forum for the future
action for a sustainable world

A systems programme for leveraging change on marine issues

Final report December 2013

For Calouste Gulbenkian Foundation: UK Branch

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Forum for the Future is a sustainability non-profit that works globally with business, government and others to solve tricky challenges.

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Introduction

Project overview

Project goals:
Map the 'system change dynamics' for marine issues in Europe, testing the focus of the Calouste Gulbenkian Foundation UK (CGF UK) Branch's emerging strategy, and identifying key opportunities for change.

- Provide new understanding about marine issues and effective levers for action
- Take a systems approach in order to provide more clarity on where to focus resources for the greatest impact
- Take the first steps in building new and/or improved stakeholder collaboration

We have pulled together the insights from this research to advise CGF UK on their 5 year valuing oceans programme.

Project process

This work builds on many previous studies and discussions led by CGF UK, notably the "Marine Ecosystem Service Valuation" reports from the Centre for Marine and Coastal Policy Research at Plymouth University, the Gulbenkian Ocean Initiative, the "Valuing the Oceans Framework Strategy", the discussions from the Marine Funders Network, and the insights from the numerous interviews held between CGF UK and marine experts. Throughout the work we have been seeking to understand how CGF UK funding support could best bring additional value to the many marine activities happening across Europe, and how the CGF UK branch could complement the work of the Calouste Gulbenkian Foundation Lisbon valuation project by developing a programme that would help expand and amplify their results.

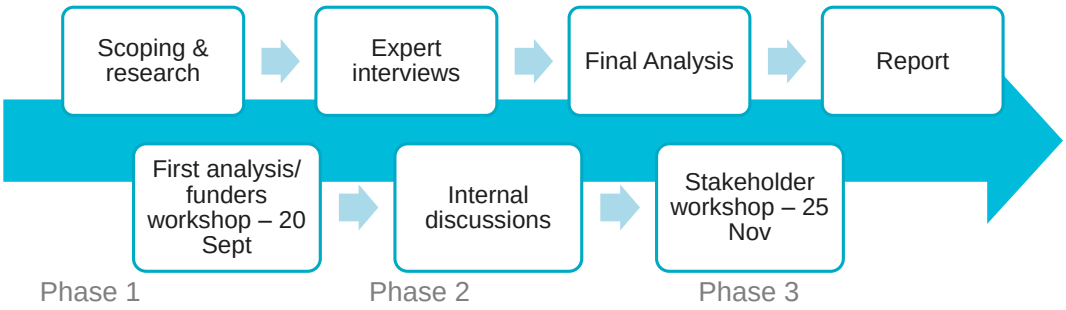
There are a number of levers of system change (discussed in a later section of this report) but reading the background material, supplementing it with our own research, and looking at the picture it presented from a systemic perspective led us to the conclusion that CGF UK impact would be greatest if it addressed the information and collaboration barriers between stakeholders.

To test this conclusion we briefly discussed our findings and conclusions at a Marine Funders Workshop on the 20th September, and presented a hypothesis for testing in the next phase of the work, namely that "It is not the quantity of information that is the problem, but rather the flow of that information to the right stakeholders".

Following positive feedback from the Funders group we tested the hypothesis and expanded on the research with eighteen expert interviews. There are many individuals and organisations we could have

spoken to for this phase of the project, so with the time and resources available we selected a cross section of different stakeholder groups (academia, arts, business, funders, government and NGOs) to get a wide view across the system, and to see whether there were clear similarities and differences between stakeholders. The feedback from these discussions was combined with further on-going research and discussed with CGF during the internal discussions into the proposed programme design.

Finally, the top-line results were presented at the 25th November stakeholder workshop, which was an opportunity to get detailed feedback from a diverse group of experts, uncover critical questions that could form part of the programme design, and begin to make new collaborative links. The process is detailed in the diagram below, and the results of all of this work is presented in this report.

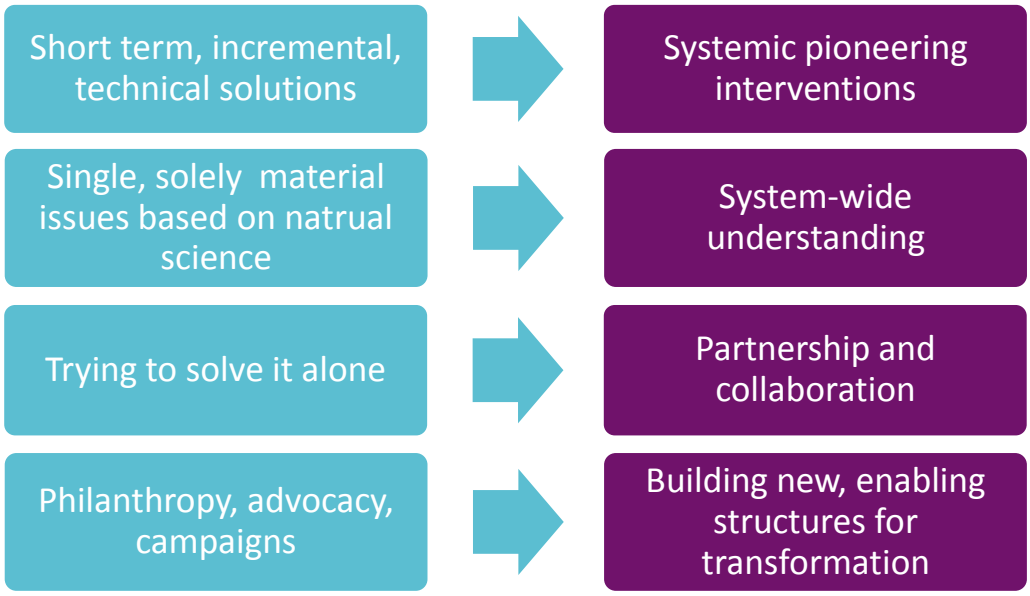


Our approach

Why take a systemic approach?

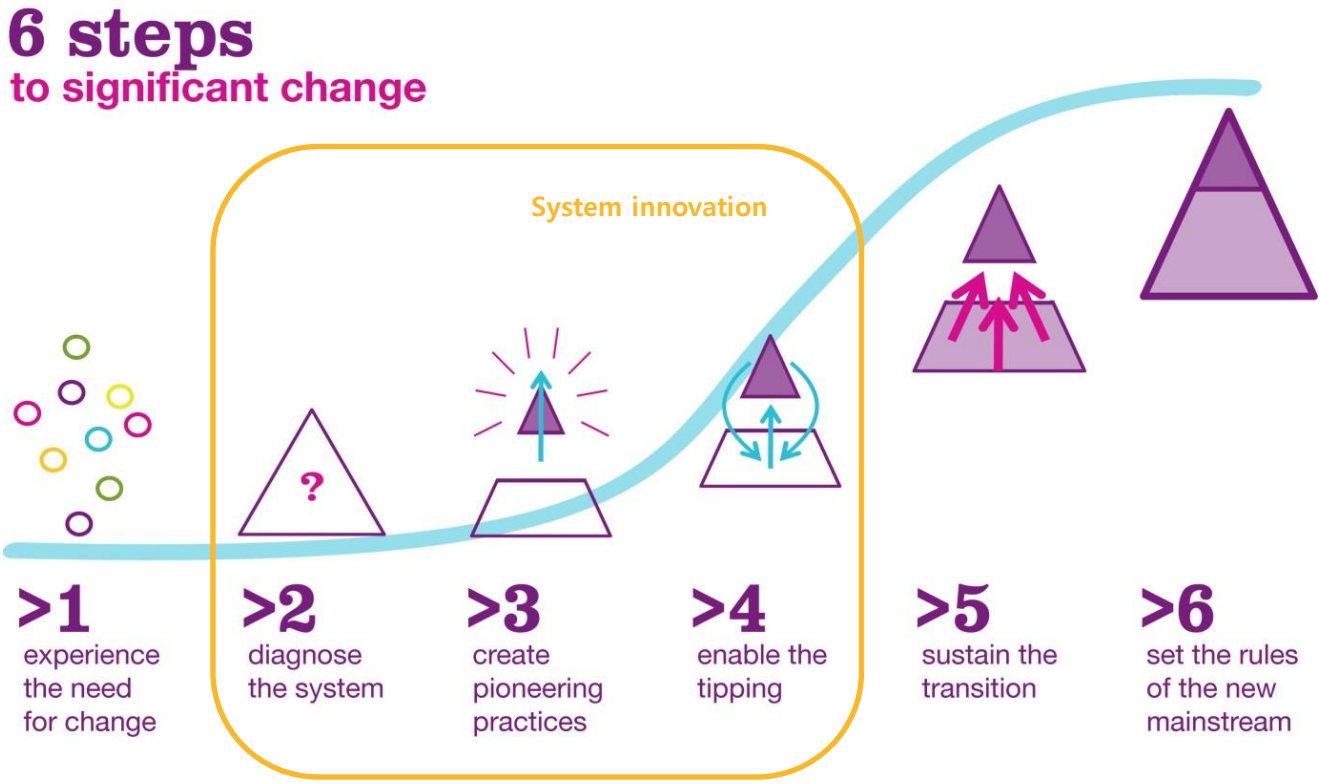
When we approach issues such as the marine environment, which operates across multiple boundaries, involving large numbers of differing stakeholders and problems that have no simple answers, we cannot focus on single issues and instead need to take a systemic approach – both to the problems, and the solutions. Most policy solutions, for example, are driven from simple system analysis and fail because they do not consider the core elements of system dynamics: causal structures, feedback loops, flows, stocks and time delays. We focus on too much on needing to understand what is happening through natural science rather than a wider inclusion of social issues and needs. We often try to solve the issue through a philanthropic and advocacy approach rather than enabling collaborations and partnerships that create the transformation required.

Thinking systemically requires four types of shifts in the approach taken:



System innovation

System innovation is a set of interventions that that lead to a shift in a whole system *(a sector, a city, an economy)* on to a more sustainable path, and aims to solve the tricky sustainability problems that are too big for one organisation to tackle on their own.



Over the last 16 years, Forum for the Future has worked with many organisations to tackle tricky and complex problems they face and our experience has led us to develop the six steps to significant change framework shown above. We use this to help us communicate the approaches required[1], and to show where system innovation fits into the wider goal of system change. For this project we were trying to diagnose (step 2) the marine system and find levers for action which would help us develop recommendations for the CGF UK five year funding programme which would create pioneering practices (step 3) and ultimately enable the tipping of the system (step 4). To help us do this, we used a number of tools in this project:

i) System change dynamics

Mapping the system change dynamics helps a change agent understand the landscape of change including trends, sustainability challenges and niche activity. It shows where current efforts to create change are focused and where there where there are opportunities for action.

We applied a multi-level analysis in phase one of the project by asking questions of the existing research materials such as:

Trends: What are the big issues and future trends that might affect change on the marine environment?
Current system: What are the current problems across the system identified by stakeholders?
Barriers: What are the barriers to change?
Change: How is change currently being created and by whom?

(*See appendix 1 for more information about system change dynamics)*

ii) Levers for system change

Every system is different, but the dynamics of their operation all involve similar elements which affect the stocks of the system resource (such as cash, biodiversity, knowledge, and so on) by altering the inflows to that stock, and the outflows from it. This theory was proposed and developed by Donella Meadows, a prominent scientist and systems analyst who additionally identified a number of leverage points where small interventions in the system could have big impacts.

(*See appendix 2 for a full list of levers)*

[1] More information about our approach can be found in our report: Creating #theBIGshift: system innovation for sustainability

Based on our research and analysis of the system dynamics, the barriers to system change that were most apparent – and were most appropriate for CGF UK to focus on as a complementary activity to other marine system interventions – were altering information flows, and encouraging greater self-organisation of systems by improving collaborations.

iii) System stakeholder mapping

To find the current relationships between people we mapped the multiple relationships between the stakeholders and scoped out a long list of potential interviewees and workshop attendees. We also used this as a creative tool to enable conversations between stakeholders at the workshop.

By mapping out the stakeholders you can explore a problem by seeing the interconnections between issues and people offering new insights for intervention.

(See appendix 3 for some examples of systems maps used in the project and generated at the workshop)

iv) Learning from experience

We also used our experience of strategy development for system innovation to support programme design ideas. The box below presents a number of lessons we have learned from previous programmes that we have run or been involved with – for example Forum's own strategy and the development of our Food and Energy programmes, the Sustainable Shipping Initiative, Nike system innovation strategy and the Technology Strategy Board's emerging approach to system innovation. We have also learnt about other organisational approaches to scaling up impact.

Lessons from system innovation programmes:

1. Understand the most significant systems that you are operating in
2. Work out what the challenges are and look at how they relate to each other
3. Diagnose the challenges collaboratively and find common challenges across different stakeholders
4. Foster ownership of the problem through extensive relationship building, a ripple of engagement and leveraging networks of others
5. Develop the capacity of those leading the change, in thinking systemically
6. Catalyse and facilitate time to innovate and co-create (physically) together – look for multiple innovations
7. Aggregate projects and initiatives together through the programme design – supporting being more than the sum of your parts
8. Create a support system to continuously learn and improve, so as to create scale and impact

9. Look for ways to leverage funding and finance for long-term sustainable solutions

Research findings

Understanding the current system dynamics

The marine environment is a complex system, and the challenge for the Calouste Gulbenkian Foundation (CGF) is how best to intervene in that system to drive the greatest positive change. To help answer this question we needed to see what the current dynamics were in the system, and what others were doing about them in order to spot the gaps – the places where CGF could direct their resources to make the greatest additional impact. It is important to stress that we're not suggesting that our recommendations are the only interventions needed, or even the main ones for everyone to adopt, but we are saying that they are underrepresented areas where more focus could help create big impact.

We are not marine experts, so we drew on the expertise of others to examine the current patterns and preoccupations in the marine environment. We looked at the existing marine research that CGF had commissioned, we read around that research and listened to the opinions of the marine experts and funders group convened by CGF, and we assessed all of that material with our knowledge of how systems change.

The simple conclusion we came to is that it is not (just) a lack of information that is a problem in managing the marine environment sustainably, but also that such information as exists isn't flowing to the right stakeholders at the right times and in the right ways to make better management decisions. Coupled to this is the idea that improving flows of information could also improve collaborations across stakeholder groups, which would strengthen the system as a whole. Taking action in these two areas would influence two very powerful levers of system change.

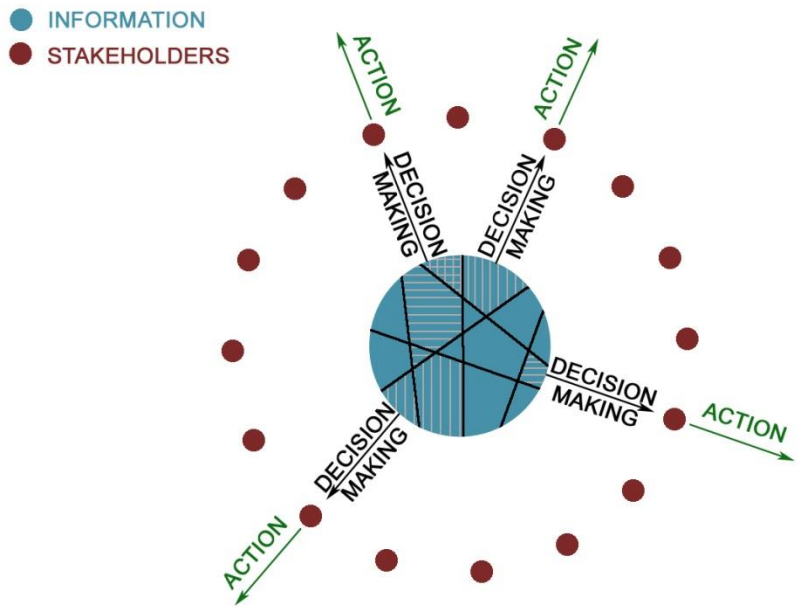
This doesn't mean that we think society knows all there is to know about the marine environment – quite the opposite in fact – but we do think that an alternative strategy to generating new data could be to use existing data better in new ways. Knowledge comes from translating information into a form in which it can be understood and acted upon by the viewer. Our contention is that greater knowledge is needed, not greater information – and for that to happen there is lots more than could be done with what we already have.

Stakeholder interviews and insights

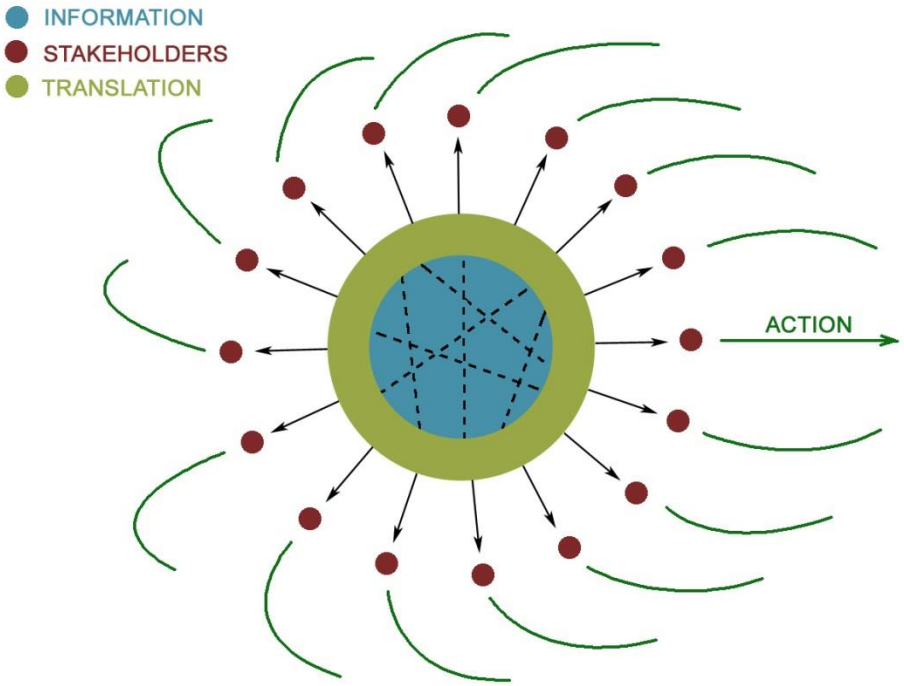
To test our hypothesis we held a number of detailed interviews with stakeholders associated with the marine environment, from across a number of sectors. To avoid biasing the results we first asked them for their thoughts on the issues of managing the marine environment, their perspectives on what they thought the purpose of the marine system should be, and what the biggest threats were to achieving that purpose. Only after that did we ask questions about their current sources and flows of information, and the current

successes or gaps in their collaborations. A table of interviewees and a summary of their responses can be found in Appendix 4.

The picture that emerged of the current system and its dynamics from the interviews is shown below. It illustrates that there is a pool of data about the marine environment, but that it is partitioned and siloed which prevents wider sharing of the knowledge. These siloes can be physical – through being locked away in hard drives, or functional – through being provided in formats or locations (for instance specialist networks) that are inaccessible to any but immediate members of the same stakeholder group. As a result, only some of the information is really available (indicated by the grey hatched lines) to some of the groups of stakeholders. So decision making is limited, with actions taken by the few rather than the many, and for those actions to be less coordinated.



A systemic change in this system is shown in the diagram below, and forms the basis for our programme recommendations to CGF UK. In this case, there are two main interventions that have taken place – firstly making the partitions between the siloes more porous (shown by the dashed lines) and allowing the pool of information to be widely available to all, and secondly adding a translation function to the data (shown by the green ring around the data pool) to convert it into formats that are more accessible to all. In this way the entirety of the information is open to the full range of stakeholder groups, who are all able to use it to make informed decisions. And although the actions taken as a result of this certainly won't be perfectly aligned, they are likely to be more co-ordinated and moving the system in the same general direction, rather than pulling against one another.



Workshop

The combined materials from the research and interview phases of the project informed the structure and content of the workshop. This was an opportunity to get collective feedback on our draft conclusions and recommendations. It was also an opportunity to take the first steps in building stakeholder collaboration and start to pave the way for the future of the programme.

The purpose of the workshop was to understand different stakeholders' perspectives on marine issues and enable a creative conversation to find effective levers for greatest impact. We focused on the levers we had already identified and used these to see if there were there was a shared need and intent for collaboration.

We designed the workshop to provide space for the participants to talk to each other, and to stimulate new discussion and ideas.

- We asked them to share their different perspectives of the marine system and to see if they could find shared needs and areas for collaboration.
- By getting them to map out the different stakeholders in the marine environment they able to identify interconnections and flows that need to be considered when designing where to intervene.
- Finally we offered an 'open space' session for them to discuss the barriers to action in the areas of interest they identified, and to explore the kinds of projects that might overcome them.

From the workshop we gained insights that can help inform the programme going forward, primarily that there is huge value in bringing together different stakeholders through a creative process. There is a huge number of people and organisations who CGF could engage however they need to work with those who are ready and find additional approaches to bring the wider perspectives of other stakeholders, such as business, media on board.

Although we sought to find a tighter boundary for the CGF programme engaging with stakeholders demonstrated the need to not zoom down to one area but remain open to supporting improved information and collaboration across the multiple issues. The insights we gained from the workshop and discussions with CGF team helped inform our recommendations for the programme going forward.

(A summary of the workshop results and participants can be found in Appendix 5)

The CGF UK valuing oceans programme

The purpose of the CGF UK branch is "to enrich and connect the experiences of people in the UK and Ireland and secure lasting and beneficial change". To enable this in the context of the marine environment, the research suggests that CGF UK need to both:

i) enable the translation and accessibility of data to improve information for decision making and
ii) bring different perspectives together to enable collaboration and new systemic solutions to emerge.

This section provides recommendations for the 5 year programme to achieve this, and builds on CGF tools and approaches of 'explore', 'experiment', 'exchange', 'explain' and 'exit'.

Programme Outcomes

2014: Key stakeholders to work with have and been identified, and the programme to support them through understanding different perspectives, and building approaches (& capacity) in translating and using information to improve their influence has been initiated

By 2018: A strong community of 'change makers' working across marine issues in Europe has been built, and they will be delivering new solutions which include:

- New platforms that enable multiple collaborative projects to flourish
- Increased accessibility, translation and use of information so as to improve the influence of decision making (public, policy and business) on marine issues

By 2023: Systemic impact is being achieved across the marine system. Improved collaborations coupled with the better use of information are driving consistent decision making across a

diverse range of stakeholders (such as business, policy makers and the public) that allows complementary sustainable use of the marine ecosystem.

What does this programme focus on?

This programme focusses on the big picture. From the previous analysis commissioned by CGF UK, and our own work in this project, it is clear that there are many threats to the marine system, and many competing voices. What is also clear, however, is that there is not one single issue that stands out above all others as something that CGF UK could meaningfully address to drive significant change – the problems are either too big (like climate change), or too specialised (like biofouling). To that end, we are more interested in the systemic purpose of the system, which transcends individual issues, and what could be done at that level with the resources available to unblock barriers to action in all areas of threat.

Because of this, the programme we are suggesting has more of a programmatic feel than some of CGF's other strategies may do. We see it as a 5-year process that builds on previous stages as it progresses, and which has a far greater focus on who you work with, rather than what you work on. For this reason, whilst we can give an idea of the types of activities and results happening at later stages, we can't be definitive at this stage because they will be defined as the programme progresses.

"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction" Bill Gates

Who does this programme focus on?

The programme should therefore focus on those who are willing and open to working with CGF. We have defined these stakeholders as 'change makers' – i.e. those looking to affect change across the marine system through communicating, influencing and engaging others. These are predominantly NGOs however it can be extended further to those seeking support in their efforts to protect the oceans.

Of particular interest are those who are already seeking to bring stakeholders together in collaborations and could use the support of CGF to support them becoming more than the sum of their parts and tackling the systemic challenges they face.

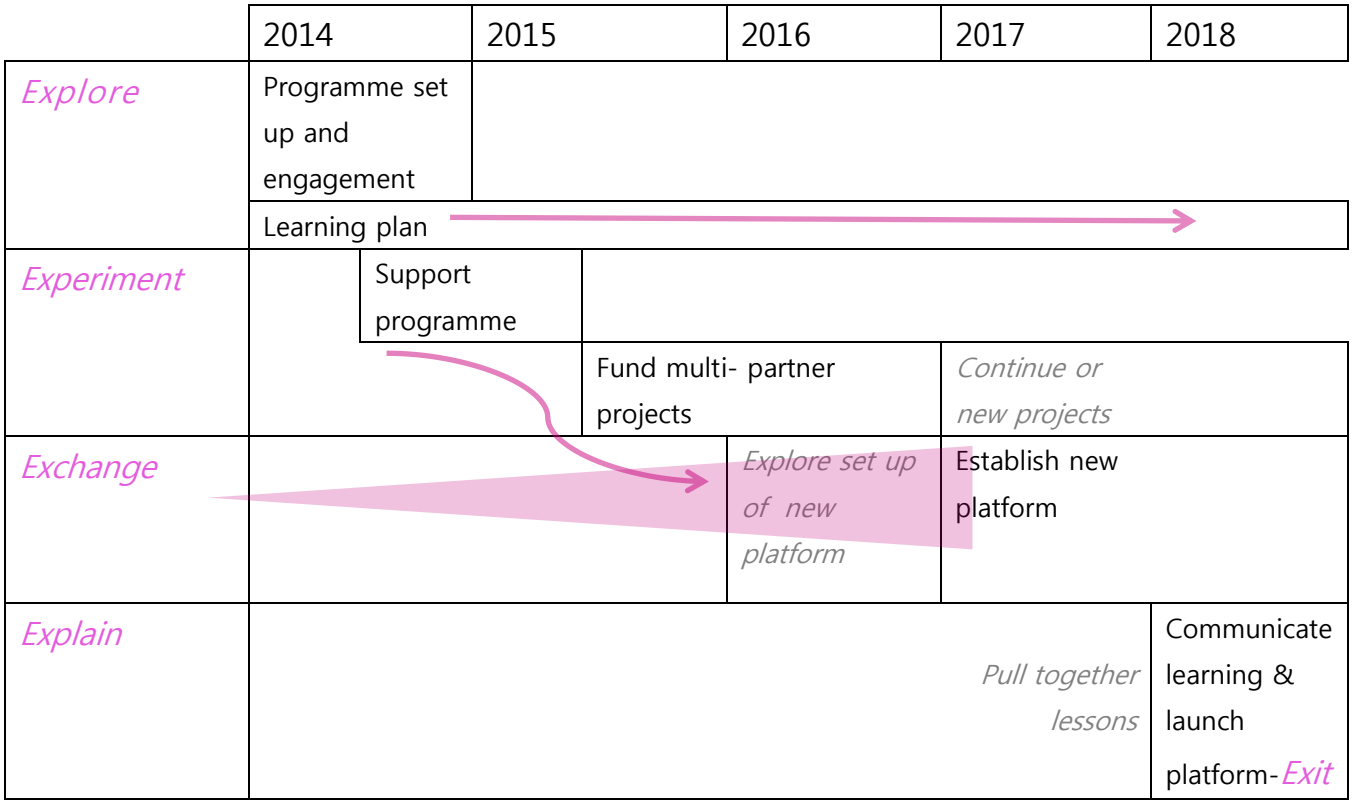
The programme should then actively bring in other audiences that can start to form part of the multi-partner projects. These would fall into three categories:

- Those 'change makers' may seek to influence and engage - business policy makers and wider communities (public)
- Other enablers of change e.g. communications, arts, media, design and those who can facilitate, broker and enable innovations to flourish

- Those not usually represented for example the marine environment itself, small fisheries and future generations.

'Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has' Margaret Mead

Programme overview



This shows where the programme should focus its resources over the five years.

Year one (2014): Explore - programme set up and engagement of change makers

2014 objective: Identify stakeholders to work with, and initiate the programme that helps them understand different perspectives and build approaches (and capacity) in translating and using information to improve their influence.

Programme Activities:

i) Programme design

- Find partners who can help support CGF UK in the delivery of this programme, and form a mentor group that have the ability to support the development of the change makers.
- This group should have a wide set of skills, including an understanding of change processes, communications, stakeholder engagements, and so on.
- The group will not only help CGF UK steer the programme over the 5 years, but will provide advice to the project participants as necessary

ii) Open applications for developing 'your dream project'

- Invite a wide range of 'change makers' to submit a challenge they would love to crack – (with the potential for funding it in 2015) – an open invitation process allows partners to self-select and finds those areas for action with the greatest energy behind them.
- The challenge should be focused on finding ways to engage with different stakeholders' perspectives and so influence them to action across the marine environment. And it should be made clear that:
    - This application is potentially the first part of a longer programme – the goal being to bring out ideas that can grow and develop.
    - A willingness to work with others and participate in wider programme activities is a criterion of engaging in this programme. CGF UK should bring all participants together twice a year to hear updates on projects, learn from one another, and spark further collaborations.
    - All applications must include at least two organisations working together, and special consideration will be given to those that engage across sectors.
- This will be followed by the usual assessment process for being part of the programme
- This programme will start in 2014 but finish in 2015.

Examples of challenges could be: Making complex information human
Engaging the unusual suspects
Finding the future leaders

iii) Identify and engage other stakeholders who will contribute to the programme and start to build a wider community

- Engage the wider ecosystem of organisations that need to be a part of this programme and design a process that builds on their skills to help the change makers engage with their perspectives.
- The purpose of this work should be to draw in organisations and individuals who are less actively involved in the marine ecosystem, but who can have a significant impact upon it – and so it is complementary to the open applications competition. At a minimum you should run learning and engagement sessions with:
    - Communications agencies and others with expertise in translating information – the purpose of which is to find potential collaborators on the projects
    - Businesses and policy makers – to share their perspectives, their challenges, and their ability to drive change through the influence of their supply chains

    - Representatives of the other stakeholders not usually in the room –these are difficult to identify, but include future generations, and the unengaged
- Scope and explore the power of the arts and other approaches* to influence and engage different decision makers (*socio-economic and other 'human-based' approaches)
- Support an active Marine Funders Group in Europe

iv) Implement a learning plan that will provide evidence for the impact of the programme

- Develop a 5-year learning and evaluation plan that will capture and disseminate the new knowledge about marine stakeholder dynamics and issues that comes from the programme. This should be done collaboratively with the stakeholders in the programme, and is a critical element of CGF UK demonstrating its own commitment to the information and collaboration dynamics it is encouraging in this strategy.
- Establish how this programme will work alongside the Lisbon programme.

Year two (2015): Experiment - multi-partner innovative projects that make marine issues human

2015 objective: Continue to support the development of projects with organisations and start to establish coalitions and multi-partner projects you would fund.

Programme activities:

i) Programmatic oversight, coordination and support

- CGF UK and the programme delivery partners should continue to meet to evaluate the ongoing success of the programme, and to share expertise with the project participants

ii) Open applications from multi-partner projects, that build on collaborations forged in year one and have been scoped out through the support programme. These projects will focus on how to collectively engage and influence decision makers by making the issues human.

- The open application process and ideas submission will have provided a pool of engaged stakeholders and projects, and the meetings of the total project group will have helped build these ideas, and start new collaborative ideas.
- Projects in year two should capitalise on this by developing ideas and collaborations further.

iii) Continue to find ways to aggregate these projects together – i.e. meeting regularly and building and supporting the community

- Continue the six-monthly project group meetings to share progress and challenges, and the delivery partner mentor sessions

iv) Host meeting(s) of a wider community (building on the relationships created in year one – including funders, business, policy makers etc.) on specific issues that have been spotted as part of the learning plan.

- Further collaborators and ideas could be found by hosing a TED-style marine conference at the end of year two

- It would share the project ideas and successes from the previous year(s), and supplement them with inspiring speakers from other sectors with different insights into the challenge of how to increase collaborations and make information more accessible
- It should be targeted at some of the specific challenges that have emerged over the previous two years in order to galvanise action in the directions it is most needed for the next stages of the programme

Years three and four (2016 & 2017): Exchange – find the potential for a collective platform for change

2016 & 2017 objective: Establish the additional support required to build a strong community of change makers – including exploring the funding/ setting up of a new platform that enables and supports multiple collaborative projects to flourish so as to improve decision making on marine issues.

Programme activities:

i) Continue to fund multi-partner projects and evaluate what they are achieving together .

- CGF UK and the programme delivery partners continue to meet and have oversight of the ways the projects support one another
- Initiate new collaborative project applications that support the overall programme, and overcome the barriers identified.

ii) Continue to bring together the community around tangible activities e.g. developing shared visions and communications on marine issues.

- Ongoing twice-yearly sharing of project progress
- Start to use the sessions to not only cross-fertilise ideas, but also to actively bring the group together around shared positions and co-ordinated complementary activities and communications

iii) Explore the set-up of new collaborations or platforms that break down silos and enable a better flow of information

- The project and engagement experience gained over the previous years will show where progress in breaking down silos and fostering new collaborations is strongest, and where it is still struggling. It will also show the types of approaches that have worked well.
- CGF UK should use this experience to target action directly by exploring how a new platform for collaboration across the marine ecosystem as a whole (rather than parts of it) would operate and engage those that are most difficult to reach.
- At the very least, CGF UK should identify and implement a self-sustaining programme that will continue the collaborations set up under this programme – such as the regular meetings to share results and ideas, and to develop shared positions and communications

Year five (2018): Explain & Exit – launch and leave

2018 objective: Engage and influence marine stakeholders* with the lessons learnt from the programme (UK and Lisbon) and enable the new platforms to flourish by ensuring they have the ability to continue without support from CGF.

(* broad audience definition that will be refined through the programme)

Programme activities:

i) Pull together the lessons from the programme – through the community of change makers that has been established making it a collaborative effort

- Host an event to bring together the collective results from the wide range of participants that have contributed throughout the programme
- Share the individual results, but also the lessons learned

ii) Develop communications projects that takes these lessons to influence marine stakeholders

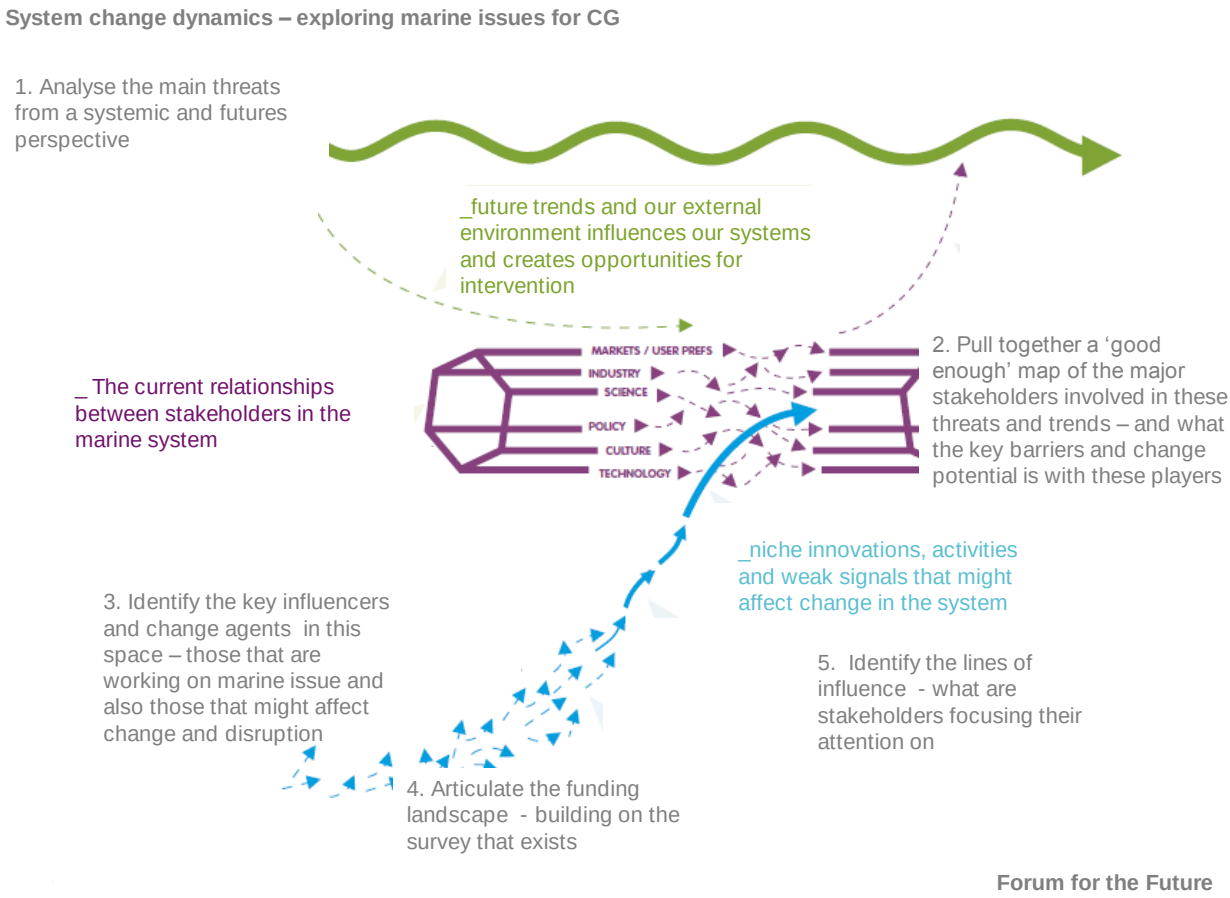
- Use the evidence of the previous years to develop communications projects that take these lessons to all stakeholders, particularly the hard to reach.

iii) Launch the new platform(s) and ensure they are viable (and self-sustaining) going forward

- Ensure the ongoing legacy of the strategy by launching the self-sustaining mechanism for continuing the practical collaborations built through this programme, and demonstrating the practical results of the knowledge and experience learned over the previous five years in how to make the issues human and build the new collaborations needed to drive effective change.

Appendices

Appendix 1: system change dynamics explained



A systems perspective means we need see systems as the multi layers and dynamism of activity – as shown in the diagram above.

- The landscape level represents the changes in wider environment that shifts over time. (green)
- The regime is at the mid-level and can represent how the current system works. The shared rules, routines, polices and behaviours make up these social systems. (purple)
- The niche areas are where radical novelties are just emerging, often unstable and found at the fringe of the mainstream. (blue)

System change can occur in many different ways. The key is to identify what the current dynamic is in the system and where this can be shifted through understanding the affect of the landscape level change and the collective nature of the niche innovations.

By looking at these different levels we can assess the change potential in the system. The questions above are seeking to find this change potential.

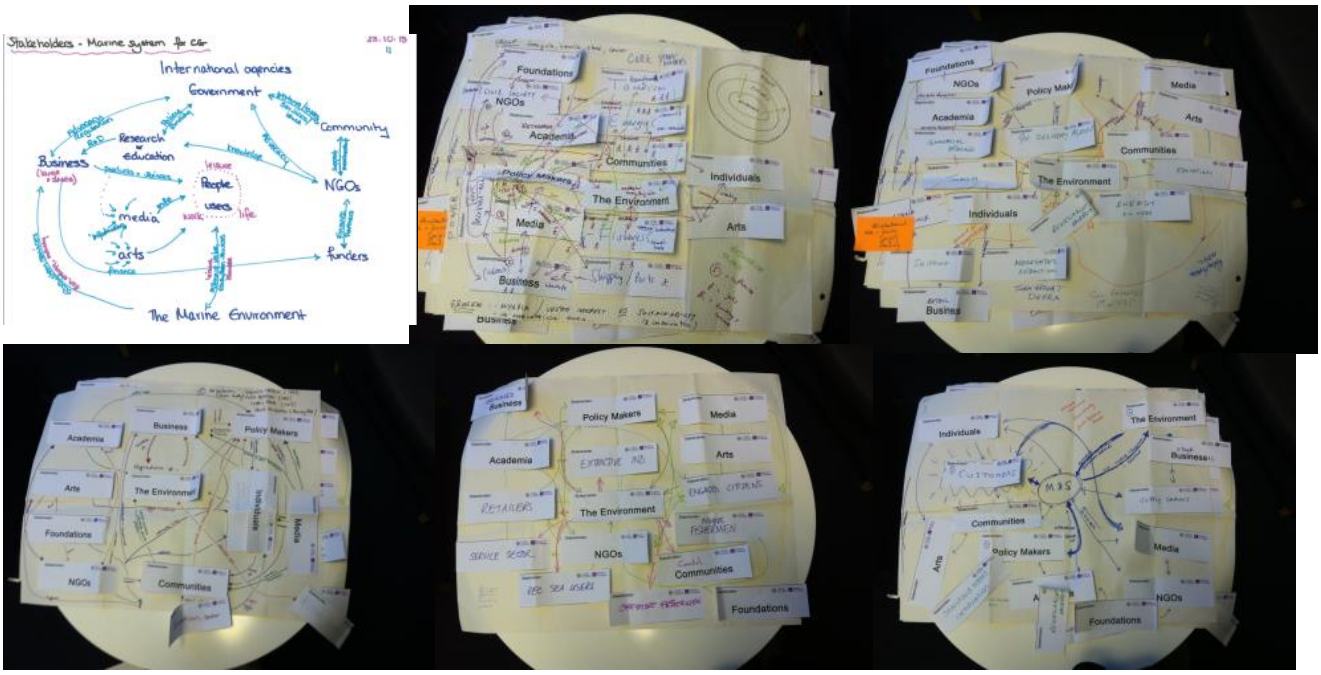
Appendix 2: Levers for change

Here are the levers for change (from least powerful to most powerful impact):

1) Parameters – people care about numbers, but they don't do much to really change behaviour on their own
2) The size of buffers – stocks that are large relative to their flows are more stable, so increasing buffers can stabilise systems
3) The structure of material stocks and flows – these can have a big effect, but often require the building of physical infrastructure, so are slow and expensive to implement
4) The length of delays relative to the rate of change – if information or feedback in the system is received too quickly, or too slowly than the speed of change of the system it will cause an inappropriate reaction
5) Strengthening negative feedback loops – this slows the rate of change of a system and tends to promote stability
6) Changing positive feedback loops – positive feedback loops speed up a system, so slowing down a positive loop can increase its stability. In general it is better to slow a positive loop than try to strengthen a negative one that is attempting to hold it in check
7) Information flows – missing feedback is one of the most common causes of system malfunction, so correcting that by delivering information to a place it wasn't before can cause people to behave differently. This is much more cost effective than trying to change material stocks and flows
8) Changing the rules of the system – these drive the incentives of actors in the system as well as their punishments and constraints for breaking the rules. Changing them changes who acts, and how they act
9) The power of self-organisation – giving people the tools and ability to self-organise by creating their own feedback loops, information flows and rules leads to the creation of entirely new systems.
10) Changing the goal of the system – shift this, and you shift all of the other dynamics discussed above
11) The paradigm out of which the system arises – this affects the goals of the system, and its rules for meeting those goals, and the information flows which drive it, and its physical infrastructure, and so on. Changing the paradigm e.g. from 'the marine environment is there to provide fish' to 'the marine environment is there to provide wonder' changes everything about its management
12) The power to transcend paradigms – a paradigm is itself a constraint upon a system which pins it to a single definable purpose, so transcending paradigms allows multiple and seemingly competing system purposes to be understood and pursued simultaneously.

Based on Donella Meadows work – Places to intervene in a system

Appendix 3: Examples of systems maps



Appendix 4: Interviewees and summary interview findings

Table of interviewees

Who	Organisation
Rodney Anderson	North Sea Marine Cluster
Tim Appleton	Head of Sustainability, Duchy Originals
Andrew Barnett	Director of CGF (UK)
Uta Bellion	Director of the Pew Charitable Trust
Chris Davies	Member of the European Parliament
Pim De Wit	Project Manager Sustainable Development, Port of Rotterdam
Lyndsey Dodds	Project manager for the Celtic Seas Partnership, WWF
Aniol Esteban	Head of Environment Programme, New Economics Foundation
Peter Gingold	Director, Tipping Point
Paul Holthus	Founding Executive Director of the World Ocean Council
Merijn Hougee	North Sea Foundation & Director of the Clean Shipping Index

Louise Krzan	Key Supporter Manager, Greenpeace
Ruth Little	Associate Director of Cape Farewell
Willie MacKenzie	Oceans Campaigner and Programme Advisor, Greenpeace
Joseph McCarney	Business Development Manager, Johnson Matthey
Stuart Rogers	Chief Scientist, Cefas (DEFRA)
Steve Simpson	Senior Lecturer in Marine Biodiversity & Global Change
Eskild Sorensen	Head of Environment & CSR, Maersk Drilling
Kristian Teleki	Director of Global Engagement , Global Ocean Commission

What is the purpose of the system?

What constitutes 'the marine system'? It's huge, and far reaching. It is arguably a part of every other system on earth through its fundamental role in the water and atmospheric cycles. All water comes from and returns to the seas, it drives our major global weather patterns, and the oxygen in every second breath we take comes from the oceans. It is so central to all that we are that the first challenge was to decide what the basic 'unit' was that we should be focussing on, and in order to understand that we asked people what they thought the purpose of the system we were working to should be.

For instance, the purpose could be to sustain European fishing industries, or it could be to create conditions for marine biodiversity to thrive in Europe, or to generate the greatest value for fisheries from ecosystem restoration, or any one of a number of things. Each of these purposes is linked to the others in some way but they often have very different foci, and so the threats to a system fulfilling one purpose may be different to the threats to exactly the same system fulfilling another. Defining the common purpose therefore defines the threats, and thus identifies where interventions should be made to address them.

No single purpose came through the interviews as being common to all, but there were a few clumps of similarity. For instance, respondents with a stronger link to policy makers (through their past experience, or their current jobs and lobbying positions) often quoted the vision in the government's High Level Marine Objectives – which is ". . . for clean, healthy, safe, productive and biologically diverse oceans and seas".

The core message of this vision – that it is a complex system that needs to be managed for the success of multiple stakeholders was accepted by all, although many drew the boundaries of 'stakeholders' very widely – encompassing the whole of the planet through the role of the oceans in providing essential protein, driving global weather systems, maintaining the hydrological cycle, and providing every second breath that we take.

Many also felt that the purpose of the system was something beyond the marine objective definition as well, with a strong emphasis on the role of the ocean in the fabric of what makes us human – the sense of

visceral wonder or fear that we have for the ocean, and the importance of nurturing this is we are ever to successfully address the challenges of the marine environment. Linked to this was a strong discomfort amongst some respondents of even attempting to take an ecosystem valuation approach to the issue. The idea that the environment can be accurately valued, even for its intrinsic and emotional characteristics, is a seductive one – but not one that has ever been successfully met. The CGF work in Lisbon is focussing how to make valuation better, which may help improve the accuracy of what we can assess, but it seems unlikely to ever truly get to the fundamentals of the value

There were those who had a less extreme position with regards to valuation but who also felt uncomfortable that decision making in the marine environment seemed to have been taken over by science and scientific attitudes – and they wanted to reclaim (at least part of it) in some way. This is because science too often leaves little room for human wonder, and also because the scientific mindset generally sees limitations in current knowledge and looks to provide an increasingly accurate answer – ignoring the question of whether current knowledge is really good enough.

A common attitude across respondents, even those with a strong scientific or policy angle, was that there was much greater need to make the issues human – to cut through the noise by bringing all relevant information together in one place, and then translate it into something understandable and actionable by the greatest number of people.

What are the threats to achieving the purpose of the system?

Having got interviewees thinking about the purpose of the system that we should be working to, we then asked them what the threats were to achieving that purpose. This is different from asking them what the threats to the marine system are (although some of the answers may be the same) and instead tried to encourage them to think of some of the more operational threats.

This table shows a summary of the responses from the eighteen interviews. Where responses were phrased differently but still had a common threat as their root cause, they have been grouped together. Note that we didn't ask for just the top x number impacts from each person, but rather had a discussion about the threats to achieving a purpose and then allowed them to provide as many of as few ideas as they wanted. As such, it is not equally weighted across all interviewees, but does give a flavour of the general views.

Issue	Number of respondents
Political failure (incompetence, lack of will, disconnection between top	10

and bottom, short termism)	
Global warming / Climate Change	9
Overexploitation of fisheries	9
Progress in one sector being hampered by another / lack of coordination	6
Ocean acidification	6
Pollution	5
Complexity of managing multi-jurisdictional waters	5
Mining / Extraction / habitat destruction	4
Fragmentation / MPAs (including high seas)	4
Marine noise	3
Dangers of valuation approach	3
Invasive Species	2
Biofouling	2

Note that the threats fall into two camps – big issues that are going to cause the greatest change to the system but which can't easily be solved at the marine level (like climate change – although there was also disagreement about whether that was really a threat) and direct threats from action, or inaction, in the marine environment.

It is this second category that are most interesting because they signpost areas for potential systemic action. In particular it is interesting to see that the second, third, and fourth placed issues (bearing in mind that these are popular not scientific rankings) are issues which could be addressed with better information and/or collaboration.

What are the current information flows, and where they could be made better?

The amount of information that each organisation used, and the number of different sources they relied on varied. Likewise the gaps in their information flow that each identified were also different. What was most interesting were the ideas respondents had about how to make their information flows better:

Data Sharing

There was a common feeling that lots of people have lots of interesting data, or the potential to get it, but that it wasn't now accessible. With reduced, or declining, budgets all need to make the most of what they have and with information this comes down to collection being done by the best people for the job. For instance, fishermen do 99% of the sampling of the sea, so how can scientists get better at working with them to really understand stocks? Similarly, shipping businesses have fleets of vessels crossing the oceans, so how do we work with them to get more global information from where they pass by fitting additional data collection sensors?

Data simplifying

Many people felt that there was plenty of data already, but not enough knowledge. Too much information can be as paralysing to intelligent action as too little can. Many stakeholders simply don't have the time to wade through the large amounts of information needed to make an informed decision – particularly when much of that data may be contradictory even when it is coming from apparently complementary sources (such as the NGO community). Knowledge is the actionable result of clarified information, so the question here is how to take multiple sources and simplify it into an accessible and digestible form.

Data liberalisation

There is lots of useful data that has been tightly locked-up by competitive advantage, vested interests, academic research budgets, and the like. But most of that data doesn't need to stay that way for ever, and once its immediate value to the owner has decreased, it would still have great societal value and could be released to benefit others. For instance, a transportation company may collect meteorological and ocean current data that allows it to optimise its routes and reduce fuel consumption – saving money in the process and giving it an advantage over its competitors. Six months later, however, conditions may have changed, both environmentally and commercially, so how could that information then be opened up for use by others?

Data responsiveness

There was a feeling from many respondents that some critical information channels were only operating one-way, when they should really be more of a two-way dialogue. The example most quoted was the link between science and society – with too much data and direction coming from science deciding what it is most interested in researching, and not enough of society telling science what it really needs as well, and science then responding accordingly.

What are the current collaborations, and how could they be improved?

There was a less clear picture from this section of the interviews than from the rest. It is clear that there are a number of collaborations happening within and across different sectors, and whilst some are achieving local success others are still struggling to achieve their goals. In general it seemed that the more similar the participants were, and the more defined their common goal, the greater the chance of collaborative success.

Collaborations across sectors were much more challenging, but the best breakthroughs were found where cross-sectoral collaboration was driven by engaged individuals rather than by a more general meeting of organisations. The greatest energy, excitement and innovation of new approaches reported by the

interviewees almost always came from occasions in which they had the opportunity to meet unexpected collaborators and committed individuals.

Appendix 5: Workshop participants and report

Who did we manage to engage and what does this tell us about the programme going forward?

We wished to have the widest representation of stakeholders as possible for the workshop, ranging from

- Knowledgeable about Marine issues
- Potential beneficiaries of the funding
- People who currently have some influence and power in the marine ecosystem – e.g. shipping industry, fishermen financiers and other businesses
- Organisations that could effect change in information flows and collaboration – e.g. media, finance

We looked to engage those across NGOs, funders, businesses, media, government (at all levels), academia across different issue areas and users of the marine environment. Our first invitation was sent out to a selected number who would provide a good representation of sectors, however after a limited response from this group we expanded the invitation to all those on our list (see attachment i)

Those that attended were therefore self-selecting and gives us with some insight for the ongoing programme.

- The majority of attendees were from NGOs with a few from business, government and other organisations.
- This demonstrates that those who see themselves associated with wanting to do something about this issue are already engaged, those that have a relationships with CGF UK already or those who see the opportunity of funding.
- This should be built upon in the programme moving forward but also we still need to pay attention to a dedicated engagement programme to bring in the other stakeholders represented to understand their needs and how influence across the marine environment.
- Giving them an active role in the programme going forward, for example holding a specific session with business could start to address this challenge.

What insights did we gain about the different stakeholder perspectives and relationships?

- It was clear that through a half-day session people were starting to see different perspectives that they hadn't thought of before
- They all agreed that **the environment** is a key stakeholder and central to this whole debate, some people went one step further and wanted to also look at the future generations. This may seem like an obvious point but needs to be included in any analysis of influence and relationship. We also need to consider how the unrepresented get represented – out of sight out of mind.
- The limits or **boundaries of the environment** are harder to understand due it's very dynamic nature – e.g. it replenishes itself – we can't feel the edges of it which means choosing specific boundaries becomes even more difficult.

- When different stakeholders discuss the environment they agree with our early analysis that there is a **conflict between economics and wider (intrinsic) value** of the oceans and reflects the way we communicate its value.
- When different **stakeholders makes decisions** relating to the marine environment they don't always use science and evidence as their main driver and we need to use this insight when trying to affect change.
- Many participants articulated firstly the difficulty in understanding and **engaging with the business**. There are different way to divide up businesses influence and relationship with the marine system.
    - Take out – minerals, oil & gas, fish
    - Use – renewable energy, tourism, leisure, shipping, travel
    - Put in – pollution, infrastructure
- Other discussions included understanding the role of NGOS and the relative weight they might have influencing change.
- They agreed that there is a need to skill up people to have more informed conversations.

What areas of shared need did they identify?

These are the areas of shared interest identified by the group that require improved collaborations.

1. Progressive policy towards a healthy marine environment (7+)
2. A process which defines success for a particular issue for all (6)
3. Representing stakeholders that are not in the room – the environment, public, future (6)
4. Understanding the role of the individual (2)
5. Engaging business – connecting with what they are interested in (0)
6. Addressing the hard questions (0)

The numbers beside the title are those who choose to work on that area. It is interesting how 'engaging business' was seen as a strong need in most of the discussions through the morning and yet this area was not chosen as something they wanted to work with. We suspect that this is because the participants didn't feel they had the skills or experience to contribute to the discussion, so instead went back to the areas they felt most comfortable in. We would recommend that this area is still a priority, and that engaging the group with the trickier subjects out of their comfort zones would be a valuable exercise. The project ideas that came out of these discussion groups can be found as examples in the recommended programme design.

What implications and ideas for programme design were explored?

There is huge value in bringing together different stakeholders to find the serendipitous connections through a creative process, however if this group is to be brought together again there needs to be a clearer articulation of the outcome and direction of travel.

There is an agreed need for richer communications to make simple the complex issues so that decision making is improved. There is also a need to seek alignment and creating a coherent voice so that stakeholders can get behind a common cause.

What challenges did engaging with stakeholders present for the programme?

Although we sought to find more tangible boundary the areas of shared interest were in the top level articulation of the value of the marine environment. However beyond this the issues vary, it is our conclusion is still that if CGF want to take a systemic approach they cannot zoom down at this stage otherwise they will risk going into silos themselves. There are many common issues and challenges, and instead of choosing at this stage use a more open call and engagement approach to find the areas that are ready for change.

The programme however has to make it tangible for the stakeholders who engage with it and we suggest that the way to do this will be through them articulating their challenges they need to solve and to get a process of support and working together so as to find the opportunities for mulit-partner projects to take shape.

The relationships need time and honest brokering to develop further. The workshop only touched the tip of the iceberg of what could be achieved.

Those who were not present need to be actively brought in which will take time and resources but should reap benefits over the 5 years programme. This will include bringing in other enablers of change, such as communications, media, innovation, leadership and collaboration skills.

Although much of the analysis was known before this research it is not always actioned upon and it is now down to the programme to start to address some of these systemic barriers in order to catalyse change.

Attachments

Attached to this report are the following data and information from the research

i) A list of the wider stakeholders we scoped out for this project
ii) A summary of some of the key collaborations across the marine environment
iii) Write up of the shared need area from the workshop

[i] Anna Birney is Head of System Innovation Lab and James Taplin is a Principal Sustainability advisor specialising in ecosystem valuation and using digital for improved information and collaboration. Gemma Adams, Helen Troup and Kat Campbell also contributed to this project.