

ENG1812 - Bristol Fish Project: A people and place-based approach to eels and communities in the Bristol Channel -
Business Case

This document is accompanied by the following documents:

1. Business Canvas (a 1 page summary of this proposal)
2. Theory of Change and Impact Measurement
3. Production Schedule
4. Cashflow

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Introduction

About Bristol Fish Project

Bristol Fish Project CIC (est 2011) is an inventive local community business that applies a community-centric alternative approach to mainstream corporate food production and consumption. Through our community-supported facility in an income-deprived area of Bristol we seek to exemplify the application of circular economics to ecologically regenerative community-food.



Our model, run by the community for the benefit of the community, integrates community food waste into food production through innovative, hi-tech farming methods. We centre on aquaponics (growing Eels and Watercress in a recirculating water-based system), but also approach insect production and applications of artificial intelligence for precision growing. Our production methods interact in a symbiotic manner with the natural environment -unlike conventional food production practices, and seek to enhance the lives of people and the welfare of livestock.

The profit-centric food-value-chain is not going away. The evidence is that for communities and environment, this value-chain does not meet their needs with severe, and generation-transcending repercussions in health and wellbeing of people and places. This is why we anchor our agri-innovation in the hands of the community, and why we have centred our efforts on bringing futuristic, integrated production and regeneration methods

into a community setting with a view to giving over decision making and ownership of this to the community. We combine this with community resilience development and re-skilling and implementing ecological regeneration. We are starting now to be part of the future we want for our food system.

Bristol Fish Project and Eels



In 2015 we elected to use European eels (*Anguilla anguilla*) in our production because we could see that this species would provide the best opportunity to operate our business in a restorative / regenerative manner. We want to bring people closer to their food and to their environment / place and regenerative / restorative farming is a mechanism that we see as integral to *doing food better*. Eels are an integral part of the local landscape here in the Bristol Channel, are critically endangered and critically to our model make good eating and have a high market value¹. As a fish the European eel also meets our production needs for a species tolerant of a 19 °C culture temperature, able to be cultured at high densities, omnivorous, with an optimum pH ideal for an established aquaponics system (6.8 - 7.5) and tolerant to the higher pH of our local water supply. So we adapted our concept to centre around the production of eels. In April 2016 we brought in eels from a certified sustainable source (UK Glass Eels) and began our trial of eel husbandry in an aquaponic system at our facility and have been pleased with the results. The proposed project builds on this small test and a prior pilot of aquaponics as a cultivation method that took place in 2012-13.

Since then we have begun work on designing and building a modular system for production based on readily available materials - as part of our 'make it accessible to others' *modus operandi*.

¹ Our project uses revenues from our production to fund our conservation activities - enabling us to release 70% of our glass eel intake...see page 8 for more detail

With our levels of understanding of eels as a species growing all the time, we aim to become a conservation oriented certified ‘sustainable producer’ of eels over the coming 4 years, making us part of the sustainable supply chain.

Theory of Change ²

Vision –We share SEG’s desired Impact of: *Healthy Eel Populations, Distributed throughout their natural range, fulfilling their role in the aquatic environment and supporting sustainable use for the benefit of communities, local economies and traditions*

Current Reality -European Eels are considered critically endangered³. Since the 1970s, the numbers of eels reaching Europe is recognised to be in systematic, steep decline. A complex web of interacting factors are attributed to this trajectory – overfishing, climate change, barriers to Eel migration routes, changes in predation and poor hobbyist practices, to name very few. It is hoped that a combination of approaches can push back against this trend. There are many projects that share the vision of restoring the European Eel population. This project works alongside, with and for these projects.

Assertion – This project seeks to contribute to the regeneration of the European Eel by (re)connecting communities with eels and eel conservation using a place-based-approach. Therein we approach challenges of:

² Please refer also to the theory of change and impact measurement document

³ Jacoby, D. & Gollock, M. (2014). "*Anguilla anguilla*". *IUCN Red List of Threatened Species. Version 2014.1*. [International Union for Conservation of Nature](http://www.iucnredlist.org).

Retrieved 30 June 2014.

- Lack of public awareness of the Eel and the fate of the Eel
- Low numbers of release projects
- Lack of healthy Juvenile Eels available for community-scale restocking programmes
- despite the River Severn complying with the 40% escapement target there are still concerns that "the major pressure operating on eel populations is poor access to habitat because of obstructions"... "leading to high density-dependent mortality in the lower reaches"⁴
- Poor hobbyist fishing practices

Via the following interventions:

- 1) Improving awareness of the Eel in communities in Bristol in 2017,18 and beyond
- 2) Sourcing glass eels from a sustainable fishery and providing a minimum of 60% of purchased eels for restocking. We will work with the Sustainable Eel Group to provide targeted, informed restocking efforts with the goal of moving densely stocked glass eels from the lower reaches, on-growing these eels through this high-risk period and releasing them into more suitable habitats across the Bristol-Avon Catchment, including newly improved or accessible habitats. Bristol Fish Project intends to move from wild caught to bred glass eels as soon as these become commercially available, however we will remain committed to our participation in restocking programs, education and community projects.
- 3) Ensuring Eels are available, affordable and accessible for education and community projects (e.g. Eels in Schools) - through Eels for schools, children nurture the elvers over a five week period before releasing them into the local catchment. Whilst their elvers grow the children learn about the eels'

⁴ Defra Eel Management Plan for the Severn Basin

fascinating lifecycle, the challenges they have to overcome to make it up our rivers and what they, and all their classmates, can do to help save the eel.

- 4) Helping the recreational fishing community to adapt their behaviours towards a conservation approach.
- 5) Training people in innovative cultivation skills (aquaponics)

Measuring Success – Some aspects of the proposed project are readily measurable:

- [production system data](#), including temperature, flow rates, water quality, etc are already recorded.
- increases in production capacity of both plant and fish production⁵ on site, (also measured against water consumption, water quality and energy consumption)
- eel throughput: we intend to release a minimum of 60% of elvers that we take in into the wild and retaining 40% for consumption at a minimum of 200g per eel, eel numbers will increase from an initial 500 in our pilot, and ~12000 from our current 1 system in year 1, to some ~30000 eels for restocking in year 4 once all 4 proposed systems are running at capacity (though factoring in normal attrition - wherein we nonetheless anticipate losses of <10%).
- Numbers of local children that through our regular engagements with the [spawn to be wild](#) / eels for schools programme
- Our engagement at Bristol Aquarium will give the opportunity for >10,000 pupils to engage with eel conservation.
- Our website and social media reach are closely monitored
- To capture the way opinion of eels and eel husbandry might change over time, people engaged in the project will be encouraged to take part in a survey - to gauge if this has altered post engagement.

⁵ Numbers can be found detailed in the project Cashflow

Innovative, sustainable funding model - In order to secure long-term

conservation aims of this project Bristol Fish puts forward a portfolio of revenue-generation activities, ensuring the overall financial viability of this project whilst also meeting our overarching aims. Whilst we will continue to pursue grant funding opportunities for specific projects, we are keen that the EMFF funding leads towards a non-grant-dependent means of financing our eel conservation activities.

The Sustainable Eel Mechanism allows us to sell a maximum of 40% of eels cultivated onsite into the food value chain for money, alongside our other revenue generating activities (see cashflow⁶). Within our budget all of the funds generated by the sale of eels are used pay for all the activities required to cultivate more eels as well as deliver educational programmes relating to eel release programmes., rather than to profiteer from the cultivation of a critically endangered species. We reiterate here that we will move from wild-caught to bred-eels as soon as these become commercially available.

Summary Workplan

Task Area 1 – Increase production capacity - The proposed 2 years of funding of this project upscales our pilot community-supported *aquaponic* production of eels - which will then all-being-well, be of scale to continue indefinitely. Aquaponics is essentially RAS - recirculating aquaculture system - with an economically productive biofilter including diverse bacteria, fungi and edible plants. In this model the cultivation of eels necessitates in parallel cultivating plants - watercress, and associated production activities

⁶ Please also note that at this stage this business plan is not able to take into account any opportunities for expansion of our services beyond our current capacity.

such as seeding, picking, packing, adding value... The proposed up-scaling involves a quadrupling of our current capacity over the 2 years that this grant relates to. This starts with building the 3 new systems one by one - switching them on incrementally.

Following build, cultivation is staggered in order to bring through a rotation of eels. Accompanying this document is a production schedule that outlines the timings of different parts of production, with a focus on the rotation of the biofilter, timings of grading-out and harvest times and volumes of both eels and watercress.

Task Area 2 - Supply juveniles for release - the task involves supplying eels for release and educational purposes to initiatives nationally and our local partners Wessex Water, Bristol Water and Avon Wildlife Trust (AWT) and Bristol Aquarium. It is posited that some 50 projects a year require Eels. Locally Eels will be delivered in person, and nationally using an approved courier. We have costed some deliveries into this proposal, wherein the costs of delivery are not passed on to partners; to assist the most needy projects (see project cashflow).

Task Area 3 – Interact with the local community to raise awareness of Eels as a part of local life, and to improve angling practices. BFP is sited on the original route of the Malago River (an Eel devoid and culverted section of the river) in an income-deprived part of Bristol, where; like in many communities, angling is a popular hobby. For this task we will work with Hartcliffe and Withywood Angling Club (HWAC) who offer disadvantaged young people in the area opportunity to participate in angling - a project that is currently under-resourced with 35 members, and a waiting list. Outwardly facing our work with HWAC will involve:

1. The project launches publicly with talks from SEG and HWAC and aquaponic food catered by <http://kansaikitchen.co.uk/> for 50-100 people from the local community.
2. We will run 2 night elvering campouts during the glass eel fishing season

3. We will run 2 release bbq's
4. A series of monthly activities with HWAC members onsite (24 sessions)
5. The HWAG collaboration will culminate in a sustainable eel-centred cooking class and meal hosted by Kansai Kitchen (<http://kansaikitchen.co.uk/>) for the HWAC youth.

Task Area 4 – Bristol Aquarium Eel display - We have also put forward a request for funding to accompany our work with a parallel 3 year duration aquaponic eel display at the Bristol Aquarium developed with local partners. This will provide a focus for education with the general public and schools that are not part of the Eels for Schools programme. The aquarium attracts tens of thousands of visitors a year, including more than 10,000 school age children, this display would enable much wider awareness raising than our facility in Hartcliffe can alone.

Task Area 5 –Increase local skill - With our pilots in the past 4-5 years we have had interesting results back regarding the capacity of aquaponics to improve overall fish survival rates. Our trials with Tilapia encountered sub-commercial losses. There is a possibility that aquaponics, with its diverse ecosystem of production may offer something beneficial to the cultivation of eels destined for release. If so, our desire would be that more farms cultivate eels in this manner particularly in the Bristol Channel catchment. We seek to make our farm model replicable, transferable and accessible. Concurrently to this project aquaponics skills are greatly sought after. 2 project managers are currently sought in the London area, with no clear candidates to fill the roles in the UK – because people with those skills just don't really exist yet. As a part of this project, we will recruit 2 farm apprentices from the local area and will engage these with EU Aquaponics Cost action: <https://euaquaponicshub.com/>

Task Area 6 - revenue streams to leverage conservation activities - an essential task in this project is the revenue generation activity that surrounds cultivation activities. This is

all the work around building brand, and affixing a story to the eels and plants that are sold into the food system, relationships with clients, marketing, website - everything needed to ensure revenues back into the project.

We are (Organisation Leads)

Bristol Fish Project (Alice-Marie Archer) – project management, host facility, production unit

Bristol Aquarium (Wendy Descalles) – host of aquarium display (education and awareness)

Hartcliffe and Withywood Angling Club (Michael Robbins) – working with local disaffected youth through angling

University of Bristol (Chrissy Hammond) (providing research based copy for aquarium display)

University West of England (Darren Reynolds) (providing research based copy for aquarium display)

Kansai Kitchen (Liem Chowdhary) – Preparing and Cooking Eels as part of awareness and education aspect

Where?

The project takes place at Bristol Fish Project CIC (Vale Lane, Bristol, BS3 5SA) and Bristol Aquarium (BS1 5TT)

When –

The project funded by EMFF takes place over 2 years from May 2017 to May 2019.

However, this will allow a financially sustainable business to be created and for the project to continue in the longer term - as can be observed in the production schedule and 5 year discounted cashflow documents.

Alternative Options for the delivery of our project

It seems unlikely that this conservation project can go ahead in the short term without this funding. Our issue is the innovative funding model means we sit in the space between funding bodies - neither charity, nor highly investable business, community oriented, yet not strictly wellbeing centric... Although we are intending to put more bids in in future, we have so far found we don't quite 'fit'.

We have failed to access Big Lottery Community Business funding as their definition of community business is confined to those where the business is a vehicle for the delivery of social impact on human well being. Nor were we able to access Esmee Fairbairn funding as although we meet criteria for innovation, we don't have a long enough track record in our current locale.

We do have a crowdfunder in the pipeline for £8000

This bid is also unique for us because it involves working more closely with SEG - connecting us to the rest of the Eel conservation community and this ongoing set of group applications to EMFF via MMO seems a more coherent way to address the challenges faced by *Anguilla anguilla*. We can capitalise on the consortium's skills and resources and create a strong network which so far we haven't had the internal resources for.

Project Costs

The attached MS Excel document - Cashflow and Production Schedule - contains a number of worksheets:

- Years 1 to 5 in a monthly cashflow forecast
- The budget summary
- And for reference, the production schedule and salary table

The cashflow summary has also been copied into this document (see below).

The EMFF grant is marked in the green columns after year 1 and 2 respectively in the budget summary worksheet. All of the EMFF grant money is clearly allocated in its relevant category in the expenditure part and corresponds to the quotes provided (some of the costs are summarised as they fall into the same category). All of the costs relate to direct costs relating to eel conservation. Where the EMFF funding is lower than the annual amount stated in the budget for that year, BFP will fund the gap with additional income from other revenue streams as detailed.

The figures contained within the cashflow document relate to projected income potential and sales in line with our experience and research carried out by BFP, and cost estimations have been backed up by quotes supplies as part of this grant application.

It was difficult to establish a discounted cashflow, as the investment of £136,890 would not only lead to an increase in Bristol Fish Project's (BFP's) income generation capacity, but crucially lead to BFP being able to release 34,000 annually. However, unlike other organisations where elvers are often released shortly after their initial capture, without an educational programme attached, BFP will be able to deliver a fully financially self-sustaining eel release programme which will also include groups and individuals being trained and educated in eel husbandry and release.

This means that over the 5 years of projected income generation, BFP will have been able to release around 153,000 elvers, each elver having had 89.5 pence invested in it at the end of 5 years.

This programme will be able to both, continue beyond 5 years and offer the potential for additional capacity within the organisation (to be identified). The income projections for this project only relate to BFP's current premises and make no reference to the project's future potential for expansion beyond its current facilities or scope. The income generation for the purpose of this project is hence restricted by the physical footprint of the current premises, however, it is likely that as the project develops additional facilities may come on line and that eel conservation and growing will continue to be part of this beyond the 5 year forecast.

Project Appraisal

The proposed project will make a lot of difference to our endeavor, especially our capacity to engage in eel conservation. So far our growth has been in small steps - or what we liked to call 'too small to fail' - starting with a small system, growing to a 5000L Pilot, and more recently taking on a premises, and setting up a modular production system, and piloting our eel conservation efforts (since early 2017), securing the next stage of funding at each point.

The proposed project is significant to us because it will 'bring us to scale' - which means, getting the system to a size where it can survive stand alone, generating enough revenue from small % sale of eels (we plan for 30% - so more conservation focussed than the sustainable eel mechanism demands) and plants, to pay for its function and upkeep, and therefore funding the ongoing release of ~30,000 eels annually.

The funding not only increases our own capacity (by 400%) but also adds additional conservation-related activities that we would not otherwise have been able to engage in without further funding from another source - namely eel release weekenders, employment of apprentices, display at Bristol Aquarium etc.

The main changes that can be observed in the cashflow are:

- The move of the project away from grant funding to a fully financially self-sustaining aquaponic eel conservation project after 4 years, with the exception of apprenticeship funding, which will have to be identified. In the absence of funding for the apprentice posts, they would not be filled.
- The change in income generation from year 4 to year 5 are marginal, as the site will have reached its growing capacity by the end of year 4, and the potential for income generation in terms of produce production plateaus at this point. We aim to alleviate this by identifying ways of growing BFP on additional sites in the future as well as the potential for increasing the value of our produce by increasing the amount of processing carried out on our site. However, the scope for this work was not developed enough to allow for meaningful figures to be included in this cashflow.
- Where ‘other grants’ have been identified, this will include crowdfunding initiatives and smaller, cumulative grant applications, as none of the additional grants required in the scenarios developed exceed £12,000 (excluding apprenticeship grants).
- In the event that BFP should be successful in securing further significant funding over the next 2 years, this would be used to expand the current programme of eel conservation and aquaponically grown produce.
- Some of the income and expenditure has been adjusted to account for inflation at 2% annually - though given the uncertainties of the Brexit negotiations, these may not be accurate.
- At this time, the project does not have any loan funding included in its grows plans. The main reason for this is that loan funding can only become relevant when some of the newer proposed income streams have proven to be reliable.

Non Financial project outcomes

The non - financial project outcomes for this project can be summarised as follows. Please see the attached Theory of Change document further detailing the anticipated impacts of the project.

Key Measurable Outcomes (Benefits)	Activity	Measures taken	Target - Quantified outcomes
Eel conservation	Innovation driven contribution to the conservation of the European Eel, a critically endangered species by facilitating the release of up to 30,000 elvers per year.	Monitoring and recording eel samples weight, length and age of eels released for research purposes.	Sample population <ul style="list-style-type: none"> ● Average weights ● Average lengths ● Age at point of release ● Numbers released ● Released
Community involvement in eel conversation	Engagement of groups and individuals from the local community to learn about eel husbandry and conservation	Short questionnaire to assess who is taking part in events and visits at the farm	Involvement questionnaire - on-line and/or paper based (depending on client group) for more than 280 individuals per annum and around 25 group visits per year
Provision of apprenticeships	Training in aquaponically grown plants and eels	Academic progress and training developed in conjunction with City of Bristol College and Bridgewater College	2 apprenticeships

Education about eels of school children	Bristol Aquarium Eel Display and Exhibition	Numbers and ages of children	10,000 + children attend Bristol Aquarium every year
Urban food production - plants	The grant will enable the further development of urban agri-tech businesses	Monitoring and reporting on kg of watercress (and potentially other plants) and resources used per kg	396 kg of by year 5
Urban food production - fish	The grant will enable the further development of urban agri-tech businesses	Monitoring and reporting on kg of eels sold for consumption	1,000 kg of eels per annum by year 5 (30% of original population)

The project will contribute to the restoration of the European Eel population internationally, but this is not something we will ourselves be monitoring.

Contributing more eels to wider conservation and education efforts is likely the most SMART aspect of our project. We should be able to contribute around 30,000 eels during the project timeline, an increase of our current production of 500.

We will also be able to measure other aspects of increased capacity - production of edible plants for example.

We can also measure outcomes in terms of numbers of people with which our project interacts.

Are the project benefits deliverable - RISKS

Task Area 1 – Increase production capacity -

Risk: Delays in installation of additional capacity due to use of third party contractors.

Mitigation: We have established relationships with trusted contractors in phase 1 of the build.

Risk: Lack of availability of Glass Eels

Mitigation: Relationships established with a number of licenced glass eel fisherman, gaining own glass eel licence, interacting with captive eel breeding programme in Netherlands

Risk: Stock losses due to participation of inexperienced project participants (Apprentices in task 5)

Mitigation: All apprentices to be guided and mentored by our farm manager in the husbandry of stock.

Task Area 2 - Supply juveniles for release -

Risk: Loss of stock due to power failure, or system failure

Mitigation: We have power failure monitoring and system monitoring in place. We will be adding additional monitoring to provide resilience and remove single points of failure.

Risk: Viral or fungal infection in Eels causing losses

Mitigation: Careful monitoring of the eels and water quality along with good husbandry practices.

Task Area 3 – Interact with the local community to raise awareness

Risk: Difficulty in engaging people, insufficient numbers of participants

Mitigation: Working with partner organisation Hartcliffe and Wythywood Angling Club

Risk: Entrenched negative attitudes to Eels within angling community difficult to overcome

Mitigation: Working with Angling club to create a culture change

Task Area 4 – Bristol Aquarium Eel display -

Risk: Use of contractors to build display causing delays

Mitigation: Have clear timelines agreed with contractors as part of project plan.

Risk: Multiple iterations of design due to needs of Bristol Aquarium

Mitigation: Careful scoping and project initiation document agreed before design work commences

Risk: Health and safety concerns about siting of display

Mitigation: Work is being led by Bristol Aquarium who have a good understanding of any possible issues

Task Area 5 –Increase local skill -

Risk: Difficulties in recruiting apprentices from within the local area.

Mitigation: Using our strong links with KWMC a local charity who work extensively with youth in the area.

Risk: High turnover of apprentices in the role

Mitigation: Practice good volunteer management and ensure that apprentices are meeting their own needs through the apprenticeship.

Task Area 6 - managing revenue generation

Risk: difficulty affixing the ‘*story*’ to the product leading to lower value products and undermining the revenue model of the project

Mitigation: Maintaining our visibility through open days to the public, social media, blogging. Smart packaging options. We've also modelled with a market rate value - so if we can get more than usual by adding 'story' we would gain.

Our Capacity

Our team is highly skilled and capable of delivering the project objectives:

Alice-Marie Archer

Alice is one of the most experienced aquaponicists in the UK. Alice is part of a European aquaponics network and European urban farming network and a director of the British Aquaponics Association (stakeholder of DEFRA). She is also a fellow of the School for Social Entrepreneurs and of the Schumacher Institute where she worked for 7 years.

Dr Rose Crichton

Rose is our inhouse Aquaculture expert. She has a PhD in marine biology and outside of her work with Bristol Fish Project is a technician in the biology department at the University of Bath. She has gained experience in the aquaculture of a variety of marine and freshwater algae, shellfish and fish through her two postgraduate degrees and employment at three universities and an aquarium. Rose will provide a large part of the content for training with the apprentices and outreach activities.

Iris Partridge MBA

Iris brings high level experience of working with communities to this project. Working at Re:work, as their chief exec until 2014. Re:work was and still is a very unusual, fairly small, innovation driven Social Enterprise supporting young people and older volunteers

in their quest to move to paid employment and training. Rework is based within a mile of the BFP site. Iris has been invited to become a trustee of Knowle West Media Centre (KWMC) from Oct 2016, enabling further collaboration and partnership work between BFP and KWMC, which also based in Filwood, about one mile from our farm in Vale Lane. She was a founder member and the first manager of (Bristol) City Car Club (now Enterprise Car Club), which in 2000 started with only 2 cars and now has 100s of cars in many major cities across the UK. She was also the Chair of Streets Alive! – advocating the importance of neighbourliness and street parties – something now generally acknowledged as fact and used in many different guises in Bristol and across the UK. Changing the status quo, finding solutions and putting new ideas into practice is what Iris thrives on.

Pete Summers

Pete is our hands on guy. Another experienced aquaponicist and qualified perma-culturalist Pete has in the past assisted as a volunteer at BioAqua, a financially self-sustainable aquaponics farm in Somerset. Aside from that, he is also a very experienced straw bale house builder and trainer, Orchardist, urban permaculture designer involved with Shift Bristol, and an all-rounder when it comes to project delivery on the ground! He is particularly interested in resource recovery in the urban waste stream, and producing valuable products and resources/inputs, creating long term environmentally and financially sustainable incomes. In BFP Pete is called upon to design and build systems and bring ideas to reality.

Oliver Hall

Oliver helps us to explore innovative business models and supports the development of our community supported agriculture aspect of our farm. Previously Oliver worked as an analyst for an asset management firm focussing on educational social enterprises as well as care sector software. Prior to this, Oliver worked in forensic mental health as a support worker, and later as an assistant manager focussing on dual diagnosis with different

residential care companies. Whilst working Oliver was also involved with the Westminster Drug Project as volunteer substance misuse counsellor and Shelter from The Storm, a community run homeless shelter. Oliver is keen to see changes in the way social enterprise engages with vulnerable groups and the wider community we serve.

Robyn Hodgkiss

Robyn will interface with Bristol Aquarium for our outreach project with them. Robyn has a strong background in community engagement and volunteer management and has taken on the role of volunteer coordinator within BFP. Robyn is a certified Permaculture Designer and sees herself as a bit of a tech nerd. Robyn has been involved with a variety of creative and innovative projects and was the Project Manager for the creation of a traveling exhibition which was showcased on BBCs Roadshow in 2014. She has created and coordinated events in collaboration with digital artists, photographers, producers and sound designers and has exhibited to over 3000 international guests for the Global Academy of Liberal Arts. Robyn is also the director of the British Aquaponics Association (BAQUA).

Sam Rossiter

Sam is our 'innovation and future technologies' guy. Sam lives on a smallholding just outside of Bristol where he helps to run Nibley Leaves, a small salad business. He manages the holding using agroecology and permaculture approaches. He has a particular interest in sustainable protein production. Sam is a great experimenter & tinkerer. He's a founder of The Travelling Toolbox, a sustainable technology collective who use a mobile workshop to fabricate farm tools and teach fabrication and open source manufacturing to land workers. Sam has worked with technology and IT for many years, starting his career project managing digital projects for Bristol Wireless. He then went on to set up and run Nixcom company deploying wireless infrastructure to festivals and events, working with large organisations such as Yahoo! He's been earning a living as a web developer and

social media manager for several years, at the moment he's mainly working for Transition Network; the movement of communities reimagining and rebuilding our world.

Outside of our team, as you can imagine from having worked with such a wealth of organisations between us, we have a wide network that we can draw on for support.

Are the project benefits deliverable - ADDITIONALITY

It is considered that without this funding the project will not go ahead. We continue to seek grant funding but our time is limited as the grant funding we already have reduces day on day. As we have struggled so far with 'community project' funding we would inevitably look to turn our attention to newer funding models - for example community share offers - however this is likely take longer to coordinate than we have left of funding so doesn't bode well for the project.

Our cash flow shows profitability in year 4 when full production capacity is attained. This is on account of the staggered production schedule we have developed, which is influenced by a rotation of slow grow-out Eels. Eels are unique in the market for their slow growout and high market value. So if we are able to weather the transition to full capacity trading we will be in a strong position to continue our efforts in a financially sustainable manner.

This project does not affect the trading of others within the UK.

Milestones

Project Milestones (key events in our timeline)

2017

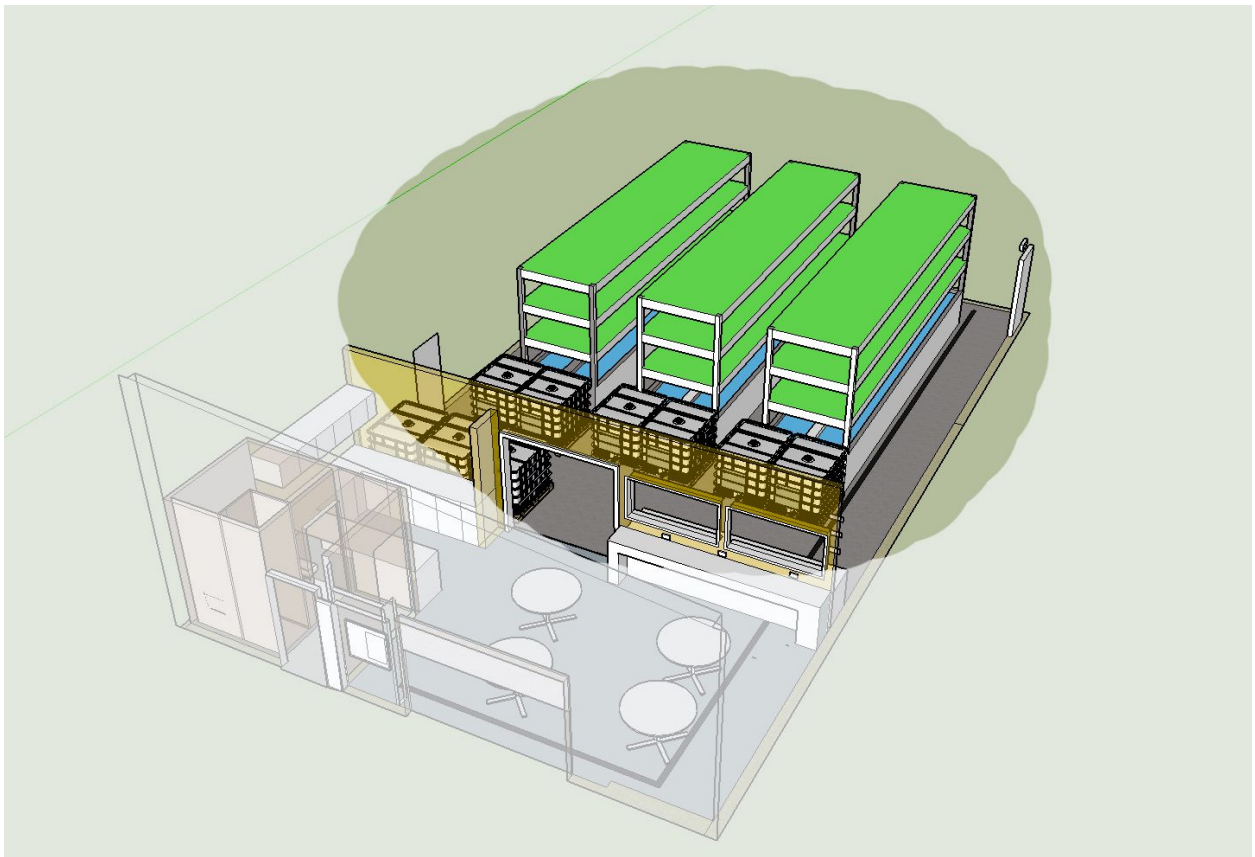
- April 1st 2017 - Start Date
- April 1st 2017 - recruitment drive
- April 2017 transfer of glass eels from quarantine to Nursery Tank
- Mid April 2017 - Launch event with talks from SEG, HWAC and food from Kansai Kitchen
- May 1st 2017 - new staff positions begin
- Starting from May, ongoing Monthly workday events with HWAC youth at Bristol Fish Project
- Early May - Meal with speakers catered by Kansai Kitchen. Associated Crowdfunding Campaign
- Summer 2017 - Bristol Aquarium Eels display design and build partnering with AWT, HWAC, SEG, Bristol University,
- September 2017 System 2 build startdate
- September 2017 Aquarium Eels System Launch - open to the public receiving schools groups all year round for the next 3 years.
- Release Event 1 Nov 2017
- Commencement of ongoing small-shipments of eels to conservation initiatives.
- Glass Eels Night Campout During glass eel season 2017-2018,
- New batch of Glass Eels onsite

2018

- Ongoing Monthly workday events with HWAC youth at Bristol Fish Project
- ongoing small-shipments of eels to conservation initiatives
- September 2018 System 3 Build Startdate
- Release Event 2 Nov 2018
- Glass Eels Night Campout During glass eel season 2018-2019

- New batch of Glass Eels onsite
 - 31 March 2019 Project End Date
-

Gallery



Original site-plans



Our Community Classroom



Eels in the Pilot Aquaponic Unit



Nasturtium in the Pilot Aquaponic Unit



Kitchenette on site



Plants in our IBC system (PacChoi, Nasturtium, Watercress)



Small commercial aquaponic system build



Plants under synthetic light



Teaching system - with Koi