



Recirculating aquaculture systems - advice for buyers

Interest in Recirculating Aquaculture Systems (RAS) for fish culture is increasing. However many people entering the industry are burnt by purchasing ineffective systems or not realising the level of commitment (both financially and time-wise) that is required managing a RAS. The purpose of this fact sheet is to provide prospective buyers of RAS with information to assist in making the right decision when buying a system.

The Reality

Ask yourself why do you want to get into RAS – Is it a change in lifestyle or to make money? The answer to this question should determine your level of involvement in the industry. A reality check is required to determine if you really do want to undertake the RAS commitment.

The facts are:

1. RAS are expensive to buy and operate. Rule of thumb is around \$15,000 to \$20,000 per production tonne to purchase a RAS, and around \$8.00 to \$12.00 per kilogram of production for operation costs. Economies of scale do apply to RAS therefore with a larger the system, these 'rule of thumb' costs will decrease slightly.
2. RAS are a 7 day a week, 365 day a year job irrespective of the system size. Fish need feeding every day of the year, and if equipment breaks down, Murphy's Law has it that it will on a Friday night of a long weekend just before you are about to go away on holidays.
3. Operation of RAS requires a decent level of knowledge and commitment.
4. Any system that produces below 10 tonne per annum is an expensive hobby – don't expect to make good money on a system of this size – use it as a learning exercise and prepare to purchase more equipment for expansion if you want to make money from RAS.
5. Many systems are available in the market place however very few RAS are tried and tested in relation to culturing fish to make a profit. Use of RAS for grow-out of fish is relatively new and very few people worldwide are making any profits.

What species do I culture?

Different RAS specifications may be required depending on the choice of species, therefore you must have a good idea on what species you want to culture before selecting a system. When selecting a species you should find out the following:

1. Water quality requirements (temperature, pH, oxygen, nutrients, etc).
2. Stocking density and size of stock at commencement and harvest size.
3. Growth and survival rates – industry averages.
4. Feed types, rates and food conversion ratios – industry averages.
5. Marketing requirements.
6. Disease and Parasite problems.

Questions to ask your supplier

We can not stress enough how important it is to ask as many questions as possible when looking at purchasing a RAS and obtain information from more than one supplier. Important questions include:

1. What are the expected inputs (water, power, fingerlings, feed, labour) and outputs (marketable fish, waste water, concentrated waste)?
2. Is there financial information / evaluation on the system and what is the expected cost of production (\$/kg)?
3. What species is the system designed for (there is no such thing as a system for all species as they all have different requirements in relation to flow rates, biological filter capacity etc)?
4. Is the system used for salt water or freshwater? – The design and specifications will be very different depending on the salinity of the water.
5. Referees? – Obtain contact details for previous clients, more than one preferably and ensure they have been operating for more than one year.
6. Is there any back up service and guarantees on equipment, management and projected outcomes of the system?
7. Do operation manuals come with the system?
8. What are the main components of the system? What are the option extras? How do they affect the overall performance of the RAS?
9. What are the specifications of the RAS and does it suit the species selected (flow rates, tank size and shape, biofilter capacity etc)?
10. What does the price of the RAS include (components, installation, support services, training)?
11. Does the RAS have effective solids removal?
12. Does the RAS include a back up power source?

If the supplier is not willing to answer these questions then be wary. A respectable supplier will provide any prospective buyer with this sort of information. If answers to questions don't seem right, be wary and ensure you double check with someone else.

Further information

Prior to taking the plunge there is further information available that you should access before deciding on entering the industry and purchasing a RAS. The following sources are recommended:

1. Recirculation Systems in Aquaculture fact sheet.
This fact sheet gives more information on the components required for RAS and RAS management and are available on the PIRSA website www.pir.sa.gov.au/aquaculture or by ringing PIRSA Aquaculture SA on 8226 0314.
2. Materials, Equipment and Expertise for Landbased Aquaculture (Supplier's contact details).
Information on who to contact including equipment suppliers and consultants. Take note of 'Publications and Information' section, as there are some excellent books on RAS available. This information is available from the same sources as the fact sheet above.

3. Inland Aquaculture Association of South Australia (IAASA).

An association comprising of people interested in aquaculture including growers, suppliers, researchers and consultants. IAASA run frequent field trips and workshops on all aspects of inland aquaculture including RAS. Contact details are as follows:

Mr Robin Moseby

Ph: 8362 8042 Fax: 8363 0503

Email: rmoseby@olis.net.au Web: www.iaasa.org.au

4. The World Wide Web.

There is plenty of information on the internet if you have access. An excellent site well worth a visit is <http://aquanic.org/> > Systems > Recycle (included in fact sheet package).

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Author:

Aquaculture SA.

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