Science-Policy challenges in polar conservation and management

A workshop series co-convened by British Antarctic Survey and Cambridge Conservation Initiative

Report of Workshop 3: Bright spots at the science-policy-practice interface – what makes a success story?

David Attenborough Building, Cambridge

18th November 2019

Compiled and edited by Rachel Cavanagh, Connor Bamford, Arlie McCarthy and Jonathan Rosser

Overview

The British Antarctic Survey (BAS) and Cambridge Conservation Initiative (CCI) are convening a series of short workshops focused on science-policy interactions within topical conservation and management issues. Each of the topics are issues faced in the Polar Regions but are also of global relevance and reach beyond traditional disciplinary boundaries. By bringing together the Cambridge academic and conservation communities, and involving decision-makers from the outset, we aim to provide a forum for gathering and sharing expertise on these key issues.

Aims

- To provide a forum for discussion of key topics across experts working within the Cambridge academic and conservation communities, in different but relevant geographical regions and disciplines, and to involve relevant decision-makers from the outset;
- To facilitate the continuation of discussions/communications on a regular basis (which may include smaller focus groups as appropriate);
- To identify potential areas of collaboration and future work.

Workshop 3 - Bright spots at the science-policy-practice interface – what makes a success story?

In this third workshop we brought together representatives from the NGO, science and policy sectors to highlight "bright spots" in conservation (i.e. examples where science has demonstrably influenced policy and practice) and to explore what made them a success. Integrating scientific knowledge into decision-making processes and achieving demonstrable impacts on policy and practice can be challenging. Documentation of such challenges, barriers and gaps is widespread, and while this brings important lessons, there is now growing momentum around "conservation optimism" and the study of "bright spots", with recognition of the potential value of these concepts in enhancing science-policy interactions. Does focusing on science- policy success stories, and identifying and sharing the key lessons and principles behind them, have the potential to improve the use of science in policy and practice?

The expert panel discussed how current and emerging scientific knowledge has been successfully utilised to provide information for policy decision-makers, resulting in conservation success stories, or 'bright spots'.

The workshop agenda, expert panel biographies, and a list of workshop participants are provided in the Appendix.

Panel Chair
Dr Simon Brockington (Department for Environment, Food and Rural Affairs - Defra)

Panel Members
Gayle Burgess (TRAFFIC)
Stephanie Good (University of Exeter)
Dr Susie Grant (British Antarctic Survey)
Edward Pollard (The Biodiversity Consultancy)

Introduction – Rachel Cavanagh, British Antarctic Survey

- Background to the growing conservation optimism movement
- Inspired by this paper 'Building optimism at the environmental science-policy practice interface through the study of bright spots' (Cvitanovic and Hobday, 2018)
    - We have brought together experts from NGO, policy and science sectors to discuss examples of where science has had a demonstrable impact on their work
- Questions
    - What qualifies as a bright spot and why? How is success measured?
    - How is science made accessible and used effectively in achieving bright spots?
    - What science/policy actions made them successful?
    - How can the concept of bright spots be used to enhance science-policy interactions?
    - What is the value of highlighting 'bright spots' in education, raising awareness and inspiring change?
    - How can the different sectors work together to deliver conservation successes?
- See Appendix for useful references and links

Presentations from the Expert Panel

Connecting science to policy – a civil service perspective - Simon Brockington (Defra)

- Cvitanovic and Hobday, 2018: "*the uptake and integration of scientific knowledge into decision-making processes remains a significant challenge. Rather, evidence suggests that decision-makers primarily rely on experiential knowledge in isolation from evidence-based science*"
    - disagrees with this statement, at least from the UK perspective
- Strong science capability within government in the UK
- Why is science to policy a challenge?
    - Science and policy are completely different things

- Science is driven by institutes, universities, with long timescales and published - often highly technical - outputs
- Policy is almost the opposite– discursive, driven by need/situation, many different evidence lines and views, often urgent with timescales of days/weeks, simple and direct communication
- Bright spots - examples
    - The Royal Commission on Environmental Pollution, Professor Susan Owens' review:
        - Few instances of a direct and immediate connection from sci to policy, but:
        - Often a time lag between recommendations and when they were taken up
        - At its strongest in championing new ideas and concepts (e.g. precautionary approach)
        - Some evidence of failure, but usually when recommendations were poorly debated in the first instance
        - Novel ideas / paradigm shifts were the most commonly misinterpreted/mis-implemented
    - 'Turning the Tide' report on marine management – only now is the government following through (15 year lag).
- Bright spots – science as a driver of policy
    - Traditional focus: whether policy has taken account of science, but, a more important focus is when science leads the policy agenda
        - E.g. CFCs, climate change, precautionary principle, sustainable fisheries
- Policy thinktanks are very influential - we need more environmental science thinktanks, there are very few
- Environmental Science thinktanks
    - Previously the Royal Commission on Environmental Pollution
    - Now: the GO-Science Foresight Reports (e.g. Future of food and farming, Future of the sea). Reports have been front-runners for policy and upcoming issues, especially obesity report from 2004.
- In conclusion
    - Science informs policy, but seldom does so directly
    - Bright spots – where science not only influences policy, but sets its overall direction from the outset (identify issues before the 'times' do).

Behaviour change for biodiversity conservation - Gayle Burgess (TRAFFIC)

- IPBES report: 'Enabling visions of a good quality of life that do not entail ever-increasing material consumption'
- Products in global trade –plants are traded in an order of magnitude greater than animals.
- Bright spots - organisations collaborating: CCAMLR commissioned trade study by TRAFFIC on Patagonian toothfish. Showed catches 4x higher than estimated by CCAMLR. 50% from IUU. Identified where and how scientific data and compliance could be improved.
- Behavioural science is being increasingly recognised - key element in understanding and changing consumer behaviour. E.g.
    - Demand reduction for illegally traded species - UN encourages members to influence consumer behaviour
    - CITES highlighted the need for demand-reduction campaigns to bring about behaviour change

- o Useful Defra work on who is willing to act and in what way.
- Crucial part of behavioural science is to be clear about the desired behaviour, rather than just encourage avoidance of the undesirable behaviour
  - o One traditional conservation engagement method is to encourage people to mirror your own values: i.e. "Care about saving this species…"
  - o But, to influence behaviour change, you need to be clear about a specific small thing that people can undertake which benefits them. Don't leave it down to them to work it out.
- Case study: TRAFFIC in China:
  - o TRAFFIC is implementing demand reduction in China, which includes work on ivory, rhino horn and pangolin, amongst other species
    - ▪ In order to be clear about the desired consumption behaviour instead of using illegally traded species, TRAFFIC worked with carving Masters to identify alternative – fruit pit carving – which emphasizes the craftsmanship in the product rather than the material itself
      - Note re changing to another less than ideal product (i.e. ivory to jade – jade extraction has human rights issues associated with it), care must be taken.
- Case study: TRAFFIC in Vietnam:
  - o Analysis of target audience for rhino horn (including motivations not just socio-economic factors)
    - ▪ Status and demonstrations of success was a key motivator in purchasing rhino horn
    - ▪ Chi initiative – based on strength of character: you don't need rhino horn to display your success/wealth
    - ▪ Has been effective and the desire for rhino horn is lower
    - ▪ Can be difficult to get honest insights, and there were changes in demography (i.e. increase in middle class), which can influence the success of a conservation effort.
- We need to look beyond outreach and education to change consumer or human behaviour. We need to provide an alternative or solution.
- Community of practice: many people involved (including behavioural scientists, not only in conservation), working together to bring about change.
- Behaviour change online course and other resources at: www.changewildlifeconsumers.org

Reducing seabird bycatch: Regulatory & incentive based approaches - Stephanie Good (University of Exeter)

The focus of this presentation was on conservations measures for reducing seabird bycatch, looking in particular at when regulation has worked and when incentives have worked.

- 31% of seabird globally threatened, 47% of seabirds have declining population trends
  - o Fisheries bycatch is a major threat
    - ▪ Main threat for albatrosses and large petrels.
- Two approaches: regulatory (mandatory, legally enforced) or incentive-based (voluntary, adopted by individual fisheries to achieve market recognition).
- IPOA-Seabirds – to reduce incidental catch of seabirds in longline fisheries

- o States to develop NPOA when there is a problem, but how to define 'problem'?
- Best practice attributes: regulatory
  - o Bycatch reduction objective
  - o Specific thresholds defined (ideally linked to population impact)
  - o Management action linked to thresholds
  - o Ongoing monitoring
  - o Continued review of progress and adjustment.
- Regulatory approach: Australian tuna and billfish longline fishery case study:
  - o Observer data plus demographic modelling to assess bycatch and its impact (on flesh-footed shearwaters)
  - o Clear objectives in the plan - "acceptable" threshold set and mitigation measures
    - ▪ Review if threshold exceeded – may need additional management (which the fisheries were keen to avoid)
    - ▪ Requirements for monitoring
  - o 2003-15: 97% reduction in bycatch → success story.
- Incentive-based approach: Marine Stewardship Council case study
  - o Each fishery is reviewed against 28 performance indicators.
    - ▪ Each must achieve minimum score of 60
    - ▪ Scores <80 receive condition to improve over 5 year certificate.
- Best practice attributes: incentive-based
  - o Has to be an incentive to the fishery – credibility of the certification, market access.
  - o Reliant on verifiable information on bycatch levels
  - o Collaborations fostered e.g. with management and NGOs.
- Incentive-based approach: South Africa hake trawl case study
  - o MSC certified since 2004 (recertified in 2008, 2015)
  - o 2004 condition to collect information on seabird bycatch, and mitigate if necessary
  - o Industry funded at-sea monitoring for offshore vessels
  - o Identified significant bycatch issue - birds were hitting cables when feeding on discards.
  - o Implemented streamer line to keep the birds away
  - o Collaborations to implement mitigation and continue monitoring
  - o New condition to extend monitoring in the inshore fishery.
  - o 90% reduction in bycatch (99% albatross).
  - o Strong economic incentive - implication of losing MSC certification: loss of 38% of fishery value (how to effect a change in a business).
- What would you choose: Regulatory or incentive (or both?)
- Are there other situations where "best practice" regulatory or incentive-based approaches could be applied to address similar challenges?

The South Georgia and South Sandwich Islands Marine Protected Area – using science to inform conservation and management - Susie Grant (British Antarctic Survey)

- South Georgia and South Sandwich Islands: a UK Overseas Territory with their own small government.
- Long history of exploitation in South Georgia (sealers, whalers), fisheries still operate.

- Conservation success stories: e.g. Southwest Atlantic humpback whale recovery (Zerbini et al. 2019); rat eradication.
- One of the largest Marine Protected Areas (MPA) in the world (1.07 million km^2)
    - Established in 2012, updated in 2013, to be reviewed every 5 years
    - Based on scientific knowledge and stakeholder consultation
    - A range of measures, including:
        - no-take zones protecting foraging areas for krill-dependent predators (penguins, fur seals, seabirds)
        - summer closure of the krill fishery to protect breeding predators
        - Benthic Closed Areas protecting vulnerable seafloor habitats
        - No bottom trawling; and no fishing shallower than 700m or deeper than 2250m. In the initial stage of the MPA it was agreed to review the success of the MPA in 5 years.
- First review of the MPA undertaken in 2017/2018, informed by scientific evidence:
    - >200 peer-reviewed publications relevant to the region since MPA was established
    - >20 research cruises during the first review period
    - Monitoring populations of land-based predators (penguins, fur seals, albatrosses) for >30 years
    - Extensive data on fisheries, bycatch, fisheries-ecosystem interactions collected from fishing vessels (100% coverage by observers)
- Some examples of new research :
    - High resolution oceanographic modelling to predict locations of krill
    - Deep water camera system for status and recovery of Benthic Closed Areas
    - Tracking of predator ranges and their overlap with krill fisheries
    - Global Important Bird and Biodiversity Areas – to assess overlap of critical seabird areas and potential threats
- Collaborative research and monitoring tools have also been developed:
    - online GIS, MPA data portal, and a Research and Monitoring Plan to outline future research priorities .
- 5-year review: how has science changed? Is the existing management suitable? Future priorities?
- MPA enhancements were announced as a result of first review:
    - No-take zones extended to reduce overlap between predators and the winter krill fishery – the MPA now includes 284,000 km2 of no-take zones (23% of the total area)
    - New no-take zone for the deep South Sandwich Trench
    - 2-month extension to the seasonal closure of the krill fishery (Oct-Apr)
    - Prohibition on exploitation of minerals or hydrocarbons
- What has been key to its success?
    - Whole ecosystem approach
    - Protection and management for both land and sea
    - Government investment in research to support biodiversity protection
    - Existing research infrastructure and high level of scientific interest
    - Consultation and collaboration across stakeholder groups
    - Small government with close working relationships with researchers and stakeholders
    - Access to information for decision-makers and stakeholders

- o   Significant research contribution from industry
- Good example of science being used in the review process and resulting in enhanced measures.

Impacts and metrics: use of science to drive positive biodiversity outcomes in the private sector - Edward Pollard & Leon Bennun, The Biodiversity Consultancy

This presentation is focused on the private sector, specifically the renewables industry, looking at the use of science to drive positive biodiversity outcomes. The private sector commitments discussed are not policy driven but having policy impacts.

Biodiversity offsets, controversial to some. But when done well can lead to conservation success.

Kipeto Wind vulture offset programme: case study

- Development of a new wind farm on edge of rift valley had potential to increase mortality to Critically Endangered vultures, as well as other soaring birds.
- Developer and investors needed solution which would minimise this risk, but also support recovery of Kenya's vulture population
- Science-informed baseline on vultures, and potential mortality
    - o   looked at baseline surveys and initiated long-term observations
        - ▪   how to minimise impacts (shut down on demand & carcass removal)
            - •   priority is mitigation (but how to offset if mitigation doesn't work)
        - ▪   worst-case scenario (for number of deaths per year)?
- Modelling to estimate what is needed for net gain
    - o   How to compensate for deaths?
    - o   Could a net gain be achieved by improving other areas, i.e. reducing poisoning (main threat to vultures) elsewhere in Kenya?
        - ▪   Interventions exist to target these poisonings, offsetting could scale these up/contribute to existing programs.
            - •   What geographic scope do you need to target additional conservation efforts to achieve this net gain? How much will this cost?
            - •   Model developed to determine how many poisoning events / vulture deaths need to be prevented. Based on foraging range, poisoning mortality, number of poisoning events, area in the conservation programme, and estimate of effectiveness.
            - •   This is now being implemented by partners across a wide area of southern Kenya.
- Lessons learned
    - o   A meaningful assessment of potential for, and cost of, gains, was possible based on:
        - ▪   Simple modelling
        - ▪   Ecological knowledge
        - ▪   Reasonable assumptions
        - ▪   Review of (incomplete and patchy) existing data and analyses
    - o   Illustrates that, with fairly simple science, private sector (with civil society support) can achieve positive conservation outcomes

- As we press for energy transition, we need case studies such as this to show that we can meet our energy needs and conserve biodiversity
- Biodiversity offsets, controversial to some. Essentially a regulatory stick. Likely to become an increasingly important aspect of biodiversity conservation.

Questions and discussion

The Panel responded to a range of questions from workshop participants; these questions and the resulting discussions have been grouped into themes in the following sections.

Pros and cons of the net gain concept

Question: the concept of net gain is [potentially] being written into a new environment bill in the UK. It can be a difficult and complex concept to apply. Can the panel comment on both the good and bad points of net gain, and how evidence can contribute to this?

- It is positive that the concept is being discussed with regard to UK policy, for England at least where it is receiving positive attention. It should be noted that net gain isn't a new concept at the national policy level, e.g. Germany [have had] net gain policy since the 1970s.
- An example of a local bright spot for the net gain concept is Trumpington Meadow, Cambridge. Compensation for building has ensured benefits for biodiversity as well as social and cultural benefits.
- Net gain can drive better practice and better behaviour, and can also help to fund conservation.
- Regulatory approaches to net gain are likely to be the best way forward. Incentive versions can be flawed, due for example to the wide range of approaches, large variety of metrics and lack of standardisation.
- Caution must be applied, e.g. a net gain project in one particular area doesn't automatically mean there won't be losses elsewhere, around it. Pragmatic and multifaceted approaches are required.
- Potential negatives include the perception of net gain being a 'right to trash'. There should be a limit to offsets, e.g. should ancient woodlands and species extinction be excluded from offsets (i.e. once lost, they are gone).
- Net gain measures need to apply 'across the board', e.g. when trying to come up with an EU standard, agriculture and fisheries were out of scope which was very limiting.
- When evaluating projects, trying to capture 'soft outcomes' is difficult. Policy makers prefer quantifiable metrics, e.g. cost per unit outcome is helpful. Social Impact Investment has been trialled in the UK before as a way to address this and ensure more second-hand outcomes are valued
- In collectivist cultures where net gain is considered differently, a different approach might be more effective; 'net gain' could be to society as a whole rather than a community within that
- How much of the offset/net gain work captures the area you really care about?
- How much time do you spend capturing impact vs doing active conservation?

The role of lobby groups and citizen science

Question: What is the role/impact of NGOs, lobby groups, public participation, citizen science, big data, etc? Do they help or hinder? Does, for example, lobbying sometimes get in the way, casting a shadow on bright spots?

- Public participation is part of the consultation process. Citizen science is increasingly important/valuable, making useful contributions, e.g. data collection.
  - E.g. in South Georgia tourists uploading photos of whale sightings is helpful, especially as many areas are difficult to access and sample regularly etc.
  - NGOs and lobby groups have had a strong interest in the South Georgia MPA, particularly regarding the designation of extended no-take areas. However, there can sometimes be knowledge gaps and a lack of consideration of the impacts of such proposals on the wider ecosystem beyond the area of immediate concern. This could be improved by ensuring access to relevant information for all stakeholders.
  - That said, lobbying can also help highlight some of the broader issues that policy makers may not be considering/may not be aware of.
- Marine Stewardship Council provides an important example of the role of different stakeholders. Industry, NGOs and other stakeholders drive different perspectives. There needs to be good underlying information to help being the different views together to achieve balanced agreements. Global best practice is in place to help ensure confidence and credibility in the process.
- A recent DEFRA consultation regarding UK waters and a proposal to connect protected zones resulted in ~500 specialist responses, which was vital for the process. But in fact, there was a larger response from lobby groups illustrating the breadth of public engagement and support for the measure.

Evidence-informed policies

Question: In the UK, we have an upcoming general election. Tree planting features prominently in the latest manifestos. For example, the current government have pledged to plant at least 30 million trees every year. Firstly, what is the process, i.e. who reviews the veracity of such a proposal, decides if it will become part of an election manifesto, and how it will be implemented? Secondly, what are the practicalities and benefits of, in this case, 30 million trees?

- In Defra, the process starts with the political parties write their manifestos (expecting quite a strong environmental stand from all parties this year) and during this process would adopt particular claims/proposals such as the tree planting example. Scientists have responsibility to test the claims and communicate their findings.
- There are parallels with claims around 30 years ago regarding fisheries. Claims for requirements for 'xx' number of fish in the sea were instrumental in raising the profile of these issues. Many of the claims regarding fish stocks and the need for sustainability were raised by scientists, but were picked up by consumers/voters and were instrumental in getting people to consider the issues.
- Both regulatory and incentive-based approaches come down to choices that people make (either as voters or consumers), and involving people in a broad sense is important.
- There is currently a campaign to plant 1 trillion trees in the tropics: "The Trillion Trees Vision". In the UK, the Woodland Trust is calling on one million people to pledge to plant a

tree. Such projects are tangible ways for people to get involved. Smaller scale local efforts help people feel part of the solution. These are examples of public involvement without activism, towards making a 'green lifestyle'. Normalising action without activism is important. People want to know what they can do to help, what is possible.

- Back of the envelope calculation: 30 million trees sounds like a huge number but would actually cover roughly the same area as a grouse moor in Scotland, i.e. an achievable amount of land spread out across the country. This target is about meeting the net zero carbon target, so we need to think about what 30 million trees means in that context.

Integrating bright spots for policy

Question: It seems that action - and indeed much of the well-regarded policy making structures in the UK - often arises from negative stories (e.g. the foot and mouth outbreak in the UK). Negative stories seem to have greater attraction as can often be seen in questions and discussions in Parliament, negative news seems to have more impact than positive news. Are negative stories better at motivating people rather than positive stories and why is that? How can we integrate bright spots as motivating examples for policy? How can the bright spot narrative be incorporated into the mainstream?

- Yes, and Defra is sometimes referred to as the 'fourth emergency service' – dealing with environmental issues as they arise. An important change in recent times is the emergence of the conservation optimism movement and it will be interesting to see where that goes.
- In terms of children, there is a growing concern regarding their anxiety about climate change and biodiversity loss. How do we best communicate to children, for example, in schools, i.e. maintaining a positive attitude while talking about risks. It is important to talk about the negatives, but in ways that they don't lose hope. How can we be honest but still maintain positive language? How can we take the negatives and transform them into positive messages?
- It is fine to give people information as a catalyst, but important to be specific about what you want them to do as a result. As an example, the problem with plastics in the environment works well because we can clearly tell people not to buy single-use plastic i.e. there is a simple, tangible everyday solution

Reaction versus precaution: success stories in the absence of a crisis?

Question: With conservation policy we often seem to be 'behind the curve', as such, can the panel comment on the precautionary approach? Can we have a success story if there hasn't first been a problem?

- Big companies are likely to be leading the charge because they are looking so far ahead (~100 year economic outlooks). This is a much longer-term outlook than politicians/political cycles.
- Book by Rebecca Solnit: 'Hope in the dark'. The analogy of fungi: huge network underground – i.e. there are issues where things have been underway for years before making a difference, but eventually did. Science can put things in place so that down the line we're ready to e.g. put the policy in place quickly. Even if you don't see the change now, it is important to put the groundwork in. Effort now = tomorrow's successes.

- Conservation is a very young field. There was no department of the environment until the 1980s, but now, we are catching up quickly. Recent environmental bill discussions involving net gain and the precautionary principle in parliament felt fairly radical at the time, but two months on it was clearly a sensible idea. The government is seeing a collective responsibility with NGOs, and currently feels dynamic rather than reactive or behind the curve.
- We might feel as though "why didn't we do this before", but if we think about things like e.g. Inconvenient Truth, and the "Attenborough Effect", all these were laying the groundwork for the current tipping point in terms of environmental activism.

Comment from the audience:

Climate change, biodiversity conservation and related issues are impacting our daily lives a lot more than we were aware of say ~20-30 years ago. Climate and biodiversity crisis "buzzwords" are now in common vernacular. Climate change impacts are being felt by societies all over the world, and this in turn will have an impact on consumer pressure.

Timescales

Question: There is clearly a mismatch between the timescales over which political decisions need to be made and the time needed for adequate scientific research to be undertaken and outputs delivered. Have improvements been made on the timescale mismatch? Does the panel have thoughts on this?

- It is the case that working with government means working with people frequently changing posts. This can on the one hand be frustrating, but often rotation of people can facilitate progress. E.g. a new minister might get something going that got stuck with the previous one. What is important is the wider, ongoing conversation around an issue, then a new person can pick it up and continue, maybe do a better job. A fresh perspective can often enable progression.
- 'Adequate science' is a difficult challenge, and this is a key point. What is 'adequate science' in any given situation? A pragmatic approach is important, i.e. to identify what can be done now with existing data versus what the gaps are and what needs to be developed/monitored in the future towards filling those gaps. Assess whether there is enough data/evidence to go ahead with a policy/investment/development, etc. We can't always wait for years of rigorous research until something is completely understood, but we can look at how to go forward and build that in over time.

Closing remarks from the panel

Susie Grant: (i) Some of the biggest successes have been where science has driven policy from the outset. Which other stakeholders could be involved in setting direction? For example, collaborative work with industry, NGOs, etc. (ii) Even small-scale changes, with limited scientific information (e.g. the vultures project), can spark greater change, especially when giving people something tangible that they can do. There are numerous possibilities - not only a scientific route.

Stephanie Good: A key thing is to think about why it is important to talk about positivity in conservation now. It is useful to look back at history, not just where things went wrong but also at what worked well and can offer solutions to current issues. It can be too easy to focus on failures

and what hasn't gone well, and forget the successes and think about how and why they worked, and can they apply to other scenarios.

Gayle Burgess: Key is visibility of solutions and success stories. We can feel disempowered and depressed by news headlines. We need to be more visible where innovation and collaboration have come together successfully, to help inspire action in other. It's the duty of the researcher/practitioner to communicate success

Edward Pollard: Give people an answer, an idea, an opportunity, give them something they can do to facilitate the change. This works at all scales – from public campaigns, to businesses. Provide relatively simple, scientifically informed solutions to people. Conservation optimism is gaining momentum so it's interesting to see where it will go.

Simon Brockington: The responsibility has shifted. The old model of NGOs lobbying government and of industry 'trying to get away with what they can' has changed. Industry is more involved from the outset, there is more public engagement; we are now all in this together with a different mode of working. It's the responsibility of all to do this.

Common themes/key points

- Potential for science to take the lead: some of the biggest successes have been where science has championed new ideas/concepts and driven the policy from the outset.
- Key to success:
    - Objectives, incentives, monitoring, reviewing and adjusting
    - Behavioural science
    - Stakeholder engagement (including citizen science)
    - Collective responsibility
- Timescales: recognising that time lags can occur in the achievement of bright spots, and taking this into consideration when "measuring success".
    - Different timescales for politics, industry and science.
- Positivity vs Negativity
    - Urgent responses to crises vs pro-active precautionary measures
    - Negative fear tactics vs positive encouragement

It is notable that many of the common themes and key points were raised in previous workshop discussions in this series. For example, the need to extend the range of stakeholders engaged in providing policy advice; for clarity and simplification of messages for policymakers and public; and the importance of cross-sector engagement. See: https://www.bas.ac.uk/wp-content/uploads/2018/01/BAS-CCI-Workshop-1-Report.pdf and https://www.bas.ac.uk/wp-content/uploads/2018/01/Plastics-in-the-Ocean-Final-Report_11-May-2018.pdf

Next steps

- We aim to produce a paper based around common themes that have been highlighted throughout the workshop series. We will also explore the potential for a paper based on the Bright Spots theme.
- We aim to convene a fourth workshop for this series during 2020. To suggest potential future workshop topics please email rcav@bas.ac.uk

APPENDIX

Agenda

13:30-14:00   *Registration*

14:00   ***Welcome***

Dr Rachel Cavanagh, British Antarctic Survey

14:10-15:00   ***Expert panel presentations and discussion***

Chair: Dr Simon Brockington, Defra

Panel presentations

15:00-15:45   ***Q&A***

15:45-16:00   ***Next steps***

Dr Julia Grosse, Cambridge Conservation Initiative

16:00-16:30   *Tea/coffee and networking*

Workshop Organisers

Cambridge Conservation Initiative (CCI) is a collaboration between the University of Cambridge and nine leading biodiversity conservation organisations. By catalysing strategic partnerships between leaders in research, education, policy and practice CCI aims to transform the global understanding and conservation of biodiversity and, through this, secure a sustainable future for biodiversity and society.

British Antarctic Survey (BAS) an institute of the Natural Environment Research Council (NERC), delivers and enables world-leading interdisciplinary research in the Polar Regions. Its skilled science and support staff based in Cambridge, Antarctica and the Arctic, work together to deliver research that uses the Polar Regions to advance our understanding of Earth and our impact on it. The BAS mission is to deliver a world class programme of scientific research and to sustain the influence and leadership of the UK in Antarctic affairs.

Organising Committee

Rachel Cavanagh (BAS): rcav@bas.ac.uk
Susie Grant (BAS): suan@bas.ac.uk
Julia Grosse (CCI): Julia Grosse j.grosse@jbs.cam.ac.uk

https://www.bas.ac.uk/project/science-policy-challenges-in-polar-conservation-and-management/

Expert Panel

Dr Simon Brockington is a Deputy Director covering marine and fisheries for Defra (the Department for Environment, Food and Rural Affairs).

Gayle Burgess works at TRAFFIC where she leads a global portfolio of work on social and behavioural change communications, combatting wildlife crime and promoting responsible/sustainable consumption.

Stephanie Good has spent the past 10 years working in fisheries management, first at the marine environmental consultancy MRAG Ltd and then at the Marine Stewardship Council. She is currently pursuing a PhD at the University of Exeter, exploring best practice in estimating and managing fisheries impacts on seabirds.

Dr Susie Grant is a marine biogeographer at the British Antarctic Survey. Her work uses scientific evidence to inform the development of policy-relevant advice on marine conservation and spatial management.

Edward Pollard is a consultant with The Biodiversity Consultancy based in Cambridge. He works with governments, civil society and the private sector to improve the management of biodiversity impacts by large scale developments such as mines, oil and gas facilities and wind farms.

Useful references and links mentioned during the workshop

Christopher Cvitanovic & Alistair J. Hobday 2018 Building optimism at the environmental science-policy-practice interface through the study of bright spots Nature Communications volume 9, https://www.nature.com/articles/s41467-018-05977-w

Owens S.E. 2012. Experts and the Environment - The UK Royal Commission on Environmental Pollution, 1970-2011. Journal of Environmental Law, doi:10.1093/jel/eqr031

Zerbini, Alexandre N., Adams, Grant, Best, John, Clapham, Phillip J., Jackson, Jennifer A. , Punt, Andre E. 2019. Assessing the recovery of an Antarctic predator from historical exploitation. Royal Society Open Science https://doi.org/10.1098/rsos.190368

Hope in the Dark by Rebecca Solnit: http://rebeccasolnit.net/book/hope-in-the-dark-untold-histories-wild-possibilities/

https://www.bas.ac.uk/project/science-policy-challenges-in-polar-conservation-and-management/

https://www.cambridgeconservation.org/

South Georgia MPA: https://www.bas.ac.uk/project/building-data-resources-for-managing-the-south-georgia-south-sandwich-islands-marine-protected-area/

https://conservationoptimism.org

https://www.gov.uk/government/collections/foresight-project

https://www.msc.org/home

www.changewildlifeconsumers.org

https://www.cambridgeconservation.org/event/earth-optimism-2020/

https://www.bas.ac.uk/wp-content/uploads/2018/01/BAS-CCI-Workshop-1-Report.pdf

https://www.bas.ac.uk/wp-content/uploads/2018/01/Plastics-in-the-Ocean-Final-Report_11-May-2018.pdf