

National SEA for Aquaculture Development in South Africa Meeting Notes

National Strategic Environmental Assessment for Aquaculture Development in South Africa

Additional inputs to Focus Group Meetings #1 to #5

These additional inputs were made in writing by participants at the Focus Group meetings #1 to #5 held from 30 September to 07 October 2016, using the cards provided.

List of acronyms

AFASA	Abalone Farmers Association of South Africa
ARC	Agricultural Research Council
CPUT	Cape Town University of Technology
CSIR NRE	Natural Resources and Environment
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DRDLR	Department of Rural Development and Land Reform
DWS	Department of Water and Sanitation
DWS: IWU	Department of Water and Sanitation: Integrated Water Use
FS DARD	Free State Department of Agriculture and Rural Development
GDARD	Gauteng Department of Agriculture and Rural Development
LEDET	Limpopo Department of Economic Development, Environment and Tourism
MP DARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs
MTPA	Mpumalanga Tourism and Parks Agency
NC DENC	Northern Cape Department of Environment and Nature Conservation
NEPAD	New Partnership for Africa's Development
NMBM	Nelson Mandela Bay Municipality
NW DREAD	North West Department of Rural, Environment and Agricultural Development
NWU	North West University
RU	Rhodes University
SAIAB	South African Institute for Aquatic Biodiversity
SANBI	South African National Biodiversity Institute
SEA	Strategic Environmental Assessment
SUN	Stellenbosch University
TSA	Trout South Africa
UFH	University of Fort Hare
UL	University of Limpopo
WWTW	Wastewater Treatment Works

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Stellenbosch – Friday, 30 September 2016		
Person	Organisation	Comments
Sally Paulet	AFASA & HIK Abalone Farm Pty Ltd	<ul style="list-style-type: none"> Willing to help where possible regarding aquaculture facilities & their respective information. On the freshwater side, I think that private /independent consultant would be a good source of information as they are typically aware of many of the schemes. Academic institution can help with list consultants in this space. DAFF: should have a comprehensive list and any marine based facilities. I suggest that a feedback happen where, if details are changed, this data is fed back to the source of origin (e.g. DAFF, DEA) to improve general data integrity.
Louise Geldenhuis	NC DENC	<ul style="list-style-type: none"> Northern Cape Nature Conservation Ordinance gives regulation for import, export, transport of live fish, also to buy specially protecting fish, spawn and prohibit the sell /buy of exotic species. Location of aquaculture projects in Northern Cape: <ul style="list-style-type: none"> - Abalone in old Hondeklip bay fish factory - Port Nolloth Sea farms - Abalone at Kleinsee - Oysters at Kleinsee - Ranching of abalone A source of info on location can be the discharge permit applications received by DEA. Northern Cape has a new conservation plan. A constraint to development of aquaculture in the Northern Cape coastal region is the distance to water quality testing labs.
Henk Stander	SUN	<ul style="list-style-type: none"> Trout farming is restricted to only certain areas in South Africa for which permits/licences are required. Small-scale farmers must be included in SEA.
Brynn Simpson	DBA (Deep Blue Aqua)	DBA supplies technology to a large portion of the existing aquaculture operations in South Africa.
Pierre De Villiers	CapeNature	<ul style="list-style-type: none"> Please map the historical systems, many of which were setup in the 80s and 90s e.g. Barbell Tilapia recirculation systems in Limpopo, KwaZulu-Natal, Mpumalanga, etc. There are some Tilapia farms in the Northern Cape along the Vaal River that were setup by Stellenbosch University. Government hatcheries need to be mapped.

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		<ul style="list-style-type: none"> • Need to map all FEPAs. • Environmental conditions that are similar need to be linked to distance from market. • Bloemfontein – Dr Reinach – freshwater crayfish. • Need to link SEA to DWS catchments classification systems process. • Need to link SEA to catchment management agency strategy. • Cape Nature to insert FEPAS', Alien zones, permit requirements – Dr Martine Jordaan. • estuaries@capenature.co.za • DEA provincial SEA • DAFF climate change strategy to be included. • Link DEA, SANBI and NBA spatial data plan to SEA. • Mining prospecting rights all over South Africa. • It could be good to list willing local communities – Hermanus where farming of abalone is done in cages including ranching.
Mike Bruton	RU	<ul style="list-style-type: none"> • Please include Nick Davies of Grahamstown as an ornamental fish farmer to the stakeholder database. • If you want to include enterprises on estuary ecology you should also add Prof Alan Whitfield from SAIAB.
Carly Cowell	SANParks Scientific Services - Cape Region	SANParks has marine scale climate change models, this include the buffer zones up to 20km around parks. This includes rainfall increase, decrease, frequency, temperature increase (No of days per year above 35 ⁰ C), sea temperature, salinity and acidity.
Dr Philip Ivey	SANBI Invasive species programme	<ul style="list-style-type: none"> • Scope of risk assessment must include source of propagules, eggs, fingerling spray, etc. as well as risk of other species introduced into contaminated water (disease, pathogens, invasive species) • Feed stock for aquaculture has knock on impact on environment. • Examine why aquaculture facilities have failed- check with SAIAB • Barriers upstream from facilities could limit species movement • Work on mapping of introduced fish for SAIAB, SANBI 2009 • Possible overlap of two introduced species and conflicts

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Livhuwani Nnzeru	DEA Biosecurity	<ul style="list-style-type: none"> • Please request the facilities approved by DEA or permitted for listed invasive species e.g. Grass carp, <i>Cherax</i> species and Mozambican Tilapia for aquaculture. • Please engage provincial authorities and they must advise which species they support for farming in their provinces. • Screening of diseases of imported fish species.
Kevin Ruck	Blue Sapphire Pearls CC	<ul style="list-style-type: none"> • Need to share industry comments of Aquaculture Bill during consultation process. Industry is quite concerned about number of items. • Ballast water imports. • On top of an already overburdened industry in terms of red tape e.g. see South Africa on list of economic freedom report 105/159. • General burden of operatory business in South Africa is high now in Aquaculture specifically there are more to deal with thus for me particularly a huge challenge • DAFF has farm data e.g. latitude and longitude on production species.
Maxhoba Jezile	DAFF	The years in which an operator has been planning need to be assessed, mapped to be able to identify the impacts that are cumulative on the environment.
Pretoria – Monday, 03 October 2016		
Johan Theron	UL	How can the amount of time and permits be reduced for the perspective fish farmer: <ul style="list-style-type: none"> - Internally between government department - Integrating different permits into one /less permits
Johan Kooij	Catfish Supreme / Catfish Growers Association	I would like to see that catfish is included to the SEA species list. Current legislation makes it impossible to import broad stock as different departments interpret laws differently. Capital was identified as the phase one implementation projects Phakisa in 2004.
Rogan Field	Pangrow / Aquaculture South Africa	<ul style="list-style-type: none"> • Alien invasive species: Bio-secure technology can mitigate these risks. Technology also allows aquaculture to be practiced anywhere. • Why no focus on Catfish not widely accepted but most suitable fish for farming in an African context. • Integration with Agriculture identify large irrigation scheme. Land use zoning may not help, rather zone the discharge as suggested by Johan Theron. • Where is the community in all this focus of aquaculture development as viable for social development and creation of food security? Farms should be owned and

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		<p>operated by local people in rural areas. How do the current regulations account for this. What about processing/packaging and distribution.</p> <ul style="list-style-type: none"> • Focus on reducing complicated and enabling environment for aquaculture development. • Get some aquaculture experts on the team. These meetings should be a platform to discuss basic principles of aquaculture; rather there are bigger issues such as poor regulation systems. • I think it is important that it is clearly defined what the objectives are exactly and prioritize them accordingly. • To create a more enabling environment for private enterprise to enter the market. • To create a more attractive market for investors (local and international). • To promote aquaculture as vehicle for social development - community projects/business development. • To facilitate and promote sustainable farming practices • These are but a few examples, obviously there are many overlaps between them, but important to differentiate between them, for example: <p>If we are talking about mariculture then it is clear that we need maps to identify key sites where it would be both possible and appropriate, these decisions should be based on temperature profiles and site acceptability (for cage culture there needs to be a combination of suitable temperature where the site is naturally protected from heavy seas and surges, but still has a good water exchange) Since we have a very high energy coast line most of our coast is not suitable for cage culture, there are a few exceptions such as Port Elisabeth, Mossel Bay and Saldanha Bay. Alternately land based systems can be considered, then maps would need to identify abstraction points for water and temperature profiles. Also if we are talking about mariculture then the capital to set up a farm is going to be in the region of R50-R100 Million, and the focus is on private enterprise and investment.</p> <p>If we are talking about community development then freshwater aquaculture is more pertinent and integrated re-circulation systems should be prioritized. In this instance maps are not so important and the focus should be on where the development is needed most. Things to consider would be access to markets, power availability, although</p>
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		<p>water is important it is the least concern. A large commercial operation would cost in the region of R5-R20 Million depending on the project.</p> <ul style="list-style-type: none"> • I wanted to reiterate some of my concerns regarding the SEA. I understand that mapping is essential for understanding and managing any industry and aquaculture more so than most, that said we need to be careful not fall into the trap of "excursions" these have the tendency to use up a lot of time and at considerable cost, therefore careful consideration should be given to such trips. You should also find that much of this work has been done - Contact SAIAB for details. • It is clear, I think, that the largest single stumbling block for aquaculture development is the current legislation and the complications that arise from difficulties in obtaining permits, EIA's and transport. This should be the focus! • Catfish is likely to become one of the most important farmed fish globally and therefore need to be considered. • Fresh water aquaculture offers a sustainable farming opportunity in so far as it relies less in wild caught fish for feed and the water can be reused in irrigation, in addition the tech allows for farms to be situated anywhere regardless of climate. These are also the farms that can make meaningful differences in the context of community development, job creation and food security. • Cage farming in South Africa in terms of fresh water is a non-starter, there are no real suitable site for cage culture other than Katse Dam in Lesotho and Van der Kloof in the Norther cape/OFS. Regarding Van der Kloof, I have already compiled a fairly comprehensive assessment and report on potential cage farming in the Dam and would like to be involved in any development there. • Regarding dams in South Africa in general, there are massive opportunities for the development of capture fisheries on many of these dams, I have worked closely on a number of such projects and with great success. This is without doubt where the focus should be. I am happy to talk around this point any time.
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Sharif Pandor	Pangrow / Aquaculture South Africa	<p><i>Observation</i></p> <ul style="list-style-type: none"> • We thank the organisers for the initiative • We have a concern for sustainability of this process so that it is not open ended or does not resolve outstanding bottle necks. • Operating systems methods of government a big problem non continuity as a result of staff movement plus loss of focus and interest. <p><i>Recommendations</i></p> <ul style="list-style-type: none"> • Include and consider SADC initiatives that RSA is already signatory of • There is a need for consultant's • Government department to assist community based initiatives. <p><i>Marketing</i></p> <ul style="list-style-type: none"> • Use already successful models such as veg community methods to establish as part of Phakisa community fish market. <p><i>Permitting</i></p> <ul style="list-style-type: none"> • Assistance with long periods it takes to get permits and short validity periods.
Super Naidoo	Mission Enviro	Do you intend regulating end-users consumption of farmed fish finished products (fish figures)?
Heidi van Deventer	CSIR NRE	<ul style="list-style-type: none"> • Data capture and mapping • List invasive species in attributes • List river condition for NBAs. • Put the draft maps on your website as a web map application and we can circulate it to the NBA 2018 stakeholder list for review and feedback. CSIR has ArcGIS pro software to facilitate it. • To assess dams for suitability consider downstream impacts to river reaches that may have been in a good condition.
David Fincham	Rydawi PYT LTD	<ul style="list-style-type: none"> • All are invited to www.tilapiafarming.co.za and to visit the farm. • Aquaculture is a Mallerdsdoft. • SEA purpose/understanding/vision/implementation. Aquaculture is a permit managed industry. Implementation is confusing and slow. Permits EIAs also costly unnecessary. • Participants from industry are dedicated and

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		<p>passionate about what we do. Most we have 20 years active involvements against most odds to drive and develop the industry.</p> <ul style="list-style-type: none"> • AIS has a low impact. Environments at greater risk from other threads. Tilapia farms will all be RAS. Trout Africa is not conducive to open systems farming of Tilapia. Tilapia farming is no different to farming chickens. • Training of government entities regarding permit process, to serve the industry. • The SEA process must enable the industry; • Industry has been actively engaged with government for decades. Process must be made with action and implementation. • This is farming- look into comparison to the poultry industry. • The timing processes, validity of permits are often in conflict. One permit is granted on another e.g. import e.g. imports and transport which AIS permit fish can only be farmed in good quality water aquaculture is not a problem with water use or pollution. • Comments portion to Tilapia farmed in RSA systems. • Production limits to be increased before strict regulation and permitting comes into play. • Lowest after use per kg protein produced • Waste water 100% recoverable • Zoning criteria, must not limit the opportunity • Any farm organisation using water has potential to farm Tilapia using Republic of South Africa • Farm in a Box- No rivers, no dams just fish we pose and risk why overregulate the industry.
<p>Wietsche Roets</p>	<p>DWS: IWU</p>	<ul style="list-style-type: none"> • New GA 509 26 any 2016 for Section 21 and water uses- Risk matrix determine entitlement WULA or GA • Risk posed to resource quality: • Flow regime • Water Quality ecosystem drive • Geomorphology • Habitat • Biota • How will proposed modify/pose risk above resource quality characteristics • Nutrient enrichment- escaping alien fish paradises and pathogens

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Nontokoza Mahlala	GDARD	In mapping existing aquaculture the authorisation permits must be used. CAs usually keep records database of the EA permit, the database have locations.
Andre Hoffman	MTPA	<ul style="list-style-type: none"> • Mpumalanga Nature Conservation Act No 10 of 1998 • Species for example Tilapia that can be farmed without any restrictions should be listed. • The concept of “if it is in the system, let us farm with it” is wrong. This lead to species being introduced illegally. • Mpumalanga Province is on the receiving end of what happens in Gauteng. The same with Mozambique which is on the receiving end from what is done in South Africa. Aquaculture should be done responsibly and environmental legislation should be respected. • In Western Cape 90% of its indigenous fish is endangered with the main reason alien fish such as Trout Bass (3 species) and lately <i>Clarias gariepinus</i> (African sharptooth catfish).
Nelspruit – Tuesday, 04 October 2016		
	Department of Labour	<ul style="list-style-type: none"> • Province mostly governs aquaculture via nature conservation instead of agriculture • Trout mapping by SANBI- Tilapia (biodiversity assessment) • Include project funding investors e.g. land bank and EAPs • Pragmatic approach to trout – Operation Phakisa • Volumes of production and risk assessment • Scales of economics important
Dee Malcomess	Falls Fish Farm	<ul style="list-style-type: none"> • Need a one-step shop for relevant licences. • Should be job of government department of Aquaculture to facilitate this for the farmers, so they can concentrate on the operation plus job creation. • Government should do any monitoring required and pay for it not the farmers or emerging farmers. At the moment these XPS are costing jobs- the other way they should be creating jobs from our taxes.
Granny Mahlare	DWS: NWRI- Usutu River GWS	<ul style="list-style-type: none"> • Creation of fresh water fish market. The opportunity that will encourage job creation. • Sustainability of Aquaculture as an industry is very much threatened. Food sustainability on proteins and fish marketing the fish as the source of protein. • Legislative control- on the freshwater fishing and marine aquaculture, licencing and permits. Streamlining the legislation for different departments

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		nationally and provincially.
Patricia Noku	MP DARDLEA	DEA and DAFF at national level have legislative framework that provinces conservation departments must adopt and not come up with their own legislature for the development of aquaculture (Inland provinces particular). The mapping exercise will then be easy to be adopted moving forward.
Additional comments received following the roadshow until 26 Oct 2016		
Rogan Field	Pangrow / AquacultureSA	<ul style="list-style-type: none"> • Firstly, you mentioned that it would be possible that we get a seat in the steering committee, I would personally very much like to be involved at all levels. Given my experience in aquaculture development in the context of rural development I have unique insight into some of the challenges and believe that I would be a valuable asset on this committee. • Secondly, I think it is important that it is clearly defined what the objectives are exactly and prioritize them accordingly. • To create a more enabling environment for private enterprise to enter the market. • To create a more attractive market for investors (local and international). • To promote aquaculture as vehicle for social development - community projects/business development. • Economic and environmental impact tradeoffs and risks associated with ocean based versus land based aquaculture, land based aquaculture should be prioritised due to the obvious lower risks to the environment. • If ocean based aquaculture to be considered the key identification of Locality alternatives, having undertaken oceanographic current dispersion modelling as well as sensitivity analysis of reefs and critical biodiverse areas in proximity of the currents most likely of being impacted upon. • Intensive aquaculture will generate a concentration of organic and inorganic wastes, the waste management and the recycling of such wastes as byproducts to be considered, and appropriate management of waste prior to release to the environment. • Feed and nutrient inputs required for the aquaculture farms, should be derived sustainably not at the expense of depleting natural ocean based resources

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		<p>and associated localised ecosystems.</p> <ul style="list-style-type: none"> • The principles and objectives of sustainable development in terms of core environmental legislature in South Africa (e.g. National environmental management act, national environmental waste management act, integrated coastal management act etc) as well as internationally to be considered in the Design, construction and operation tentative especially in respect of ocean based aquaculture, considering all oceans globally are interlinked. • Who are the intended beneficiaries of the projects, assumed to address long term affordable protein security for South Africans, and not to be export. • If water circulation through the respective farms is required during operations to maintain optimal aquaculture conditions, land based aquaculture could consider in the design make up, simultaneously generating hydro-electricity. • The species to be housed in the aquaculture farms should be species that are indigenous and representative of the area (if ocean based farming considered), to ensure that exotic / alien pests and microorganisms are not introduced into natural systems through water circulation and waste discharge. • Locality alternatives to take cognisance of visual (unsightly) impacts on geographical areas that have benefit to our recreation (e.g diving) and tourism sectors presently and potentially in future. • It is imperative that juristic organs of state including parastatals and local municipalities through the cooperative governance and public participation processes contribute informed comment, in order to ensure the stream-lining of any legislature processes and environmental applications likely to be required in respect of the outputs derived from the sea process. • It would also be important to obtain an informed understanding on on-going repair and maintenance techniques required to the facility during operations, and the potential impacts associated with such in the determination of feasible localities for ocean based facilities. • The thermal (e.g temperature) disparity or properties of the discharged water from the facility into the immediate oceanic environment, and the potential
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		impacts associated therewith in terms of upsetting / unbalancing natural systems.
Shannon Wilsnagh	Seawise	<ul style="list-style-type: none"> I would like to register as a stakeholder for the SEA planning for aquaculture. My interests lie in mollusc aquaculture and the phytoplankton community of Saldanha Bay - the most feasible aquaculture development zone in the Western Cape. My main concerns include the number of proposed mining operations around the bay. Heavy metal mining releases various waste chemicals into the environment. The draining of freshwater aquifers that feed the lagoon and supply drinking water will have serious long term effects on the integrity of the Bay. Furthermore, the expansion, trade and handling of heavy metals at the inner bay iron ore terminal are non-compliant. The risk of various heavy metal contaminations in Saldanha Bay is a reality. Estuaries are the most productive ecosystems on earth - their gross primary productivity are equal to that of reefs and tropical rainforests.
Kenneth Hutchings	Anchor Environmental Consulting	<ul style="list-style-type: none"> Site selection is extremely important and often the only feasible mitigation of impacts. Environmental suitability (from aquaculture industry perspective, e.g. shelter, water temp, bottom type, water supply, HABs etc) Environmental sensitivity (Impacts of aquaculture on the environment) Must consider ecologically sensitive habitats, processes and species. introduction of aliens species, parasites and disease and the impacts thereof are critical considerations. Economic viability. Must consider operational costs, services, infrastructure, market, employment etc. Social desirability. Is it needed, do benefits outweigh costs?
Conrad Sparks	CPUT	<ul style="list-style-type: none"> Research for funding of viable fish species to be farmed; Training and education (formal and informal); Business models for communities to farm; Small-scale aquaculture for rural communities; Markets for aquaculture in SA.

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Niall Vine	UFH	<ul style="list-style-type: none"> • Short-comings and what we've learnt from the failure of the marine finfish industry; • Proposed Transformation strategy for developing aquaculture specialists at middle and senior management levels; • Proposed Research strategy for the industry as a whole.
Bernice Mclean	NEPAD	<ul style="list-style-type: none"> • Environmental and social impacts and opportunities of not only the aquaculture production facilities but all associated infrastructure and resources used along the value chain. • Risks and opportunities associated with environmental degradation; local socio-economic development; impacts of climate variability and change; water availability and pollution etc. • In open production systems, risks associated with escapism, disease and genetic pollution from the exposure of farmed individuals to wild organisms.
Godfrey Murrel	NMBM	<ul style="list-style-type: none"> • Do not lose sight of the fact that Tom Shepton at RU: Dept of Fisheries in Grahamstown conducted site selection for suitability studies for mari-culture in NMBM area. • There is vast difference between "protein for masses (food security)" and production for economic financial gain with possible spin off of job creation. The study must clearly differentiate. The vast majority of peoples in RSA do not readily eat fish or related products. • Harvesting of catfish from sewage works maturation ponds is a readily available small scale fisheries option. • Overlay on GIS system areas where daff has placed emphasis on small scale fisheries and associated rights granted. These areas surely give indication of need for social uplifting. Thus these areas should be investigated as priority mari-culture nodes. • If memory serves me DAFF too stated where they cannot give rights they will implement alternative programs.
Catherine Greengrass	Greengrass Environmental Consulting	<ul style="list-style-type: none"> • The recent investigations on Aquaculture Feasibility for Gauteng, done by GDARD was not included (sorry if I missed it), but this study looked at market for various species in Gauteng which are significant for species like Tilapia and catfish, so catfish should be included. • There is also a database and map of Gauteng facilities which might be of use.

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		<ul style="list-style-type: none"> They are also linking to some work by World Fish which is looking at the movement of fish across Africa and into and out of Africa, which is highlighting that siting of farms should consider access to transport/export facilities (e.g. OR Tambo, major roads, markets) and services (electricity, borehole water, even bulk potable water, waste water and waste services, processing) in order to be feasible. Perhaps these aspects could be considered to ID areas with good potential for aquaculture development.
Andrew Barker	ICON	<ul style="list-style-type: none"> Aquaculture opportunities in urban areas, particularly large metropolitan areas where unemployment, poverty and food security issues are dominant, need to be fully explored. Of particular concern is the quality and quantity of water coming out of metropolitan areas and the need to clean up these streams and rivers to enable aquaculture opportunities to be explored by local communities. A particular example in this regard is the Klip River and Jukskei rivers originating in Johannesburg where extremely high and unacceptable levels of pollution, particularly of E. coli, are found. This is largely due to infrastructural capital, operating and management issues particularly relating to the sewer system and WWTW. It is our contention that catchment management plans are required was water quality and quantity is the focus of the strategies and plans which are then implemented, monitored and managed properly. Related to this catchment management plans the opportunities for social and economic goods and services, such as aquaculture can then be properly considered.
Lebogang Mokonyane	Envirovators	<ul style="list-style-type: none"> Mainly the objectives are to challenge the problems we face as South Africans and the world at large such as Water problems. I believe that one way of growing our economy would be through fisheries. But one big question that stands is how will we be able to maintain aquaculture (especially freshwater) in a country that lacks skills in most sectors and a shortage of water as fish thrive in oxygenated water and at certain temperatures.