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Special points of interest:

- Making certain that your fish are safe and secure in your grow-out ponds
- Becoming a successful fish farmer
- The 10th Bi-annual Conference of the Aquaculture Association of Southern Africa

Towards a Fisheries and Aquaculture Roadmap for Zimbabwe (FAWG)

After the successful completion of the Fisheries and Aquaculture Working Group (FAWG)'s Constitution drafting and entering into its second year after inception, the all-stakeholder grouping is now deliberately working towards the road mapping of the Fisheries and Aquaculture Sector in Zimbabwe.

Consultations with strategic state departments and various stakeholders have already begun in earnest as it becomes more and more apparent that the sector can no longer continue to survive in the shadows of other livestock sectors. There has emerged a more urgent need than ever before to have a national Fisheries and Aquaculture Strategy and Action Plan if the country is to meaningfully harness the potential that is within this "blue revolution". With over 3 910 square kilometers of freshwater surface area, 9 major river basins, conducive production bio-technical factors, the time is just nigh for the

fish industry to start contributing meaningfully to the GDP figures, employment creation, poverty reduction and improving people's nutrition and dietary diversity options. Currently Zimbabweans are estimated to be consuming slightly below 5kg of fish and fish products per person per year compared to most SADC countries whose per capita fish consumption is said to be averaging more than 8kg per person per year. These low consumption figures have been attributed to the perennial lack of fish and fish products on the common market despite Zimbabweans' undying appetite for food fish. This has always zeroed down to lack of prioritization of the sector on the state's part as evidenced by the total eclipse of fish by other agro-crops from agro-budgets to extension to training and so forth.

It is against this back-

ground that the FAWG is taking the first steps in ensuring that policy makers, industry players and the rest of the stakeholders are brought to one table to initiate the great strides towards a sustainable and successful participation in the "blue revolution" currently sweeping across the world. The Action Plan and Strategy if successfully mapped and implemented is set to change Zimbabwe's entire agro-landscape for the better. **-AZ**



Untapped potential: Zimbabwe is home to some of the best dam infrastructure in Southern Africa

The Freshwater Aquaculture and Fisheries Development Model

Aquaculture Zimbabwe is working on yet another innovative model that seeks to empower the rural communities in their crucial march against chronic poverty, disease and hunger. The Freshwater Aquaculture and Fisheries Development Model will be anchored by one central commercial farm that will technically support peripheral small-scale fish farming and fisheries projects run by

whole communities. Communities will organize themselves into either fisheries management groupings or fish farming cells that will collectively value their natural communal capital (land and water), farm or manage fish resources, sell their product through the commercial farm after value addition and using one well-marketed brand. The commercial farm will ease the small scale producers' wor-

ries on seed, feed, medicines, transport, post-harvest handling, marketing and will actually pay the benefiting communal farmers their fair dues on labor, infrastructure and any other agreed contractual terms. Measures will be put in place to ensure sustainability, fair trade practices and the ultimate benefiting of the targeted groups.

-AZ

Why Fish Go Missing in Ponds!!

There has been more than one letter from fish farmers telling of stocking a certain number of fish and they are later surprised to find very few of them present at pond draining. The replies were mostly just another set of questions- which is legitimate because it does take a bit of detective work to figure these things out. But from my experience, these are the reasons why fish go missing:

1. They weren't there in the first place: either the number of fingerlings was much less than what it was supposed to be or the fish looked like fingerlings but were really tadpoles. Some tadpoles have barbels, (whiskers) just like catfish do. So the farmer thinks they are feeding catfish when they are really feeding tadpoles, which eventually grow feet and hop away. If the fish transporter arrives at night and insists on dumping the fish directly into the pond, be suspicious.

Government-funded programs that supply fingerlings for "free" tend to short the farmers on number and on quality.

2. Very poor health of fish at stocking: this is because the fry or fingerlings were not properly conditioned prior to transport (perhaps taken directly from a pond and transported) or were in poor health to begin with, or were stressed during transport due to lack of oxygen or poor water quality. They will usually die within about 4 days, but the farmer is not likely to see them dead; they do not always float after

dying and even if they do, birds may pick them up in the wee hours of the morning before the farmer gets to the pond.

3. Very poor acclimation of the fish- a big difference in temperature between the transport water and the receiving water will cause death in the days following stocking. ALSO, a big difference in pH and/or alkalinity has been known to lead to death after stocking. AS WELL in some cases, with certain transport containers, oxygen can build up to very excessive supersaturation and cause death after stocking. So even if fish were well conditioned and in good health and transported correctly, they can still



A stressed tilapia fingerling

Constantly watch over your fish...

be doomed if the acclimation was not done correctly.

4. The pond or cage was stocked correctly, but the fish still disappeared- very likely due to them leaving via the pond inlet. Almost all fish tend to swim against the current. When water is added to the pond, the fish often are seen to accumulate near the inlet- yes because there is maybe more oxygen there but also be-

"There are some cases in which a pond overflows and washes many of the fish away; usually because the outlet or overflow was screened improperly or blocked."

cause the fish are trying to swim upstream. If the inlet is an open channel with no screen, the fish will swim out. They can jump pretty far. However, they often will not do this when you are watching- they wait until you leave. Pond inlets should be screened, and the best way to screen is with a "filter sock" because that gives a larger screen area than a piece of screen tied on a pipe or a screen in a channel. Even the

clarias walking catfish tends to leave via the inlet as opposed to just walking away out of a pond. We have had market-size *clarias* in small ponds with only 10cm freeboard and did not lose any fish because the inlet was protected with a filter sock. This means that if you make a fence around your catfish pond and do not protect the inlet, you are not doing much good. There are some cases in which a pond overflows and washes many of the fish away; usually because the outlet or overflow was screened improperly or blocked.

5. Predators: these often get blamed

<http://www.ag.auburn.edu/fish/international/current-projects/>

when the real reason was something like situations 1 through 4 above. However, some predators can really clean out a pond. For catfish, the problem is that when feed quality is low, the fish tend to look for other sources of protein in the pond and often find other catfish to fill their dietary needs. As well, if the pond is not completely dried out some catfish or other predator fish can remain and will consume the newly stocked fish in the next cycle. There is a discussion

on predators and what to do about them in the catfish manual: <http://www.ag.auburn.edu/fish/international/current-projects/uganda-fish-project-fisheries-investment-for-sustainable-harvest/>

SARNISSA has hosted a few short discussions along these



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lines. For very small fry, insect and frog predators are indeed problematic. These are all management issues.

6. Water quality: low dissolved oxygen is the usual culprit for tilapia or for very small catfish. However, the fish will go off feed as the water qual-

Do not feed imaginary fish...

ity degrades. Adding more feed will only make the situation worse. When all or almost all fish die at once, water quality is the most likely cause. It can be low oxygen, high nitrites, high ammonia, and hydrogen sulphide, a toxin released by the algae, or a toxin that was added to the pond on purpose or by accident. This will not go unnoticed - you will see this if you visit the pond daily.

7. Disease (both nutritional and pathogen): Fish tend to begin dying at a few per day then the rate picks up. Before the disease hits, there is often a water quality problem that perhaps doesn't kill the fish but makes them susceptible to disease. Some moulds on feed will cause vitamin deficiencies that will become noticeable over time and may look like disease. In most of these instances, the farmer should notice fish in poor health or dead fish. A corollary to this is excessive handling that occurs as a result of sam-

pling; especially in research projects where the researchers think they have to individually measure all the fish in a sample once or twice a month.

8. Theft: Some books include this in the predator section. Theft can be chronic, like workers removing a few fish every day, or catastrophic, when thieves come and drain a pond or slash a cage. I have been on stations where we've had to lock down the holding tanks so the "watchmen" wouldn't steal the fish.

The big problem comes when the farmers have been feeding imaginary fish for several months and then they are surprised at harvest. If the feeding was done properly, this should never happen because the response to the feed is based upon the fish biomass in the pond. However, with sinking feed, it is extremely tricky to gauge response. Unless the fish went missing the day prior to harvest- (suspect theft from the farm workers in this

case), the farmer should notice that the fish are not consuming the amounts they should at that size and number. This is much easier with floating feed but people still make mistakes and overfeed. If it takes more than 10 -15 minutes for the fish to consume the feed, you are overfeeding.

We often say "kill your fish early"- which means that in the event you are going to lose fish, it is better to lose them before you have too much invested in them. Of course nobody wants to lose fish. A one -month nursery phase is a pretty good idea for farmers who have trouble figuring out if their fish are all there. The fingerlings should be put into a small pond that can be closely watched and protected. Feeding will be easier as well. After one or 2 months, they can then be inventoried and transferred to the grow-out pond. Care must be take to assure correct handling, otherwise

Fish farming is a 24/7 job for 365 days a year

you cause situation 2 or 3 above. At this point, they can be re-counted and total weight measured. The fish will be a bit more resistant to handling compared to when they were very small. Then the feeding rate can be recalculated so you can avoid overfeeding.

For farmers who have had these

"For farmers who have had these problems, I think you know by now that fish farming may be simple but it is not easy- it requires DAILY oversight."

problems, I think you know by now that fish farming may be simple but it is not easy- it requires DAILY oversight. If you cannot assure daily oversight, do not buy expensive feed, in fact, don't BUY anything; because you will likely not get anything back.

For the advisors, use this as a list to consider when

someone contacts you asking why their fish went missing. It also makes a good list to follow to make sure the problem does not occur.

A Paper By Karen L. Veverica

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This article has been circulated on the SARNISSA On-line Forum (2011).



What every prospective fish farmer should know

Just to give you a few pointers as to what you really need to know as an aspiring fish farmer, Aquaculture Zimbabwe has drawn the following lessons from working day in day out within the freshwater aquaculture industry over the years:

- Fish farming is the fastest growing Agri-business in the world, at an average of 11% for the past 10 years, the demand for fish is increasing beyond production capabilities and will continue to do so for the foreseeable future. Local and regional demand is even stronger than export demand.
- Fish supplies over 25% of protein needs in developing countries today.
- There will be many "sweet" promises, promises of funding, markets, expertise and prices but few

quality deliveries and as such you will realize that much of what you achieve will be because of your own efforts, dedication, passion and energy.

- Fish farming just like any other type of livestock husbandry is a dedicated 24/7, 365 days a year business.

- The capital and on-the-job effort you put in is proportional to the harvest and the rewards you reap.



Your effort input is proportional to your

- The opportunities and markets are currently limitless. This is fact!
- These opportunities and markets will not come to you on a silver platter; you will need the Energy, Drive, Passion and commitment to benefit from them.
- Aquaculture can provide a life-style change, you can farm anywhere but the technology and systems used will ultimately decide on your success. Don't be fooled that there are no shortcuts,

So you want to be a fish farmer?

easier and cheaper ways to get established.

- Tilapia are a warm water fish and grow well within water temperature ranges of 23 - 35 °C and they require excellent water quality, properly formulated feeds and well run stock management systems for success.

"These opportunities and markets will not come to you on a silver platter; you will need the Energy, Drive, Passion and Commitment to benefit from them."

- The capital costs of the farm need to be reviewed thoroughly and will depend on the scale of production of the farm.

- Additional capital costs may be required, own hatchery, own feed plant, own processing, distribution, etc for sustainable returns on invest-

ment.

Freshwater aquaculture is a learning experience. Although you may have access to all the technology, literature and expertise you need there will still be lessons to be learnt from the university of life! You are dealing with livestock and the environment

- AZ.

Aquaculture Zimbabwe's Communication & Visibility Strategy Starting to Pay Off

Aquaculture Zimbabwe's Communication and Visibility Strategy now in its third year has started paying off judging by the increasing recognition and participation of the organization in the various national for a that influence policy, decision making and legislature. In 2009, Aquaculture Zimbabwe embarked on a vigorous and ambitious 5 year Communication and Visibility Strategy as part of its Advocacy and Lobbying Portfolio. To date this has been complemented by numerous and consistent participation of

the organization in the mainstream local media channels, that is, The Herald, The Sunday Mail, The Zimbabwe Broadcasting Corporation's radio and television (1 hour long Talking Farming live Shows) stations and other smaller media outlets.

The second half of 2010 has seen Aquaculture Zimbabwe hosting a series of weekly 30 minute long Agribusiness programs on ZBC's Spot Fm for over a month and is still running. This massive presence has been augmented by a ro-

bust web based information portal for the local sector. Though activity is still low on the web owing to a plethora of issues it is hoped to be the next front of all information sharing, especially by commercial players. Judging by the ever growing enquiries and participation and subscriptions on social forums such as Facebook, AZ is quite upbeat about the prospects of sustainable freshwater aquaculture and culture-based fisheries in Zimbabwe.

- AZ



AQUA AFRICA 2011

AQUACULTURE FOR A GROWING CONTINENT

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REGISTER now for the 10th bi-annual conference of the
Aquaculture Association of Southern Africa
to be held from

13 – 16 SEPTEMBER 2011

at the Sun 'n Sand Holiday Resort
Mangochi, Lake Malawi

PROGRAMME AT A GLANCE

- 12 September 2011 : Conference Registration
- 13 September 2011 : Conference Day I & AGM
- 14 September 2011 : Field Trip
- 15 September 2011 : Conference Day II & Formal Banquet
- 16 September 2011 : Workshop

REGISTRATION:

- ❖ Fee includes 5 nights Accommodation & 3 meals per day
- ❖ Fee includes Conference Package – Name badge, Conference folder, Program, Abstract CD, coffee/tea breaks, Banquet, Conference I&II, Workshop, Field trip. The AGM is restricted to AASA Members only.
- ❖ Fee excludes travel expenses to and from conference venue
- ❖ Early Bird registration – payment received before 30 April 2011
- ❖ Standard registration – payment received before 31 July 2011
- ❖ Late registration – payment received after 1 August 2011

Please contact the Conference Secretary
for any further queries

Questions/Comments? Email us at info@aasa-aqua.co.za or call +27(0)12 8076720





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Fish For Life!

www.aquaculturezim.org

Aquaculture Zimbabwe (Registration MA881/2008), was established as a trust to develop and support sustainable freshwater aquaculture and culture-based fisheries projects as a creative measure to counter chronic poverty and declining per capita food output across the country. The Trust is governed by a substantive Board of Trustees that sits at least once every two month. The Board of Trustees is composed of men and women who have dedicated all their lives working in the field of Livestock, Freshwater Aquaculture and Fisheries with abundant local, regional and international experience.

FREQUENTLY ASKED QUESTIONS

Q: What do I need to become a fish farmer?

A: A secure piece of land, reliable water supply (preferably perennial), reliable supply of fish seed and a ready market for the fish products.

Q: How do I choose the best aquaculture production system for me?

A: The choice of production system and crop product for your project is affected by local conditions, such as water availability and quality, site topography and climate.

Q: How do I choose the best possible crop for my production system?

A: Criteria for selecting the appropriate aquaculture crop:

>Full control over the life cycle processes in captivity

>Fast growth rate, from egg to market size

> Simple and inexpensive dietary requirements.

> Hardiness and resistance to

diseases

>Market acceptability

>Availability of advanced and proven technology

Q: How and who shall design my project?

A: Designing your fish farm requires your deepest appreciation of opportunities that need exploitation on your best choice site to enable you to minimise your expenses as much as possible. If you experience challenges in the planning and designing of your fish farm you can engage experts from Aquaculture Zimbabwe who are ever ready to see you through your fish farming endeavours.

- AZ



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