Fish Nutrition Research Laboratory
Dept. of Animal and Poultry Science
University of Guelph
Guelph, ON, N1G 2W1
CANADA

To whom it may concern,

The Fish Nutrition Research Laboratory of the University of Guelph (UG-FNRL) is leading a high profile project entitled the Asian Aquaculture Feed Formulation Database (AAFFD). This project is funded in large part by the United States Soybean Export Council (USSEC). One of the goals of the AAFFD is to help both current and future aquaculture formulators with some of the basic tools, training, and information needed to produce quality aquafeed formulations.

As part of the AAFFD project, the UG-FNRL is developing nutritional specifications for over 20 aquaculture species cultivated in Asia. A list of these species is attached (Table 1). The AAFFD will be made available online to the public, at no cost.

The nutritional specifications are developed for different stages of the life cycles (or different live weight ranges) of these species using a nutritional modeling approach. This approach relies in part on accurate representation of the growth trajectory and patterns of nutrient deposition and utilization of the different species. While information on these parameters is available in the scientific literature to a certain extent, we are seeking additional data, notably from commercial culture operations and/or pilot-scale experiments at field stations.

The UG-FNRL is thus seeking interested stakeholders to share production data for the species of interest (or any cultured species of economic importance in Asia). We understand that such data is confidential and proprietary in nature. Data will remain anonymous, with removal of any information connecting individual stakeholders to their respective data points.

The University of Guelph Fish Nutrition Research Laboratory has a history of developing mathematical models which are used to analyze, describe and predict the growth trajectory and efficiency of feed utilization of different aquaculture species. These models, such as the thermal-unit growth coefficient (TGC, also known as GF3 in Scandinavia) and the Fish-PrFEQ bioenergetics model, are just two of the better known models developed at the University of Guelph that have found wide use in the aquaculture industry around the world. Having access to commercially relevant data for commercially important species is an essential step in the improvement of existing models and the development of new, better suited models. Through the sharing of data, stakeholders will benefit directly by gaining access to these new cutting-edge growth and feed requirement models, tailored specifically for species of importance in Asia.

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The sharing of proprietary performance data has been successfully implemented in many terrestrial animal production with great benefits to all stakeholders. The success of the dairy industry is a proven example of the associated benefits to the entire industry. Milk recording and the associated data sharing programs have been established in the dairy industry for more than 100 years in Canada and the USA. These programs have relied on the sustained participation of thousands of dairy farmers, and through the analysis of farm data, have enabled the development and implementation of very effective genetic improvement strategies and feeding programs. The result of these programs is several fold increase in milk production over a century which is attributed to sharing of information across dairy farmers (in a seamless, confidential and non-interfering manner).

The type of data we are seeking is repeated, ongoing measures of average animal body weights over time, feed intake (feed served), number of fish, feed conversion ratio (feed:gain), water temperature, and other relevant information. Information on the composition of the feed used (e.g. feed label information as provided by the manufacturer), such as crude protein, fat, and ash would also be desirable. An example of the type, completeness, and format of the desired data is appended (Table 2). It is important to note again that any specific reference to the origin of the data will be removed and that the data will be used as part of an academic exercise and any associated reports will be available for participating stakeholders.

We would also be happy to set up on-site seminars and training sessions on the use of these mathematical models to participating stakeholders in order to demonstrate the potential and application of these models given a producers specific needs.

Please do not hesitate to contact Christopher Powell (cpowell@uoguelph.ca) or Dominique P Bureau (dbureau@uoguelph.ca) if you have any questions or are able to forward data of interest.

Email: cpowell@uoguelph.ca or dbureau@uoguelph.ca

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Table 1 – Common and scientific name/genus of Asian aquaculture species of interest.

Tilapia (*Oreochromis*, *Tilapia* and *Sarotherodon* spp.)	Siganids (*Siganus* spp.)
Pangasius (*Pangasius* spp.)	Cobia (*Rachycentron canadum*)
Milkfish (*Chanos chanos*)	Gourami (*Osphronemus* spp.)
Asian sea bass (*Lates calcarifer*)	*Catla (Catla catla)*
Grass carp (*Ctenopharygodon idella*)	*Mrigal (Cirrhinus mrigala)*
Common carp (*Cyprinus carpio*)	*Rohu (Labeo rohita)*
Whiteleg Pacific Shrimp (*Litopenaeus vannamei*)	Snakehead (*Channa* spp.)
Black Tiger Shrimp (*Penaeus monodon)*	Pacu (*Piaractus mesopotamicus*)
African-Walking Catfish (*Clarias* spp.)	Freshwater Prawn (*Macrobrachium* spp.)
Pompano (*Trichinotus* spp.)	Rainbow Trout (*Oncorhynchus mykiss*)
Snapper (*Lutjanus* spp.)	Sturgeon (*Acipenser* spp.)
Grouper (*Epinephelus* spp.)	Abalone (*Haliotis* spp.)

Table 2. – Example of repeated measure data of Nile tilapia from an experimental pond ("Pond A") from stocking (day=0) until harvest (day=150) fed diet "X"* at culture station "ABC"**.

Day	Average Water Temperature	Fish Weight	Number of fish	Total Biomass	Feed Served	FCR Economical, period***
	°C	g/fish	# fish	Kg	kg	Feed:gain
0	30.0	20.5	4000	82		
30	30.0	48.6	3785	184	100	0.98
60	30.0	85.8	3546	304	140	1.16
90	30.0	145.6	3219	469	231	1.40
120	30.0	221.7	3084	684	295	1.37
150	30.0	300.0	2997	899	310	1.44

* Fish fed diet "X" containing 32% crude protein (minimum), 6% fat (minimum), and 11% ash (maximum).

** Culture station "ABC" located in ____, ____ (province, country), from ___, ___ (month, year) to ___, ____ (month, year).

*** FCR economical = Feed Served (kg)/ Biomass gain (kg), per period (30 day basis in this example)