIRI) of FAO;
- WWF Salmon Aquaculture Dialogue - authors contract for the preparation of a global review paper on salmon aquafeeds and the environment;
- Dragon Feeds Ltd (Wales, UK) – consultant on aquaculture development, nutrition and marketing opportunities concerning the use of marine polychaetes in compound aquafeeds;
- Deutsche Bank AG (UK/Belgium) – aquaculture feed business advisor;
- FAO – authors contract to prepare aquaculture statistical tables and graphics for the major FAO geographical regions for the Inland Fishery Resources and Aquaculture Service (FIRI) of FAO;
- European Animal Protein Association (Belgium) – authors contract to compile a global review concerning the use of blood products and blood meal in aquafeeds (on-going);

Technical Director & Program Manager, The Oceanic Institute, Hawaii, USA

(Aug/1998 - Mar/2001)

- Duties/Responsibilities: - Responsible for the technical direction and management of the Aquatic Feeds and Nutrition (AQUAFAN) Program of The Oceanic Institute (OI). The AQUAFAN Program prides itself in its multidisciplinary and holistic approach to aquatic feeds and nutrition research; total staff of 17, in addition to the program manager, including 1 visiting professor, 5 research scientists (with Ph.D.s), 1 administrative assistant, 1 research associate, 2 research assistants, and 6 technicians.
- The main research activity of the AQUAFAN program was related to the implementation of two five-year projects funded by the Agricultural Research Service (ARS) of the United States Department of Agriculture (USDA): 1) the Tropical Aquaculture Feeds and Culture Technology Development Project II - Development of Shrimp Feeds (1998-2002: 5-year project, level of OI funding \$1.4 million/year), and 2) the Alaska Fisheries By-Product Utilization Project (1999-2004: 5-year project, level of OI funding \$0.3 million/year).

FAO Fishery Resources Officer (Feed Specialist), Fisheries Department, FAO, Rome, Italy

(Jan/1991 - Jun/1998)

- Duties/Responsibilities: Responsible within the Fisheries Department for the technical backstopping of FAO aquaculture field projects and advising member countries on aspects related to aquaculture, and in

particular on nutrition and feed development, including project formulation and evaluation, and the production of research proposals, research projects for government/FAO funding, training manuals and technical documents;

- Subject Matter Officer in aquaculture nutrition and feed development, and semi-intensive and intensive fish and shrimp farming practices. Technical backstopping officer for the 'Development of small-scale fish farming in the Lake Basin' area of Western Kenya. Technical Secretary of the European Inland Fisheries Commission (EIFAC) Sub-Commission II on Aquaculture.

FAO Feed and Nutrition Adviser, Seafarming Development Project, Bandar Lampung, Indonesia

(Dec/1988 - Dec/1989)

- Duties/responsibilities - Prepared and supervised a one year research programme on the nutrition and feeding of seabass, grouper and rabbitfish in floating net cages for Project INS/81/008 at the National Seafarming Development Centre, Bandar Lampung, Indonesia. For details see FAO Technical Report Tacon et al., 1989;
- Responsible for the on-the-job training of seven national counterpart staff on fish nutrition and feed technology

FAO Aquaculture Nutrition & Feeding Expert, Support to the Regional Aquaculture Activities of Latin America & the Caribbean Project, Pirasanunga/Brasilia, Brazil

(Aug/1986 - Aug/1988)

- Duties/responsibilities: Support to the Regional Aquaculture Activities of Latin America & the Caribbean Project GCP/RLA/075/ ITA - Responsible for the planning and coordination of applied research on the nutrition and feeding of farmed fish and shrimp within the 19 member countries of the region; a total of eleven research projects were designed, budgeted and implemented, including 1) the development of economic pond nursery feeding strategies for the seed production of the freshwater fish *Colossoma/Tilapia* (Panama), 2) development of economic hatchery feeding strategies for the larval production of marine shrimp and freshwater prawns (Panama), 3) national aquaculture feeding profiles (Mexico, Brazil, Peru), and 4) national agricultural feed surveys (Mexico, Panama, Peru); and
- Responsible for the organization and conduct of a regional training course for senior instructors on the nutrition and feeding of farmed fish and shrimp. The 5-week training course was held in Mexico between 2 November and 5 December 1987 for a total of 25 participants from the Central American Sub-region. A three volume FAO training manual was prepared for the course; see Tacon, 1987, 1987a and 1988.

FAO Fish Feed Technologist, Aquaculture Development and Coordination Programme, Rome, Italy

(Jun/1984 - Aug/1986)

- Duties/responsibilities – within the Aquaculture Development and Coordination Programme, responsible for the planning and coordination of applied research on the nutrition and feeding of farmed fish and shrimp within the ADCP Regional Aquaculture Centres and donor countries, including 1) development of economic feeding strategies for the rearing of *Tilapia* in brackishwater ponds (Nigeria), 2) development of economic feeding strategies for the larval production of marine shrimp larvae (India/Philippines), 3) development of economic feeding strategies for farmed fish and shrimp (Mexico), 4) development of economic feeding strategies for the pond production of common carp (Papua New Guinea), 5) development of economic feeding strategies for the production of seabass (Tunisia); and
- Responsible for the conduct of short term training courses on the nutrition and feeding of farmed fish and shrimp in Hungary, Italy, Nigeria, Brazil and Yugoslavia (1-4 week duration)

Postdoctoral Fellow, Institute of Aquaculture, University of Stirling, Stirling, Scotland, UK

(Apr/1980 - Jun/1984)

- Duties/responsibilities - Responsible for the implementation of a four year research programme (funded by the Chief Scientist Group of the Ministry of Agriculture, Fisheries and Food) on the replacement of marine fish meal protein in salmonid diets. For details see Tacon (1983) and Tacon and Webster (1984). In addition, individual consultancies were undertaken on fish/shrimp nutrition and/or feed development for fish farmers within the UK and research organizations, including the White Fish Authority (UK), Imperial Chemical Industries PLC (UK), Tunnel Avebe Starches Ltd. (UK), Hoffmann-La Roche & Co. Ltd. (UK), Wessanen Nederland B.V (Holland), Atlantic Sea Products Ltd. (UK), Pilwoods Feeds Ltd. (UK), Ewos Baker Ltd. (UK), Ewos Ltd. (Sweden), the University of Oporto (Portugal), Overseas Development Administration for the Government of Bolivia, and Ternaken Marine Bhd (Malaysia/Singapore); and
- Responsible for the supervision of the research programmes of three Ph.D. and 12 M.Sc. graduate students on aspects of pure and applied fish/shrimp nutrition, and responsible for the lectures on applied aquaculture nutrition to the students attending the 1-year M.Sc. course within the Institute of Aquaculture.

Lecturer in Nutrition, Department of Biological Sciences, University of Aston in Birmingham, Birmingham, UK

(Oct/1976 - Mar/1980)

- Duties/responsibilities - Responsible for the planning and implementation of fish nutrition research within the Department of Biological Sciences. Research emphasis was placed on applied aspects of fish nutrition, including the evaluation of dietary fish meal replacers (Tacon and Ferns, 1976; Tacon, 1979, 1979a, 1979b, 1982; Tacon and Cooke, 1980), carotenoid function (Tacon, 1981) and mineral nutrition (Tacon and Beveridge, 1982); and
- Responsible for the supervision of the research programme of three Ph.D. students on fish nutrition;
- Responsible for the teaching of human and farm animal nutrition (including fish nutrition) within the Department of Biological Sciences and the Department of Biochemistry to undergraduate students.

PATENTS (1):

Pruder, G.D., Moss, S. and Tacon, A.G.J. Biosecure zero-exchange system for maturation and growout of marine animals. Patent Number 6,327,996 US Patent and Trademark Office, Issue Date December 11, 2001 (<http://patft.uspto.gov>)

ELECTRONIC ATLAS (1):

Tacon, A.G.J. (2004). Contribution of aquaculture to global food supply: an overview. UN Atlas of the Oceans. Fisheries and Aquaculture (<http://www.oceansatlas.org>)

PUBLICATIONS (190):

190. Tacon, A.G.J., Nates, S.F. and R.J. McNeil. (2006). Overview of farming systems for marine shrimp with particular reference to feeds and feeding, Chapter 20 in *Shrimp Culture: Economics, Market and Trade*, P.S. Leung and C. Engle, Editors, Blackwell Publishers, p. 301-314.

189. Izquierdo, M., Forster, I., Divakaran, S., Conquest, L., Decamp, O. & A. Tacon. (2006). Effect of green water and clear water and lipid source on survival, growth and biochemical composition of Pacific white shrimp *Litopenaeus vannamei*. *Aquaculture Nutrition*, 12:192-202.

188. Moss, S.M., Forster, I.P. & Tacon, A.G.J. (2006). Sparing effect of pond water on vitamins in shrimp diets. *Aquaculture*, 258:388-395.

187. Tacon, A.G.J., Hasan, M.R., Subasinghe, R.P. (2006). Use of fishery resources as feed inputs for aquaculture development: trends and policy implications. FAO Fisheries Circular No. 1018, Rome, Italy.
186. Tacon, A.G.J. (2005). Salmon aquaculture dialogue: status of information on salmon aquaculture feed and the environment. *International Aquafeed*, 8(4):22-37.
185. Tacon, A.G.J. & S.F. Nates. (2005). Feed quality testing: measuring in vivo, in vitro digestibility. *Global Aquaculture Advocate*, 8(6):44-45.
184. Tacon, A.G.J. (2005). State of information on salmon aquaculture feed and the environment. Report prepared for the WWF US Initiated Salmon Aquaculture Dialogue. 80p. Electronic document available at <http://www.worldwildlife.org/cci/dialogues/salmon.cfm>
183. Tacon, A.G.J. (2005). Aquaculture country statistical profile: China – an awakening and hungry giant. *International Aquafeed*, 8(2):34-35.
182. Tacon, A.G.J., Nates, S.F. & R.J. McNeil. (2005). Feeding strategies vary for shrimp producers. *Global Aquaculture Advocate*, 8(2):79-81.
181. Tacon, A.G.J., Nates, S.F. & R.J. McNeil. (2004). Dietary feeding strategies for marine shrimp: a review. In: L. Elizabeth Cruz Suarez, Denis Ricque Marie, Martha Gpe. Nieto Lopez, David A. Villarreal Cavazos, Ulrike Scholz & Mayra L. Gonzalez Felix (Editors), *Proceedings of the VII International Symposium on Aquaculture Nutrition*, Hermosillo, Mexico, 16-19 November 2004. Programa Maricultura, Facultad de Ciencia Biologicas, Universidad Autonoma de Nuevo Leon, Mexico.
180. Tacon, A.G.J. (2004). Estimated major finfish and crustacean aquafeed markets: 2000 to 2003. *International Aquafeed*, 7(5):37-41.
179. Tacon, A.G.J. (2004). The recycling of nutrients within food wastes within aquatic food production systems: aquaculture – the aquatic blue revolution phenomenon. In: Waldron, K.W., Faulds, C.B. & Smith, A.C. (Editors), *Total Food 2004: Exploiting Co-products, Minimising Waste*. Institute of Food Research, Norwich, England (In Press)
178. Tacon, A.G.J. (2004). Use of fish meal and fish oil in aquaculture: a global perspective. *Aquatic Resources, Culture & Development*, 1(1):3-14.
177. Tacon, A.G.J. (2004). Aquaculture 2002: over 50 million tonnes and climbing. *International Aquafeed Directory and Buyers Guide 2004*. Turret RAI plc, Armstrong House, Uxbridge, Middlesex, England, pp.2-8.
176. Tacon, A.G.J. (2004). Fish meal and fish oil use in aquaculture: global overview and prospects for substitution, pp. 433-448. In: T.P. Lyons & K.A. Jacques (editors), *Nutritional Biotechnology in the Feed and Food Industries*. Proceedings of Alltech's 20th Annual Symposium. Nottingham University Press, Nottingham, UK.
175. Tacon, A.G.J. (2003). Fish meal and fish oil use in shrimp diets: present and future, pp. 219-220. In: Jory, D.E. (Editor), *Responsible Aquaculture for a Secure Future: Proceedings of a Special Session on Shrimp Farming*. World Aquaculture 2003. The World Aquaculture Society, Baton Rouge, LA, USA.
174. Nates, S.F. & Tacon, A.G.J. (2003). New ingredients for shrimp feeds: status and opportunities, pp. 247-252. In: Jory, D.E. (Editor), *Responsible Aquaculture for a Secure Future: Proceedings of a Special Session on Shrimp Farming*. World Aquaculture 2003. The World Aquaculture Society, Baton Rouge, LA, USA.
173. Nates, S.F. & Tacon, A.G.J. (2003). New ingredients for shrimp feeds. 11. Arachidonic acid, nucleotides, algae, seaweed. *The Global Aquaculture Advocate*, 6(5): 34-37.
172. Nates, S.F. & Tacon, A.G.J. (2003). New ingredients for shrimp feeds. 1. Yeast glucans provide protein, vitamins, viral resistance. *The Global Aquaculture Advocate*, 6(4): 52-54.

171. Tacon, A.G.J. & Forster, I.P. (2003). Aquafeeds and the environment: policy implications. *Aquaculture*, 226(1-4):181-189.
170. Tacon, A.G.J. (2003). Growing Requirements for Fish Meals and Fish Oils, pp. 27-42. In: Bechtel, P.J. (editor), *Advances in Seafood Byproducts: 2002 Conference Proceedings*. Alaska Sea Grant College Program, University of Alaska Fairbanks, Fairbanks, 566 pp.
169. Tacon, A.G.J. (2003). Fish Farming. pp. 2479-2486. In: B. Caballero, L. Trugo & P.M. Finglas (Eds.), *Encyclopedia of Food Sciences and Nutrition, Second Edition*. Academic Press, London & New York.
168. Tacon, A.G.J. (2003). Global trends in aquaculture and compound aquafeed production – a review. *International Aquafeed--Directory and Buyers' Guide 2003*. pp. 8-23. Turret West Ltd, Bartham Press, Luton, UK.
167. Tacon, A.G.J. (2003). Aquaculture production trends analysis, pp.5-29. In: *Review of the State of World Aquaculture*. FAO Fisheries Circular No.886, Rev.2. Rome, FAO. 2003. 95p.
166. Tacon, A.G.J. (2003). Aquatic Feeds and Nutrition: Report reviews feed practices in shrimp aquaculture. *The Global Aquaculture Advocate*, 6(2): 62.
165. Forster, I., Dominy, W. & Tacon, A.G.J. (2003). Rendered meals workable feed ingredients for Pacific white shrimp. *The Global Aquaculture Advocate*, 6(2): 60-61.
164. Tacon, A.G.J. (2003). Aquatic Feeds and Nutrition: Trial finds extruded feeds superior to steamed pellets. *The Global Aquaculture Advocate*, 6(1): 44-45.
163. Decamp, O., Cody, J., Conquest, L., Delanoy, G. & Tacon, A.G.J. (2003). Effect of salinity on natural community and production of *Litopenaeus vannamei* (Boone), within experimental zero-water exchange culture systems. *Aquaculture Research*, 34:1-11.
162. Forster, I.P., Dominy, W., L. Obaldo & Tacon, A.G.J. (2003). Rendered meat and bone meals as ingredients of diets for shrimp *Litopenaeus vannamei* (Boone, 1931). *Aquaculture*, 219(1-4): 655-670.
161. Tacon, A.G.J. (2002). Aquatic Feeds and Nutrition: Antinutritional factors limit use of plant feedstuffs. *The Global Aquaculture Advocate*, 5(6): 66-68.
160. Tacon, A.G.J. (2002). Publication of FAO technical guidelines on good aquaculture feed manufacturing practice. *International Aqua Feed*, 5(3): 31-32.
159. Forster, I.P., Dominy, W. & Tacon, A.G.J. (2002). Use of soy protein concentrates in shrimp feeds. *International Aqua Feed*, 5(3): 17-19.
158. Tacon, A.G.J. & Nates, S.F. (2002). Aquatic Feeds and Nutrition: Role of hormones in shrimp growth, reproduction. *The Global Aquaculture Advocate*, 5(4): 24-25.
157. Tacon, A.G.J. (2002). *Global Review of Feeds and Feed Management Practices in Shrimp Aquaculture*. Report prepared under the World Bank, NACA, WWF and FAO Consortium Program on Shrimp Farming and the Environment. Work in Progress for Public Discussion. Published by the Consortium. 68 pages. (www.enaca.org/shrimp)
156. Hardy, R.W. & Tacon, A.G.J. 2002. Fish meal: historical uses, production trends and future outlook for supplies, pp.311-325. In: Stickney, R.R. & MacVey, J.P. (Eds.), *Responsible Marine Aquaculture*. CABI Publishing, New York, 391pp.
155. Tacon, A.G.J. 2002. Aquatic Feeds and Nutrition: Shrimp feeds and management: golden rules for success. *The Global Aquaculture Advocate*, 5(3): 34

154. Tacon, A.G.J. & Forster, I.P. 2002. Aquatic Feeds and Nutrition: No single solution: effluent management requires tailored policies that reflect production diversity. *The Global Aquaculture Advocate*, 5(2): 30-31.
153. Tacon, A.G.J., J.J. Cody, L.D. Conquest, S. Divakaran, I.P. Forster & O.E. Decamp. 2002. Effect of culture system on the nutrition and growth performance of Pacific white shrimp *Litopenaeus vannamei* (Boone) fed different diets. *Aquaculture Nutrition*, 8(2):121-139.
152. Obaldo, L.G., Divakaran, S. & Tacon, A.G.J. 2002. Method for determining the physical stability of shrimp feeds in water. *Aquaculture Research*, 33(5):369-377..
151. Decamp, O., Conquest, L., Forster, I. & Tacon, A.G.J. 2002. The nutrition and feeding of marine shrimp within zero-exchange aquaculture production systems: Role of eukaryotic microorganisms, pp.79-84. In: *Microbial Approaches to Aquatic Nutrition within Environmentally Sound Aquaculture Production Systems*, C.S. Lee and P. O'Bryen (editors). The World Aquaculture Society, Baton Rouge, Louisiana, USA.
150. Tacon, A.G.J. & Brister, D.J. 2002. IFOAM drafts basic standards for organic aquaculture production. *Aquatic Feeds and Nutrition: The Global Aquaculture Advocate*, 5(1): 21-22
149. Tacon, A.G.J. & Brister, D.J. 2002. Organic aquaculture: current status and future prospects, pp. 163-176. In: Nadia El-Hage Scialabba & Caroline Hattam (Eds.), *Organic agriculture, environment and food security*. Environment and Natural Resources Service, Sustainable Development Department. FAO, Rome, Italy, 252p.
148. Moss, S.M., Arce, S.M., Argue, B.J., Otoshi, C.A., Calderon, F.R.O. & Tacon, A.G.J. 2001. Greening of the blue revolution: efforts toward environmentally responsible shrimp culture, p.1-19. In: Browdy, C.L. & Jory, D.E. (editors), *The New Wave, Proceedings of the Special Session on Sustainable Shrimp Culture, Aquaculture 2001*. The World Aquaculture Society, Baton Rouge, LA USA.
147. Tacon, A.G.J. 2001. Aquatic Feeds and Nutrition: Minimizing environmental impacts of shrimp feeds. *The Global Aquaculture Advocate*, 4(6):34-35.
146. Hardy, R.W., Higgs, D.A., Lall, S.P. & Tacon, A.G.J. 2001. Alternative dietary protein and lipid sources for sustainable production of salmonids. *Fisken og Havet*, No.8, 53pp. (May 31, 2001: Institute of Marine Research, Bergen, Norway; <http://www.imr.no>)
145. Tacon, A.G.J. & I.P. Forster. 2001. Biotechnology in aquatic feeds. In: *Biotechnology-Aquaculture Interface: The Site of Maximum Impact Workshop*. Organized by the Agricultural Research Service, United States Department of Agriculture (Beltsville, Maryland) and The Oceanic Institute (Waimanalo, Hawaii). National Conservation and Training Center, U.S. Fish and Wildlife Center, Shepherdstown, West Virginia, March 5-7, 2001. <http://www.nps.ars.usda.gov/static/arsoibiotecws2001/contributions/Forster.htm>
144. Tacon, A.G.J. 2001. Aquatic Feeds and Nutrition: FAO to publish GMP guidelines for aquafeed manufacturing. *The Global Aquaculture Advocate*, 4(5):55.
143. Tacon, A.G.J. 2001. Desarrollo de alimentos acuicolas en el nuevo milenio. *Panorama Acuicola*, 6(5):38-41.
142. Tacon, A.G.J. and M.C. Haring. 2001. Application and transfer of OI technologies on aquatic feeds and nutrition to marine ornamentals, pp.123-127. In: *Proceedings of the Marine Ornamentals '99 Conference*, Waikoloa, Hawaii, November 16-19, 1999. University of Hawaii Sea Grant Publication CP-00-04
141. Tacon, A.G.J. and U.C. Barg. 2001. Responsible aquaculture for the next millennium, pp. 1-26. In: L.M.B. Garcia (editor), *Proceedings of the Seminar-Workshop on Responsible Aquaculture Development in Southeast Asia* organized by the SEAFDEC Aquaculture Department, 12-14 October 1999, Iloilo City, Philippines. Southeast Asian Fisheries Development Center, Iloilo City, Philippines, 274p.
140. Tacon, A.G.J. 2001. Desarrollo de alimentos acuicolas en el nuevo milenio. *Panorama Acuicola*, July/August 2001, pp.38-41.

139. Izquierdo, M.S., Fernandez-Palacios, H. & Tacon, A.G.J, 2001. Effect of broodstock nutrition on reproductive performance of fish. *Aquaculture*, 197:25-42.
138. Tacon, A.G.J. 2001. Aquatic Feeds and Nutrition: Aquaculture production exceeds its pelagic consumption. *The Global Aquaculture Advocate*, 4(3):21.
137. Conklin, D.E. & A.G.J. Tacon (Compilers). 2001. Source book of scientific publications (1976-1999) on the Pacific white shrimp *Litopenaeus vannamei* (Farfante & Kensley 1997), with particular reference to nutrition and feeds. The Oceanic Institute, Waimanalo, Hawaii, 232p.
136. Tacon, A.G.J. 2001a. Increasing the contribution of aquaculture for food security and poverty alleviation, pp.67-77. In: R.P. Subasinghe, P. Bueno, M.J. Phillips, C. Hough & S.E. McGladdery (Eds.) *Aquaculture in the Third Millennium. Technical Proceedings of the Conference on Aquaculture in the Third Millennium*, Bangkok, Thailand, 20-25 February 2000.
135. Tacon, A.G.J. 2001. Aquatic Feeds and Nutrition: Ecofeeds and the coming wave of ecotechnology. *The Global Aquaculture Advocate*, 4(2):68-69.
134. Argue, B.J., J.J. Cody, S.M. Arce, I.P. Forster, S.M. Moss and A.G.J. Tacon. 2001. Aquatic Feeds and Nutrition: Shrimp breeding for low-protein or vegetable-protein diets unnecessary. *The Global Aquaculture Advocate*, 4(2):15-16.
133. Tacon, A.G.J. and G.D. Pruder. 2001. Opportunities and challenges to organic certification of aquatic animal feeds, pp.26-42. In: Deborah J. Brister and Anne R. Kapuscinski (Eds), *Final Report of the National Organic Aquaculture Workshop. 23-24 June 2000*, Institute for Social Economic and Ecological Sustainability, University of Minnesota, St. Paul, Minnesota, USA.
132. Obaldo, L.G. and A.G.J. Tacon. 2001. Manufacturing different feed sizes and its effect on pellet water stability and growth of three size classes of Pacific white shrimp, *Litopenaeus vannamei*. *Journal of Applied Aquaculture*, 11(4):57-66.
131. Tacon, A.G.J. and L.G. Obaldo. 2001. Aquatic Feeds and Nutrition: Determining physical stability of shrimp feeds. *The Global Aquaculture Advocate*, 4(1):30-31.
130. Tacon, A.G.J. and I.P. Forster. 2000. Global trends and challenges to aquaculture and aquafeed development in the new millennium. *International Aquafeed--Directory and Buyers' Guide 2001*. pp. 4-25. Turret RAI, Uxbridge, Middlesex, UK.
129. Subasinghe, R.P., Barg, U. & Tacon, A. 2000. Chemicals in Asian aquaculture: need, usage, issues and challenges, pp.1-5. In: Arthur, J.R., Lavilla-Pitog, C.R. & Subasinghe, R.P. (eds), *Use of Chemicals in Aquaculture in Asia. Proceedings of the Meeting on the Use of Chemicals in Aquaculture in Asia, 20-22 May 1996*, Tigbauan, Iloilo, Philippines. Published by the Southeast Asian Fisheries Development Center (SEAFDEC), Tigbauan, Iloilo, Philippines.
128. Csengeri, I. and A.G.J. Tacon. 2000. Progress in freshwater fish and crustacean nutrition methodology and needs for research for semi-intensive pond based farming systems, pp.7-17. In: I. Csengeri, A. Szito, Z.G. Papp and A.G.J. Tacon (Editors), *Fish and Crustacean Nutrition Methodology and Research for Semi-intensive Pond-based Farming Systems. HALASZATFEJLESZTES 23 – Fisheries Development*, Vol. 23, HAKI, Szarvas, Hungary.
127. Csengeri, I., A. Szito, Z.G. Papp and A.G.J. Tacon (Editors) 2000, *Fish and Crustacean Nutrition Methodology and Research for Semi-intensive Pond-based Farming Systems. HALASZATFEJLESZTES 23 – Fisheries Development*, Vol. 23, HAKI, Szarvas, Hungary.
126. Tacon, A.G.J. 2000. Aquatic Feeds and Nutrition: Nutritional disorders and aquatic animal health. *The Global Aquaculture Advocate* 3(6):40-41.

125. Tacon, A.G.J. and I.P. Forster. 2000. Trends and challenges to aquaculture and aquafeed development in the new millennium. In: L.E. Cruz-Suarez, D. Ricque-Marie, M. Tapia-Salazar, M.A. Olvera-Novoa, and R. Civera-Cerecedo (editors). *Avances en Nutrición Acuicola V. Memorias del V Simposium Internacional de Nutrición Acuicola*, Mérida, Yucatan, Mexico. pp. 1-12.
124. Divakaran, S., M. Velasco, E. Beyer, I. Forster, and A.G.J. Tacon. 2000. Soybean meal apparent digestibility for *Litopenaeus vannamei*, including a critique of methodology. In: L.E. Cruz-Suarez, D. Ricque-Marie, M. Tapia-Salazar, M.A. Olvera-Novoa, and R. Civera-Cerecedo (editors). *Avances en Nutrición Acuicola V. Memorias del V Simposium Internacional de Nutrición Acuicola*, Mérida, Yucatan, Mexico. pp. 267-276.
123. Tacon, A.G.J. and M.S. Izquierdo. 2000. Aquatic Feeds and Nutrition: Broodstock nutrition: Boost diets for better reproduction. *The Global Aquaculture Advocate* 3(5):32-33.
122. Tacon, A.G.J. 2000. Rendered animal by-products: A necessity in aquafeeds for the new millennium. *The Global Aquaculture Advocate* 3(4):18-19.
121. Tacon, A.G.J. 2000. Production of feeds for aquatic organisms in tropics with particular reference to Latin America and Caribbean. In: *Proceedings - VIII Simpósio Brasileiro de Aqüicultura*, J.E. Cyrino, J.C. Moura, A.C. Caseiro, and A.M.B. Sampaio (editors). Fundação de Estudos Agrários Luiz de Queiroz, Piracicaba, SP, Brasil. pp. 17-31.
120. Tacon, A.G.J. 2000. Aquatic Feeds and Nutrition: Feed development guidelines for closed indoor farming systems. *The Global Aquaculture Advocate* 3(3):16.
119. Tacon, A.G.J. 2000. Aquatic Feeds and Nutrition: Aquafeeds and the Oceanic Institute's AQUAFAN program - Part 2: Research programs and activities. *The Global Aquaculture Advocate* 3(1):12-13.
118. Tacon, A.G.J. and E. Cruz-Suarez. 2000. Gestion de la acuicultura "Alimentacion y Nutricion". *Panorama Acuicola* 5(2):52-53.
117. Tacon, A.G.J. and S. Fraser Dominy. 2000. Aquaculture: Set to continue its upward trend. *Feed International* 21(1):48-50.
116. Divakaran, S. and A.G.J. Tacon. 2000. Studies on the toxicity of shrimp (*Penaeus vannamei*) fed diets dosed with aflatoxin B₁ to humans. *Journal of Aquatic Food Product Technology* 9(3):115-120.
115. Tacon, A.G.J. and U.C. Barg. 2000. Trends in aquaculture production and nutrient supply. *Encyclopedia of Life Support Systems - EOLSS*; UNESCO, Paris.
114. Tacon, A.G.J. 1999. In: *An Oplan Erap can ensure food security for the world's poor*. SEAFDEC Asian Aquaculture, XXI(5):10.
113. Tacon, A.G.J. 1999. Aquatic Feeds and Nutrition: Shrimp feeds and feeding practices for the next millennium: the dawn of a nutritional and cultural revolution. *The Global Aquaculture Advocate* 2(4/5): 24-25.
112. Tacon, A.G.J. 1999. Aquatic Feeds and Nutrition: Aquafeeds and the Oceanic Institute's AQUAFAN program - Part 1. *Global Aquaculture Advocate* 2(6):14,16.
111. Tacon, A.G.J., D.E. Conklin and G.D. Pruder. 1999. Shrimp feeds and feeding: At the crossroads of a cultural revolution. In: *Controlled and Biosecure Production Systems: Proceedings of a Special Session on Integration of Shrimp and Chicken Models*, Annual Meeting of the World Aquaculture Society, Sydney, Australia. R.A. Bullis and G.D. Pruder, editors. pp. 55-66.
110. Baum, V.J., G.D. Pruder, and A.G.J. Tacon (editors). 1999. *Proceedings of the First Meeting of the Industry Liaison Committee*, 11-13 March 1998. Tropical Aquaculture Feeds and Culture Technology Development Project

II. Development of Shrimp Feeds, USDA-ARS Grant Agreement No. 59-5320-7-989. The Oceanic Institute, Waimanalo, Hawaii. 87 pp.

109. Brufau, J. and A.G.J. Tacon (scientific editors). 1999. Proceedings of the II Conference of Feed Manufacturers of the Mediterranean -- Recent Advances in Research and Technology. Reus, Spain, March 1998. Cahiers Options Mediterraneennes. Centre Internationale de Hautes Etudes Agronomiques Mediterraneennes (CIHEAM), Zaragoza, Spain. 411 pp.

108. Sargent, J.R. and A.G.J. Tacon. 1999. Development of farmed fish: a nutritionally necessary alternative to meat. Proceedings of the Nutrition Society 58:377-383.

107. Tacon, A.G.J. 1999. Trends in global aquaculture and aquafeed production: 1984-1996 highlights. In: Proceedings of the II Conference of Feed Manufacturers of the Mediterranean -- Recent Advances in Research and Technology (J. Brufau and A. Tacon, scientific editors). Reus, Spain, March 1998. Cahiers Options Mediterraneennes. Centre Internationale de Hautes Etudes Agronomiques Mediterraneennes (CIHEAM), Zaragoza, Spain. pp. 107-122.

106. Tacon, A.G.J. 1999. Summary of the discussions held during the TECAM Workshop on Aquaculture Feed Manufacturing Practice within the Mediterranean Region. In: Proceedings of the II Conference of Feed Manufacturers of the Mediterranean -- Recent Advances in Research and Technology (J. Brufau and A. Tacon, scientific editors). Reus, Spain, March 1998. Cahiers Options Mediterraneennes. Centre Internationale de Hautes Etudes Agronomiques Mediterraneennes (CIHEAM), Zaragoza, Spain. pp. 221-222.

105. Tacon, A.G.J. and U.C. Barg. 1998. Major challenges to feed development for marine and diadromous finfish and crustacean species. In: Tropical Mariculture (S.S. De Silva, editor), Academic Press, New York. pp.171-207

104. Tacon, A.G.J., W.G. Dominy and G.D. Pruder. 1998. Global trends and challenges in aquafeeds for marine shrimp. International Aquafeed 4:28-35.

103. Tacon, A.G.J. 1998. FAO Aquaculture Production update: 1996 Highlights. International Aquafeed 2:13-16.

102. Tacon, A.G.J. 1998. Global trends in aquaculture and aquafeed production. In: International Aquafeed Directory and Buyers' Guide 1997/1998, Turret Rai Group PLC, Rickmansworth, UK. pp. 5-37

101. Subasinghe, R.P., U. Barg, M. Phillips, D. Bartley and A.G.J. Tacon. 1998. Aquatic animal health management: investment opportunities within developing countries. Journal of Applied Ichthyology 14:123-129.

100. Tacon, A.G.J. and S.S. De Silva. 1997. Feed preparation and feed management strategies within semi-intensive fish farming systems in the tropics. Aquaculture 151:379-404.

099. Subasinghe, R., U. Barg and A.G.J. Tacon. 1997. Health management strategies towards sustainable aquaculture. Paper presented at the 'Second International Symposium on Sustainable Aquaculture', 12-15 November, 1997, Oslo, Norway (in press).

098. Tacon, A.G.J., J. Collins and J. Allan. 1997. FAO field project reports on aquaculture: indexed bibliography, 1996-1995. FAO Fisheries Circular, No. 931, FAO, Rome. 192 pp.

097. Tacon, A.G.J. 1997. Aquafeeds and feeding strategies. pp. 39-44. In: Review of the State of World Aquaculture, FAO. FAO Fisheries Circular No. 886 (Revision 1), FAO, Rome. 163 pp.

096. Tacon, A.G.J. 1997. Asia, pp. 89-90. In: Review of the State of World Aquaculture, FAO. FAO Fisheries Circular No. 886 (Revision 1), FAO, Rome. 163 pp.

095. Subasinghe, R., M.J. Phillips and A.G.J. Tacon. 1997. South East Asia, pp. 102-109. In: Review of the State of World Aquaculture, FAO. FAO Fisheries Circular No. 886 (Revision 1), FAO, Rome. 163 pp.
094. Tacon, A.G.J. 1997. Contribution to food fish supplies, pp. 17-21. In: Review of the State of World Aquaculture, FAO. FAO Fisheries Circular No. 886 (Revision 1), FAO, Rome. 163 pp.
093. Tacon, A.G.J. 1997. Europe, pp. 120-125. In: Review of the State of World Aquaculture, FAO. FAO Fisheries Circular No. 886 (Revision 1), FAO, Rome. 163 pp.
092. Toledo, J., A.G.J. Tacon and M.C. Garcia. 1997. Acuicultura como opcion en sistemas deficientes en energia fosil. Paper presented at the FAO Expert Consultation 'Hacia una agricultura tropical con menos uso de energia fosil', 10-13 November 1997, La Habana, Cuba (in press).
091. Tacon, A.G.J. 1997. Feeding tomorrow's fish - the Asian experience. In: Sustainable Aquaculture (K.P.P. Nambiar and T. Singh, editors), Proceedings of INFOFISH-AQUATECH '96 International Conference on Aquaculture. 25-27 September 1996, Kuala Lumpur, Malaysia. INFOFISH, Kuala Lumpur, Malaysia. pp. 20-42.
090. Tacon, A.G.J. and D.M. Akiyama. 1997. Feed ingredients for crustaceans. In: Crustacean Nutrition (L.R. D'Abramo, D.E. Conklin and D.M. Akiyama, editors), Advances in World Aquaculture, Volume 6. World Aquaculture Society, Baton Rouge, USA. pp. 411-472.
089. Tacon, A.G.J. and B. Basurco (editors). 1997. Feeding tomorrow's fish. Cahiers Options Mediterraneennes, Vol. 22. Zaragoza, Spain, 307 pp.
088. Tacon, A.G.J. 1997. Fishmeal replacers: review of antinutritional factors within oilseeds and pulses: a limiting factor for the aquafeed green revolution. In: Feeding Tomorrow's Fish (A.G.J. Tacon and B. Basurco, editors). Cahiers Options Mediterraneennes, Vol. 22. Zaragoza, Spain. pp. 153-224.
087. Tacon, A.G.J. 1997. Feeding tomorrow's fish: keys for sustainability. In: Feeding Tomorrow's Fish (A.G.J. Tacon and B. Basurco, editors). Cahiers Options Mediterraneennes, Vol. 22. Zaragoza, Spain. pp. 11-33.
086. Barg, U.C., D.M. Bartley, A.G.J. Tacon and R.L. Welcomme. 1997. Aquaculture and its environment: a case for collaboration. In: D.A. Hancock, D.C. Smith, A. Grant & J.P. Beumer (Editors). Developing and Sustaining World Fisheries Resources. The State of Science and Management. Proceedings of the 2nd World Fisheries Congress, Brisbane, Australia, 28 July to 2 August 1996. CSIRO, Collingwood, Australia. P. 462-470.
085. El-Sayed, A.M. and A.G.J. Tacon. 1997. Fishmeal replacers for tilapia - a review. In: Feeding Tomorrow's Fish (A.G.J. Tacon & B. Basurco, editors). Cahiers Options Mediterraneennes, Vol. 22. Zaragoza, Spain. pp. 205-224
084. Tacon, A.G.J. 1996. Feed formulation and evaluation for semi-intensive culture of fishes and shrimps in the tropics. In: Proceedings of the National Seminar-Workshop on Fish Nutrition and Feeds (C.B. Santiago, R.M. Coloso, O.M. Millamena and I.G. Borlongan, editors). Tigbauan, Iloilo, Philippines. Aquaculture Department, Southeast Asian Fisheries Development Centre, Iloilo, Philippines. pp. 29-43.
083. Tacon, A.G.J. 1996. Global trends in aquaculture and aquafeed production. International Milling Directory: 90-108.
082. Tacon, A.G.J. 1996. Commercial aquafeed production and use of fishery resources. Feed Milling International 190(9): 17-22.
081. Tacon, A.G.J. 1996. Feeding Tomorrow's Fish. World Aquaculture 27:20-32.
080. Tacon, A.G.J. 1996. Nutritional studies in crustaceans and the problems of applying research findings to practical farming systems. Aquaculture Nutrition 1:165-174.

079. Tacon, A.G.J. 1996. Raw materials for salmonids: Alternatives to fishmeal. In: Report from the First Nutreco Aquaculture Business Conference (C.E. Nash and V. Julien, editors). AquaVison '96. 13-14 November 1996, Stavanger, Norway. pp. 40-45.
078. Rana, K., Perotti, M., Pedini, M. and A.G.J. Tacon. 1996. Major trends in global aquaculture production: 1984 to 1994. FAO Aquaculture Newsletter 13:9-12.
077. Tacon, A.G.J. 1996. European aquaculture - trends and outlooks. FAO GLOBEFISH Research Programme, Vol. 51, FAO, Rome. 205 pp.
076. Tacon, A.G.J. 1996. Trends in aquaculture production, with particular reference to low-income food deficit countries 1984-1993. FAO Aquaculture Newsletter 12:6-9.
075. Tacon, A.G.J. 1995. Feed ingredients for carnivorous fish species: alternatives to fishmeal and other fishery resources. In: Sustainable Fish Farming: Proceedings of the First International Symposium on Sustainable Fish Farming (H. Reinertsen and H. Haaland, editors). 28-31 August 1994. A.A. Balkema, Rotterdam/Brookfield, Netherlands/USA. pp. 89-114.
074. Schuhmacher, A., J. Gropp, A.G.J. Tacon, V. Hilge and H. Rosenthal (editors). 1995. Special issue: Proceedings of the EIFAC Workshop on Methodology for Determination of Nutrient Requirements in Fish, Eichenau, Germany, 29 June - 1 July 1993. Journal of Applied Ichthyology 11(3-4):129-400.
073. Tacon, A.G.J. 1995. Semi-intensive feeding methods for freshwater fish: concepts and research approaches. In: Seminar, The Management of Integrated Freshwater Agro-piscicultural Ecosystems in Tropical Areas (J.J. Symoens and J.C. Micha, editors). Brussels, 16-19 May 1994. Technical Centre for Agricultural and Rural Cooperation (CTA), Royal Academy of Overseas Sciences (Brussels). pp. 485-510.
072. Tacon, A.G.J. 1995. Application of nutrient requirement data under practical conditions: special problems of intensive and semi-intensive fish farming systems. Journal of Applied Ichthyology 11:205-214.
071. Tacon, A.G.J., M.J. Phillips and U.C. Barg. 1995. Aquaculture feeds and the environment: the Asian experience. Water Science Technology 31(10):41-59.
070. Tacon, A.G.J. 1995. Lipid nutritional pathology in farmed fish. Archives of Animal Nutrition 48:1-7.
069. Tacon, A.G.J. 1995. The potential for fishmeal substitution in aquafeeds. INFOFISH International 3/95:29-34.
068. Tacon, A.G.J. 1995. Aquaculture feeds and feeding in the next millennium: major challenges and issues. FAO Aquaculture Newsletter 10:2-8.
067. New, M.B., A.G.J. Tacon and I. Csavas (editors). 1995. Farm-made aquafeeds. FAO Fisheries Technical Paper No. 343, FAO, Rome. 434 pp.
066. Tacon, A.G.J. 1995. Ictiopatología nutricional - signos morfológicos de la carencia y toxicidad de los nutrientes en los peces cultivados. FAO Documento Técnico de Pesca No. 330, FAO, Rome. 77 pp.
065. Tacon, A.G.J. 1995. Pathologie nutritionnelle des poissons - signes morphologiques des carences et intoxications alimentaires chez les poissons d'élevage. FAO Document Technique sur les Pêches. No. 330, FAO, Rome. 77 pp.
064. Tacon, A.G.J. 1994. Feed ingredients for carnivorous fish species : alternatives to fishmeal and other fishery resources. FAO Fisheries Circular No. 881, FAO, Rome. 35 pp.
063. Tacon, A.G.J. 1994. Dependence of intensive aquaculture systems on fishmeal and other fishery resources - trends and prospects. FAO Aquaculture Newsletter No. 6, April 1994, FAO, Rome. pp. 10-16.

062. Gropp, J.M. and A.G.J. Tacon (editors). 1994. Report of the EIFAC Workshop on Methodology for Determination of Nutrient Requirements in Fish, Eichenau, Germany, 29 June-1 July 1993. EIFAC Occasional Paper No. 29, FAO, Rome. 92 pp.
061. Tacon, A.G.J. 1993. Feed ingredients for crustaceans: Natural foods and processed feedstuffs. FAO Fisheries Circular No. 866, FAO, Rome. 67 pp.
060. Tacon, A.G.J. 1993. National agricultural feed surveys for aquaculture planning and development - guidelines. FAO Aquaculture Newsletter 4:2-7.
059. Tacon, A.G.J. 1993. Aquaculture nutrition: food for thought. FAO Aquaculture Newsletter 3:2-6.
058. Tacon, A.G.J. 1993. Feed ingredients for warmwater fish: Fish meal and other processed feedstuffs. FAO Fisheries Circular No. 856, FAO, Rome. 64 pp.
057. New, M.B., A.G.J. Tacon and I. Csavas (editors). 1993. Farm-made aquafeeds. Proceedings of the Regional Expert Consultation on Farm-Made Aquafeeds, 14-18 December 1992, Bangkok, Thailand. FAO-RAPA/AADCP, Bangkok, Thailand, 434 pp.
056. Tacon, A.G.J. 1993. Feed formulation and on-farm feed management. In: Farm-made aquafeeds. Proceedings of the Regional Expert Consultation on Farm-Made Aquafeeds (M.B. New, A.G.J. Tacon, and I. Csavas, editors). 14-18 December 1992, Bangkok, Thailand. FAO-RAPA/AADCP, Bangkok, Thailand. pp. 61-74.
055. Tacon, A.G.J. 1993. Feed ingredients for warmwater fish: Current trends and future prospects. In: Aquaculture Technology and Investment Opportunities, Proceedings of the First International Symposium on Aquaculture Technology and Investment Opportunities, 19-22 April 1993, Riyadh (Saudi Arabia). pp. 441-514.
054. Tacon, A.G.J. 1993. Aquaculture nutrition and feeding in developing countries: A practical approach to research and development. In: Fish Nutrition in Practice (S.J. Kaushik and P. Luquet, editors). Biarritz (France) June 24-27, 1991. INRA Les Colloques No. 61, Paris. pp. 731-741.
053. Tacon, A.G.J. 1992. Nutritional fish pathology - morphological signs of nutrient deficiency and toxicity in farmed fish. FAO Technical Paper No. 330, FAO, Rome. 75 pp.
052. Tacon, A.G.J. 1992. The food and feeding of farmed fish and shrimp. An annotated selection of FAO field documents, 1973-1991. FAO Fisheries Circular No. 849, FAO, Rome. 92 pp.
051. Tacon, A.G.J. 1992. Madagascar: developpement de l'alimentation de la crevette. Rapport prepare pour la projet Ferme pilote d'aquaculture des crevettes. FAO Projet FI:DP/MAG/88/006, Document de travail, Octobre 1992, FAO, Rome. 17 pp.
050. Wee, K.L. and A.G.J. Tacon. 1992. Feeds and feeding in fish culture. Paper presented to the Multi-skilling in Aquaculture A Hands-on Training Workshop held at the Key Centre for Teaching and Research in Aquaculture, University of Tasmania, Australia, June 28 - July 2, 1992. 100 pp.
049. Tacon, A.G.J. 1991. Vitamin nutrition in shrimp and fish. In: Proceedings of the Aquaculture Feed Processing and Nutrition Workshop (D.M. Akiyama and R.K.H. Tan, editors). Thailand and Indonesia, September 19-25, 1991. American Soybean Association, Singapore. pp. 10-41.
048. Tacon, A.G.J., N. Rausin, M. Kadari and P. Cornelis. 1991. Use of night lights to attract food organisms into tropical marine fish cages. Aquaculture and Fisheries Management 22:183-192.
047. Tacon, A.G.J., N. Rausin, M. Kadari and P. Cornelis. 1991. The food and feeding of tropical marine finfish in floating net cages. 2. Asian seabass *Lates calcarifer* (Bloch) and the Brownspeckled grouper *Epinephelus tauvina* (Forsk.) Aquaculture and Fisheries Management 22:165-182.

046. Tacon, A.G.J. 1991. Kenya: Development of Tilapia feeds. Report prepared for the Small-scale Fish Farming in the Lake Basin. Project KEN/86/027. FAO Field Document, FI:KEN/86/027, April 1991, FAO, Rome. 31 pp.
045. Tacon, A.G.J. 1990. Peoples Republic of China: Fish feed formulation and production. Report prepared for the Fisheries Development in Qinghai Province Project. FAO Field Document, FI:CPR/88/077, Field Document No.8, November 1990, FAO, Rome. 21 pp.
044. Tacon, A.G.J. 1990. Standard Methods for the Nutrition and Feeding of Farmed Fish and Shrimp. Argent Laboratories Press, Redmond, Washington, USA, 454p.
043. Tacon, A.G.J., N. Rausin, M. Kadari and P. Cornelis. 1990. The food and feeding of tropical marine finfish in floating net cages. 1. Rabbitfish *Siganus canaliculatus* (Park). Aquaculture and Fisheries Management 21:387-402.
042. Tacon, A.G.J., N. Rausin, M. Kadari, N. Runtoboy, Astuti, Warsono, Suyanto, Purwanto and Sunaryat. 1989. The food and feeding of seabass *Lates calcarifer*, grouper *Epinephelus tauvina* and rabbitfish *Siganus canaliculatus* in floating net cages at the National Seafarming Development Centre, Lampung, Indonesia. FAO Field Document, FAO Seafarming Development Project INS/81/008, Technical Paper No. 13, Lampung, Indonesia. 130 pp.
041. Torrentera, B.L. and A.G.J. Tacon. 1989. The production of live food organisms and their importance in aquaculture. FAO Field Document, Project GCP/RLA/075/ITA. Field Document No.12, Brasilia, Brazil, (In Spanish; La producción de alimento y su importancia en acuicultura). 90 pp.
040. Campos Baca, L. and A.G.J. Tacon. 1989. El alimento y la alimentación de peces y camarones en la región amazónica del Perú. Antecedentes y estado actual. In: C.A. Martínez Palacios, C. Chavez de Martínez and M.A. Olvera Novoa, La nutrición y alimentación en la acuicultura de América Latina. Una diagnosis. Apoyo a las Actividades Regionales de Acuicultura para América Latina y el Caribe, Documento de Campo 17, RLA/075/ITA, Brasilia, Brasil. pp. 20-37.
039. Tacon, A.G.J. 1988. The nutrition and feeding of farmed fish and shrimp - A training manual. 3. Feeding methods. FAO Field Document, Project GP/RLA/075/ITA Field Document No. 7, Brasilia, Brazil. 208 pp.
038. Stafford, E.A. and A.G.J. Tacon. 1988. The use of earthworms as a food for rainbow trout *Salmo gairdneri* In: Earthworms in Waste and Environmental Management (C.A. Edwards and E.F. Neuhauser, editors). SPB Academic Publishing, The Hague, Netherlands. pp. 193-208.
037. Tacon, A.G.J. 1988. Fish feed technology. In: Village Level Aquaculture Development in Africa. Proceedings of the Commonwealth Consultative Workshop on Village Level Aquaculture Development in Africa, (H.R. King and K.H. Ibrahim, editors). Freetown, Sierra Leone, 14-20 February 1985. Commonwealth Secretariat, London. pp. 129-136.
036. Tacon, A.G.J. 1987. The nutrition and feeding of farmed fish and shrimp - A training manual. 2. Nutrient sources and composition. FAO Field Document, Project GCP/RLA/075/ITA Field Document No. 5, Brasilia, Brazil. 129 pp.
035. Tacon, A.G.J. 1987. The nutrition and feeding of farmed fish and shrimp - A training manual. 1. The essential nutrients. FAO Field Document, Project GCP/RLA/075/ITA Field Document No. 2, Brasilia, Brazil. 117 pp.
034. Tacon, A.G.J., G. Maciucci and J.E. Vinatea. 1987. National agricultural feed surveys for aquaculture planning and development in Latin America and the Caribbean. 1. Guidelines. FAO Field Document, Project GCP/RLA/075/ITA Field Document No. 1, Brasilia, Brazil. 11 pp.
033. Tacon, A.G.J. 1986. Larval shrimp feeding - Crustacean tissue suspension: A practical alternative for shrimp culture. FAO Field Document No. ADCP/MR/86/23, Rome. 31 pp.

032. Tacon, A.G.J. 1986. Papua New Guinea: Development of carp feeds. A report prepared for the reestablishment of carp fishing project. FAO Field Document, FI:TCP/PNG/4503, Field Document No. 3, July 1986, Rome. 42 pp.
031. Tacon, A.G.J. 1986. Feeding principles for marine fish under intensive culture. Paper presented to the FAO Mediterranean Regional Aquaculture Project (MEDRAP) Training Session on "Techniques used for the intensive rearing and feeding of fish and shellfish", Villanova di Motta di Livenza (TV), Italy, 3-16 June 1985. In: MEDRAP Technical report on Session Proceedings, Volume II (B. Loix, editor). Tunis, Tunisia, May 1986. pp. 366-383.
030. Tacon, A.G.J. 1986. Nutritional fish pathology - morphological signs of nutrient deficiency and toxicity in farmed fish. FAO Field Document No. FI:ADCP/REP/85/22p, Rome, Italy.
029. Tacon, A.G.J. and A.J. Jackson. (1985). Utilization of conventional and unconventional protein sources in practical fish feeds. In: Nutrition and Feeding in Fish (C.B. Cowey, A.M. Mackie and J.G. Bell, editors). Academic Press, London. pp. 119-145.
028. Kungvankij, P., A.G.J. Tacon, K. Corre, B.P. Pudadera, G. Taleon, E. Borlongan and I.O. Potestas. (1986). Acetes as prime food for *Penaeus monodon* larvae. In: The First Asian Fisheries Forum (J.L. Maclean, L.B. Dixon and L.V. Hosillos, editors). Asian Fisheries Society, Manila, Philippines. pp. 581-584.
027. Tacon, A.G.J. and C.B. Cowey. (1985). Protein and amino acid requirements. In: Fish Energetics - New Perspectives (P. Calow and P. Tytler, editors). Croom Helm Press Ltd., London. pp. 155-183.
026. Stafford, E.A. and A.G.J. Tacon. (1985). The nutritional value of dried earthworm meal *Eisenia foetida* (Savigny, 1826) included at low levels in production diets for rainbow trout *Salmo gairdneri* (Richardson). Aquaculture and Fisheries Management 16:213-222.
025. Tacon, A.G.J. and A.M.P. Rodrigues. (1984). Comparison of chromic oxide, crude fibre, polyethylene and acid-insoluble ash as dietary markers for the estimation of apparent digestibility coefficients in rainbow trout. Aquaculture 43:391-399.
024. Tacon, A.G.J., J.L. Webster and C.A. Martinez. (1984). Use of solvent extracted sunflower seed meal in complete diets for fingerling rainbow trout *Salmo gairdneri* (Richardson). Aquaculture 43:381-389.
023. Tacon, A.G.J., D. Knox and C.B. Cowey. (1984). Effect of different dietary levels of salt-mixtures on growth and body composition in carp. Bulletin of the Japanese Society of Scientific Fisheries 50(7):1217-1222.
022. Cowey, C.B., E. Degener, A.G.J. Tacon, A. Youngson and J.G. Bell. (1984). The effect of vitamin E and oxidized fish oil on the nutrition of rainbow trout (*Salmo gairdneri*) grown at natural, varying water temperatures. British Journal of Nutrition 51:443-451.
021. Stafford, E.A. and A.G.J. Tacon. (1984). Nutritive value of the earthworm, *Dendrodrilus subrubicundus*, grown on domestic sewage, in trout diets. Agricultural Wastes 9:249-266.
020. Stafford, E.A. and A.G.J. Tacon. (1984). Fish thrive on a diet of worms. Fish Farmer, May 1984, pp. 18-19.
019. Cowey, C.B., K.L. Wee and A.G.J. Tacon. (1983). Effect of fatty acid intake on growth and fatty acid composition of liver and muscle of snakehead. Bulletin of the Japanese Society of Scientific Fisheries 49(10):1573-1577.
018. Cowey, C.B. and A.G.J. Tacon. (1983). Fish nutrition - relevance to invertebrates. In: Proceedings of the Second International Conference on Aquaculture Nutrition (G.D. Pruder, C.J. Langdon and D.E. Conklin, editors). Rehoboth Beach, Delaware. Special Publication No. 2, World Mariculture Society, Louisiana State University, Baton Rouge. pp. 13-30.

017. Tacon, A.G.J., J.V. Haaster., P.B. Featherstone., K. Kerr and A.J. Jackson. 1983. Studies on the utilization of full-fat soybean and solvent extracted soybean meal in a complete diet for rainbow trout. *Bulletin of the Japanese Society of Scientific Fisheries* 49(9):1437-1443.
016. Tacon, A.G.J., E.A. Stafford and C.A. Edwards. (1983). A preliminary investigation of the nutritive value of three terrestrial lumbricid worms for rainbow trout. *Aquaculture* 35:187-199.
015. Tacon, A.G.J. and S.S. De Silva. (1983). Mineral composition of some commercial fish feeds available in Europe. *Aquaculture* 31:11-20.
014. Tacon, A.G.J., K. Jauncey, A. Falaye, M. Pantha, I. MacGowan and E.A. Stafford. (1983). The use of meat and bone meal, hydrolyzed feather meal and soybean meal in practical fry and fingerling diets for *Oreochromis niloticus*. In: *Proceedings of the First International Symposium on Tilapia in Aquaculture* (L. Fishelson and Z. Yaron, compilers). Nazareth, Israel, 8-13 May 1983. pp. 356-365.
013. Jauncey, K., A.G.J. Tacon and A.J. Jackson. (1983). The quantitative amino acid requirements of *Oreochromis* (= *Sarotherodon*) *mossambicus*. In: *Proceedings of the First International Symposium on Tilapia in Aquaculture* (L. Fishelson and Z. Yaron, compilers). Nazareth, Israel, 8-13 May 1983. pp. 328-337.
012. Wee, K.L. and A.G.J. Tacon. (1982). A preliminary study on the dietary protein requirement of juvenile snake-head. *Bulletin of the Japanese Society of Scientific Fisheries* 48(10):1463-1468.
011. Tacon, A.G.J. and M.M. Beveridge. (1982). Effects of dietary trivalent chromium on rainbow trout. *Nutrition Reports International* 25(1):49-56.
010. Tacon, A.G.J. (1982). Utilization of chick hatchery waste: The nutritional characteristics of day-old chicks and egg shells. *Agricultural Wastes* 4:335-343.
009. Tacon, A.G.J. (1981). Speculative review of possible carotenoid function in fish. *The Progressive Fish-Culturist* 43:205-208.
008. Tacon, A.G.J. (1981). The possible substitution of fish meal in fish diets. In: *Proceedings of the HIBD/SMBA Fish Farming Meeting, Oban, Scotland, 26-27 February 1981*. pp. 46-56.
007. Tacon, A.G.J. and D.J. Cooke. (1980). Nutritional value of dietary nucleic acids to trout. *Nutrition Reports International* 22(5):631-640.
006. Tacon, A.G.J. (1979). Nutritional evaluation of animal and food processing wastes. In: *Proceedings of the International Symposium on Effluent Treatment in the Biological Industries, 6-8 November 1979, London*.
005. Tacon, A.G.J. (1979). The use of activated sludge-single cell protein (ASCP) derived from the treatment of domestic sewage in trout diets. In: *Finfish Nutrition and Fish Feed Technology Vol. II* (J.E. Halver and C. Tiews, editors). Hamburg, Germany, 20-23 June 1978. Hennemen Verlags Gessellschaft, Berlin. pp. 249-267.
004. Tacon, A.G.J. (1979). Activated sewage sludge, a potential animal foodstuff II. Nutritional characteristics. *Agriculture and Environment* 4:271-279.
003. Tacon, A.G.J. and P.N. Ferns. (1979). Activated sewage sludge, a potential animal foodstuff I. Proximate and mineral content: seasonal variation. *Agriculture and Environment* 4:257-269.
002. Tacon, A.G.J. (1978). The use of activated sludge as a supplementary protein source in the diet of rainbow trout. Ph.D. Thesis. University College (University of Wales), Cardiff. 208p.
001. Tacon, A.G.J. and P.N. Ferns. (1976). Use of activated sludge from domestic sewage in trout diets. *Nutrition Reports International* 13(6):549-562.

INVITED PRESENTATIONS (2000-2005):

Invited Speaker – The future of aquaculture: environmental consequences and new feed materials. Global Feed & Food Congress (organized by the International Feed Industry Federation & FAO), Sao Paulo, Brazil, 11-13 July, 2005.

Invited Speaker – Feeds and feeding technologies. Malawi National Aquaculture Seminar, Lilongwe, Malawi, 31 May – 1 June 2005

Invited Speaker – Ecological mathematics of fish production: can we feed the world on carnivores?, Farming Ocean Carnivores: The Science, Economics and Politics of Rapidly Expanding Fish Aquaculture. 2005 Annual Meeting of the American Association for the Advancement of Science – The Nexus: Where Science meets Society, Washington D.C., 17-21 February 2005.

Invited Speaker – Dietary feeding strategies for marine shrimp: a review. VII International Symposium on Aquaculture Nutrition, Hermosillo, Mexico, 16-19 November 2004

Invited Speaker – Tendencia mundial en nutricion en acuicultura: alimentos y alimentacion. First International Aquaculture Symposium, Bariloche, Argentina, 12 – 13 October 2004

Invited Speaker – Nutricion acuicola en Camaron y Tilapia. 1 Seminario Acuicola, Hotel Herradura, San Juan, Costa Rica, 23 September 2004

Invited Keynote Speaker – Global trends in marine aquaculture: can aquaculture fill the gap from marine capture fisheries. II Simposio Brasileiro de Oceanografia, Instituto Oceanografico, Universidade de Sao Paulo, Sao Paulo, Brasil, 31 May – 4 June 2004

Invited Keynote Speaker – The recycling of nutrients within food wastes within aquatic food production systems: aquaculture – the aquatic blue revolution phenomenon. Total Food 2004, Institute of Food Research, Norwich, England, 25-28 April 2004

Invited Speaker – Long term sustainability of using marine protein and lipid sources within compound aquafeeds for marine shrimp. Aquaculture 2004. Annual Meeting of the World Aquaculture Society, Hawaii Convention Center, Hawaii, USA, 1-5 March 2004.

Invited Speaker – Seaweeds: a viable candidate for organic aquaculture production in Hawaii. Aquaculture 2004. Annual Meeting of the World Aquaculture Society, Hawaii Convention Center, Hawaii, USA, 1-5 March 2004.

Invited Speaker – Malnutrition: the number one global killer. Aquaculture 2004. Annual Meeting of the World Aquaculture Society, Hawaii Convention Center, Hawaii, USA, 1-5 March 2004.

Invited Speaker – Increased pressure on wild fisheries session: feed issues. Salmon Aquaculture Dialogue, World Wildlife Fund, Washington DC, USA, 13-14 February 2004

Invited Speaker – Opportunities and constraints for low food chain aquatic species. International Organic Aquaculture Workshop. Institute for Social, Economic and Ecological Sustainability, University of Minnesota, Minneapolis, 11-12 July 2003.

Invited Speaker – Challenges and opportunities in shrimp feeds and feeding. World Aquaculture 2003. Annual Meeting of the World Aquaculture Society, Bahia Convention Center, Salvador, Brazil, 19-23 May 2003.

Invited Speaker - Fish meal and fish oil use in shrimp diets: present and future. World Aquaculture 2003. Annual Meeting of the World Aquaculture Society, Bahia Convention Center, Salvador, Brazil, 19-23 May 2003.

Invited Speaker – Trends in global aquaculture production. Hawaii Aquaculture Conference 2003, Kaneohe, Hawaii, 7 May 2003

Invited Keynote Speaker - Sustainable aquaculture feeds: an overview and global perspective. Sustainable Environmental Aquaculture Feeds (SEAFeds) Workshop, Stirling, Scotland, 8-9 April 2003

Invited Speaker - Feeds and feeding in shrimp farming: challenges and opportunities. Meeting of the Brazilian Shrimp Farmers Association. Natal, Brazil, 18 February 2003

Invited Speaker – Feeds and feeding in shrimp farming: challenges and opportunities. Workshop on Responsible Shrimp Farming. Antananarivo, Madagascar, 3-5 December 2002

Invited Speaker – Growing requirements for fish meals and fish oils. 2nd International Seafood Byproducts Conference, Anchorage, Alaska, 10-13 November 2002

Invited Keynote Speaker – Aquaculture today and tomorrow. Challenges and Opportunities for Aquaculture Development. State College, Pennsylvania, 24-26 October 2002

Invited Speaker – Government policies and guidelines for minimizing the environmental impacts of aquaculture feeds: A discussion. Aquaculture Interchange Program Workshop: Management of Aquaculture Effluents, East-West Center, Honolulu, Hawaii, 6-9 May 2002

Invited Speaker – The Aquaculture Paradox: Does Fish Farming Supplement or Deplete World Fisheries, 16th Annual Meeting of the American Association for the Advancement of Science, San Francisco, 15-20 February 2001

Invited Speaker - Opportunities and challenges to organic certification of aquatic animal feeds. National Organic Aquaculture Workshop, St. Paul, Minnesota, 23-24 June, 2000.

Invited Speaker - Use of rendered products for aquaculture. Latin American Rendered Products Nutrition Conference, Cancun, Mexico, 13-14 July 2000.

Invited Keynote Speaker - Trends and challenges to aquaculture and aquafeed development in the new millennium. V International Symposium on Aquaculture Nutrition, Mérida, Mexico, 19-23 November 2000

Invited Speaker - Aquatic feeds and feeding regimes for environmentally sound aquaculture. Annual Meeting of the World Aquaculture Society, New Orleans, Louisiana, 2-5 February 2000.

Invited Keynote Speaker - Increasing the contribution of aquaculture for food security and poverty alleviation. Conference on Aquaculture in the Third Millennium, Bangkok, Thailand, 20-25 February 2000.

Invited Keynote Speaker - The contribution of aquaculture to food security and poverty alleviation. 2nd International Symposium on Aquaculture, Lima, Peru, 27-29 September 2000.

Invited Speaker - The contribution of aquaculture to food security. Annual Meeting of the Pew Fellows Program in Marine Conservation, La Paz, Mexico, 1-5 November 2000.

RESEARCH STUDENTS:

Students and post-doctorals who have trained under my direction:

As Affiliate Graduate Faculty in Human Nutrition, Food and Animal Science of the University of Hawaii at Manoa, I have assisted with the supervision of the field project activities of:

2000	Anthony Benabese	B.S.	Human Nutrition
2000/01	Eric H. Beyer	M.S.	Shrimp digestion
2000/01	Brent Larsen	M.S.	Floc characterization

University of Stirling, Scotland, UK (excludes Masters students)

1982-1984	John Webster	Post-doctoral associate
	Simon Davies	Ph.D
	Elizabeth Stafford	Ph.D

University of Aston in Birmingham, UK (excludes Masters students)

1979-1980	Andrew Jackson	Post-doctoral associate
1980	Ben Onwunka	Ph.D