

id	sessionno	docno	Day	Session Title	starttime	endtime	topic1	topic2	topic3	approved	firstname	lastname	email	title	abstract	topic1	topic2	topic3	question
408	S1	2	16	Climate, ocean acidification, and the changing oceans	0:00:00	0:40:57:0654	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Alan	Friedlander	alan.friedlander@hawaii.edu	Pristine Seas: what can we learn from the last wild places in the ocean?	Our understanding of what is natural in the marine environment is becoming increasingly compromised by the presence of locations that are not impacted by human activities. Large, remote locations with minimal human impacts are some of the last remaining places on earth where we can observe how marine ecosystems may have functioned in the distant past, before extensive human disturbance, while also allowing us to observe global changes and influences of local impacts such as fishing and pollution. Large protected areas (>1000 km2) have emerged as a key strategy to halt marine ecosystem declines and conserve some of the last relatively undisturbed marine areas on the globe. These large MPAs provide benefits that can be achieved by the local protection of areas (< 2 km2), such as the protection of large mobile predators like sharks and jacks that exert a strong top-down control on the entire ecosystem, resulting in increased ecosystem resilience. Surveys of remote tropical and temperate reefs in the Pacific and Indian oceans, across a wide biodiversity gradient, supports historical reports of high fish abundance and predator dominance that characterized many reefs before extensive fishing occurred. These areas therefore give us a window into the past as well as provide look alike prior to human extraction and provide baselines for conservation with clearly identified locations, while also helping to inform management decisions and an assessment of the effectiveness of large protected areas. Life history and highly migratory behavior make it difficult to determine population abundance. Sea turtle assessments now include a more integrated statistical approach, similar to commercial fisheries, where population parameters are linked through a series of functional relationships and compared to all of the available data using statistically probabilistic models. Yet as some sea turtle populations remain at critically low levels and financial resources for conservation continue to remain scarce, understanding what information is derived from additional data is becoming increasingly important. We develop an operating model where the sea turtle population dynamics are known, then use the following progressively complex models to examine how additional sources of data inform estimates of population abundance. Our models include: 1) a stage-based model with transition matrix fit to nest count and juvenile index surveys, 2) a stage-based model with additional adult mark-recapture and fisheries effort data, and 3) an age-structured model with additional length-based data for turtle by-catch. Our approach demonstrates how to implement progressively complex turtle population models, how different data inform our understanding of the true population abundance, and use as a critical	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	38. Ecosystems - How can key large-scale ecological processes be identified, protected, and restored?
632	S1	3	16	Climate, ocean acidification, and the changing oceans	0:00:00	0:632-404237	Advancing marine conservation through international agreements	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	Speed	Brandon	Chasco	brandon.chasco@bigmail.com	Sea turtle population assessment models: comparing model structure and the value of data for estimating abundance	Advancing marine conservation through international agreements	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	5. Fisheries - How can the impacts of bycatch from legal and illegal, unreported, and unregulated fisheries be reduced to a level that will allow for renewal of declining trends of affected species?	
1	S1	4	16	Climate, ocean acidification, and the changing oceans	0:00:00	0:1-482698	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Estuary restoration	Speed	Debbie	Chamberlain	d.chamberlain@unq.edu.au	Decision-making to facilitate habitat movements in coastal Australia	Introduction: The project focuses on the global & regional threats to coastal marine ecosystem services & function & species responses to the interaction of stressors under climate change. The alteration in structural connectivity among estuaries, estuarine wetlands & freshwater habitats will influence the ability of marine-estuarine species to access crucial juvenile habitats. Osmoregulatory and trophic shifts are important functions. Methods: We address the impact of ocean acidification and elevated temperature and the interaction of these parameters on fin fish species from tropical coastal Australia through laboratory experiments that examine otolith microchemistry. Field studies will be examined in Laines catfish, <i>Lutjanus argentimembris</i> , <i>Plectropomus leopardus</i> and <i>Epinephelus cooides</i> . Remote sensing of coastal environments is used to provide quantitative assessments of species and vegetation biomass dynamics and ecosystem functions to inform systematic conservation planning. Results: The investigation will be developed under a decision theory framework & encompasses mechanistic and climate impact modeling, habitat synthesis using spatial prioritization tools, the Marxan & Zonation suite. Discussion: Surface ocean acidification measurements of the open ocean and species' A_{T-4} responses differ to those in shallow coastal ecosystems and IMAA_{T-4} these ecosystems that have lacked consideration. This project contributes to filling this knowledge gap.	Climate, ocean acidification, and the changing oceans	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Estuary restoration	17. Climate change - How will global climate change and ocean acidification affect ocean productivity and ultimately, biodiversity?	
354	S1	5	16	Climate, ocean acidification, and the changing oceans	0:00:00	3:354-873694	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Marine renewable and non-renewable energy	Speed	Ayca	Elieman	aycaelieman@gmail.com	The effects of noise on distribution of cetaceans in the English Channel	Nose pollution from anthropogenic activities has become a serious concern for marine life, especially cetaceans, as they rely on sound as their principal sense. This impact can be short and long-term, both at individual and population levels. However, our knowledge on this issue is very limited due to restrictions caused by great spatial scales and natural variations in oceans. This study aims to investigate the relationship between the distribution of cetaceans and underwater noise. A total of 225 noise measurements and 207 cetacean sightings recorded between 1998 and 2006 in the English Channel were used. Data were sorted by three bodies: the ambient noise data by the UK Hydrographic Office and the sightings data by the Sea Watch Vessel Observation Database (SWOD). The noise dataset consists of recordings at 55, 105, 165, 315, 630 and 1150 Hz frequencies from sonobuoys. Investigation of these datasets was conducted through GIS data processing followed by statistical analysis including Pearson and Spearman correlation, and linear regression. Then data from all 8 years were analyzed, significant negative correlation was seen between the total number of individuals per grid cell and average noise of 55 Hz (PearsonA_{T-4}-R_{s} = -0.753, p=0) and 1150 Hz (PearsonA_{T-4}-R_{s} = -0.538, p=0.007), which may suggest that cetaceans are sensitive to these frequencies.	Climate, ocean acidification, and the changing oceans	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Marine renewable and non-renewable energy	34. Other anthropogenic threats - To what extent and in which ways does anthropogenic noise affect marine fauna, particularly species that depend heavily upon sound, and how do these impacts accrue	
232	S1	6	16	Climate, ocean acidification, and the changing oceans	0:00:00	0:232-567000	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Premachandra	Wattage	p.wattage@port.ac.uk	Socio-economic analysis of Eutrophication in coastal waters: A choice experiment study in Solent, UK	The impact of pollution from sewage treatment and agricultural run-off and associated impacts on coastal waters and important habitats were investigated in this study. Since there are several possible options for improving and preserving water quality, questions were asked from general public on their preference and perception on different options along their associated willingness to pay using Choice Experiment Method. The first two attributes looked at two of the main anthropogenic causes of eutrophication. The first was upgrade of sewage treatment works (UPSTW) and it concerned the effects that incorrect or insufficient sewage treatment might have on the water quality. The second attribute involved reducing nutrient inputs to rivers and estuaries discharging to the Solent water (REDAGNU), and it represents the number of farms which are compliant with the Solent nitrate vulnerable zones (SNVZ). The third and final attribute was the CCST. It investigated the respondents' A_{T-4}-WTP for the improving of water quality in the Solent from eutrophication. Results indicate that the general public of Solent were in favour of both UPSTW and REDAGNU. This research has implications for policy and management. Coral bleaching due to thermal stress significantly affects coral health, which can lead to death and thus have devastating consequences to coral reef ecosystems. Understanding the extent of future bleaching events is necessary for effective management. However, predictions of these impacts are complicated as species have varying tolerances to stressors. Bleaching, among other threats, can act as filters of community assembly through selection on species' A_{T-4}-R_{s} traits. Community impacts can therefore be estimated through the relationship between species' A_{T-4}-R_{s} traits and vulnerability to stressors. Colony shape is currently used to assess mass bleaching impacts, since species-level surveys are costly. Growth form is one of many coral traits with potential to explain vulnerability but quantitative justification of this or other species' A_{T-4}-R_{s} traits are lacking. In this study I utilized a global dataset of coral species' A_{T-4}-R_{s} traits to analyze the relationship between traits and vulnerability to mass bleaching events, in order to determine which traits have the most influence on bleaching susceptibility. Results indicate that a variety of traits including growth form can predict bleaching susceptibility with high confidence, partially justifying the use of coral colony shape in monitoring programs. Species' A_{T-4}-R_{s} traits are becoming readily available thus providing enormous potential to understand and predict the effects of future bleaching events.	Climate, ocean acidification, and the changing oceans	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	34. Other anthropogenic threats - To what extent and in which ways does anthropogenic noise affect marine fauna, particularly species that depend heavily upon sound, and how do these impacts accrue	
341	S1	7	16	Climate, ocean acidification, and the changing oceans	0:00:00	0:341-952098	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Toni	Mizenek	toni.mizenek@img.edu.au	Coral traits as predictors of bleaching vulnerability	Understanding the extent of future bleaching events is necessary for effective management. However, predictions of these impacts are complicated as species have varying tolerances to stressors. Bleaching, among other threats, can act as filters of community assembly through selection on species' A_{T-4}-R_{s} traits. Community impacts can therefore be estimated through the relationship between species' A_{T-4}-R_{s} traits and vulnerability to stressors. Colony shape is currently used to assess mass bleaching impacts, since species-level surveys are costly. Growth form is one of many coral traits with potential to explain vulnerability but quantitative justification of this or other species' A_{T-4}-R_{s} traits are lacking. In this study I utilized a global dataset of coral species' A_{T-4}-R_{s} traits to analyze the relationship between traits and vulnerability to mass bleaching events, in order to determine which traits have the most influence on bleaching susceptibility. Results indicate that a variety of traits including growth form can predict bleaching susceptibility with high confidence, partially justifying the use of coral colony shape in monitoring programs. Species' A_{T-4}-R_{s} traits are becoming readily available thus providing enormous potential to understand and predict the effects of future bleaching events.	Climate, ocean acidification, and the changing oceans	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	34. Other anthropogenic threats - To what extent and in which ways does anthropogenic noise affect marine fauna, particularly species that depend heavily upon sound, and how do these impacts accrue	
188	S1	8	16	Climate, ocean acidification, and the changing oceans	0:00:00	3:188-732001	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Brianne	Miller	bm@smrcanada.com	Modeling blue whale (Balaenoptera musculus) habitat abundance: conservation implications in the Gulf of St. Lawrence, Canada	The Gulf of St. Lawrence (GSL), Canada, is an important feeding and socializing ground for blue whales (<i>Balaenoptera musculus</i>). This endangered species is increasingly susceptible to anthropogenic impacts in this area due to coastal development, shipping traffic, and oil and gas exploration. Until now, the distribution and habitat use of blue whales in the GSL was relatively unknown, limiting the effectiveness of conservation initiatives. Nine years of non-systematic survey data were used to investigate blue whale distribution and relative abundance in relation to environmental variables including sea bed depth and slope, distance to shore, sea surface temperature (SST), distance to a thermal front, and chlorophyll- <i>a</i> concentration. The relative abundance of blue whales was modeled with generalized additive models and model selection was based on generalized cross-validation scores. Blue whales were strongly associated with bathymetric features, integrated chlorophyll- <i>a</i> SST, and proximity to thermal fronts, suggesting that they prefer features that not only drive biological activity, but also those that aggregate prey. The final model was used to identify areas of critical habitat for blue whales in the GSL, which provides valuable information for the development of a blue whale research to assess the conservation and management of the Canadian Species at Risk Act.	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Marine renewable and non-renewable energy		
356	S1	9	16	Climate, ocean acidification, and the changing oceans	0:00:00	0:356-517923	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other	Speed	Julia	Ekstrom	jekstrom@brdc.org	Identifying where humans are at risk of ocean acidification	Research to assess the relative contributions of different factors to the development of ocean acidification, but it has not determined which human communities are most at risk from the impacts of ocean acidification. Understanding how and where ocean acidification might affect economically and nutritionally important species and where these ecological changes could harm human communities is critical for developing site-specific plans to reduce the likely impacts of ocean acidification. A collaboration across multiple universities, government agencies, research institutes, NGOs, and consultants bridged natural and social sciences to begin to fill these gaps in understanding of the human dimensions related to ocean acidification. In this study we used a risk-based framework to identify a set of global and US-based hotspots of ocean acidification, identified by combining the global projections of ocean acidification, the presence of other factors contributing to ocean acidification (river water, eutrophic conditions, and upwelling), human dependency on organisms affected by ocean acidification and social capacity to deal with the loss of these organisms. Results reveal that areas of high socio-economic dependency on shellfish and coral clearly overlap with areas that are at highest risk of ocean acidification in general terms. This is one of the first studies to present a risk-based approach to identify hotspots of ocean acidification and assess the relative contributions of different factors to the development of ocean acidification. Anthropogenic and natural factors are driving rapid ecological transitions on coral reefs and the implications of these changes on the natural functioning and resilience of reefs receiving widespread attention. In contrast, our understanding of the implications for reefs as local points for carbonate production and accumulation remains more limited, despite the critical role in creating and maintaining reef habitats and complexity. ReefBudget is a relatively new census-based methodology which allows the assessment of carbonate budget status on coral reefs. Here we describe the results of methodology which were used to assess the many benefits of adopting this reef monitoring paradigm. Net rates of carbonate production ranged from +4.02 to -1.28 kg CaCO ₃ -m ⁻² -y ⁻¹ . Corals were the dominant carbonate producers and poroliths the dominant substrate eroders at all sites, but most carbonate framework production and erosion was driven by just a few key species. The ReefBudget methodology provides a forward looking indication of reef health trajectory and also a quantitative measure of habitat construction in terms of framework addition. Furthermore, it identifies key species contribution to the structural resilience of the reef and carbonate carbon processes. As such, it has	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other	38. Ecosystems - How can key large-scale ecological processes be identified, protected, and restored?
525	S1	10	16	Climate, ocean acidification, and the changing oceans	0:00:00	0:525-619897	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other	Speed	Gary	Murphy	gmr203@water.auk	Monitoring coral reefs, carbonate budgets and their applications to assessments of reef resilience	ReefBudget is a relatively new census-based methodology which allows the assessment of carbonate budget status on coral reefs. Here we describe the results of methodology which were used to assess the many benefits of adopting this reef monitoring paradigm. Net rates of carbonate production ranged from +4.02 to -1.28 kg CaCO ₃ -m ⁻² -y ⁻¹ . Corals were the dominant carbonate producers and poroliths the dominant substrate eroders at all sites, but most carbonate framework production and erosion was driven by just a few key species. The ReefBudget methodology provides a forward looking indication of reef health trajectory and also a quantitative measure of habitat construction in terms of framework addition. Furthermore, it identifies key species contribution to the structural resilience of the reef and carbonate carbon processes. As such, it has	Climate, ocean acidification, and the changing oceans	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other	38. Ecosystems - How can key large-scale ecological processes be identified, protected, and restored?

271	S1	11	16	Climate, ocean acidification, and the changing oceans	0.00/00	0.271-843200	Climate, ocean acidification, and the changing oceans	Other	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Speed	Nina	O'Hanlon	nina_number@bt.com	Using spatial variation to monitor coastal seabird populations	Coastal marine environments contain some of the most diverse and productive habitats, yet despite their importance, pressure on them has increased markedly over the last several decades. Seabirds, as apex predators, have the potential to be used as monitors on the state of coastal habitats. Currently, long-term datasets are used to identify changes in seabird populations. These datasets provide invaluable information on the temporal variation in seabird populations, however detecting even small significant changes in these populations can be extremely difficult. Instead we aim to investigate the effectiveness of alternative, easy to monitor traits to identify these changes. We are currently testing the effectiveness of alternative traits to identify these changes. Using historic seabird data, spatial variation was identified in three seabird species associated with coastal habitats nationally and within the study area of Northern Ireland and south-west Scotland; herring gull <i>Larus argentatus</i> , lesser black-backed gull <i>L. fuscus</i> and European shag <i>Phalacrocorax aristoteles</i> . Exploring this spatial variation, seabird traits which are thought to reflect changes in environmental conditions over short time periods are being investigated at colonies with contrasting historic population trends. Outcomes will be used to validate alternative traits to monitor seabird populations. The marine ecosystems of Galapagos harbour unique biological communities with a high incidence of endemic species. Currently, the presence and impact of non-native species in the marine environment are fortunately low, with current efforts being concentrated on establishing an early warning system and prevention. The Charles Darwin Research Station is working with the Ecuadorian National Parks Agency, Navy, Bioscience Agency and Environment Ministry to establish shipping protocols along with monitoring of entry ports. Some 500 tourist guides lead visitors including divers. Training programmes and identification guides have been produced for both government agencies and the tourist industry to look out for potential invasives such as the white coral <i>Caripia nesi</i> rapidly becoming established on mainland Ecuador. A key component of the current effort is ocean prediction and control. The tropical Pacific corridor connecting mainland Central and South America and between islands within the Galapagos archipelago. These are subjected to periodic El Niño/Aso events with dramatic impacts on coral, macro algae, etc. Such perturbations can trigger adjustments in subsided communities increasing likelihood of arrival and establishment of marine invasives. Climate change is likely to increase their severity and frequency	Climate, ocean acidification, and the changing oceans	Other	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	54. Policy - What are the best ways to estimate, evaluate, and manage cumulative impacts and multiple anthropogenic stressors in the marine environment?
158	S1	12	16	Climate, ocean acidification, and the changing oceans	0.00/00	0.158-795622	Climate, ocean acidification, and the changing oceans	Participation in marine conservation science (e.g. citizen and indigenous science)	Marine tourism	Speed	Ken	Collins	kjc@noc.soton.ac.uk	Galapagos marine invasive A&A identification and control	Galapagos marine invasive A&A identification and control	Climate, ocean acidification, and the changing oceans	Participation in marine conservation science (e.g. citizen and indigenous science)	Marine tourism	
316	S1	13	16	Climate, ocean acidification, and the changing oceans	0.00/00	0.316-374894	Advancing marine conservation through international agreements	Climate, ocean acidification, and the changing oceans	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Anra	Zvian	azvian@seavancy.org	Arctic conservation through international agreements	Climate change effects are particularly pronounced in the Arctic, because of its central role in regulating global climate, what happens in the Arctic has global ramifications. Combined with the multinational span of the pan-Arctic, international agreements will be key to advancing marine conservation, especially as sea ice retreats and shipping and industrial activities increase in this sensitive environment. The main international bodies addressing Arctic issues are the International Maritime Organization (IMO) and the Arctic Council. The IMO is working to address Arctic sea traffic and is expected to finalize a Polar Code by the end of 2014. The Council of Arctic nations and indigenous groups with NGO and state members, initially served mainly as a research body for Arctic issues but works increasingly on binding agreements. Arctic conservation requires an integrated pan-Arctic approach to management based on sophisticated geospatial data and a sound understanding of the ecosystem, including potential cumulative impacts, ideally leading to a pan-Arctic ocean use plan. This presentation will look at how international agreements will be crucial to advance Arctic marine conservation because of the diverse institutions that will need to be involved, the different jurisdictions, and the need for a common framework.	Advancing marine conservation through international agreements	Climate, ocean acidification, and the changing oceans	Participation in marine conservation science (e.g. citizen and indigenous science)	51. Policy - How can the effectiveness of A&A, and compliance with A&A, be improved? What are the most cost-effective ways to prevent illegal, unreported, and unregulated harvesting in marine ecosystems?
678	S1	14	16	Climate, ocean acidification, and the changing oceans	0.00/00	0.678-571238	Climate, ocean acidification, and the changing oceans	Other	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Speed	Iris	Monneveux	iris.monneveux@cavehill.lwr.edu	What can indicators tell us about the vulnerability of the fisheries	Vulnerability to climate change has become prominent over the past decade in policy and academic literature. Past approaches to understanding the vulnerability of fisheries sectors to climate change have indicated that Least Developed Countries (LDCs) are more vulnerable than Small Island Developing States (SIDS). However, these studies included only a limited number of indicators, and very few SIDS as they are often considered to be "climate-deficient". As a result they underestimated the vulnerability of the fisheries sector in SIDS which can have widespread consequences for SIDS in the global climate change debate. Guided by general vulnerability theory we developed a globally applicable national-level fisheries sector vulnerability framework that contains over 100 indicators spread across the components of exposure, sensitivity, adaptive capacity, comparing the outcome for LDCs, SIDS and other nations. While SIDS were rated least vulnerable in previous vulnerability assessments they are most vulnerable in our framework. This suggests that the choice of indicators is crucial, as different indicators lead to different conclusions. Our framework assesses the differences in what makes SIDS and LDCs vulnerable. These distinctions are crucial, as current and future adaptation within the different groups of countries require different approaches to reduce their vulnerability and enhance their ability to meet international commitments. The academic literature on fisheries sector resilience as a way of reducing illegal, unreported, or unpermitted (IUU) fish products from entering global markets. However, awareness by industry and the general public is lacking. To increase awareness, we have developed a global infographic titled "The Future of our Oceans: A&A - The Future of our Oceans: A&A" in partnership with the World Economic Forum Oceans Council. Through this graphic we address four key benefits of implementing a global system of seafood sustainability: (1) ensuring responsible fishing to markets, (2) helping the seafood industry meet its growing commitment to offer sustainable products, (3) creating a climate of fair competition by ending economic losses associated with illegal seafood entering the market, and (4) ensuring security of supply by preventing overfishing. By promoting these key features of traceability in an accessible way informed infographic, we intend to encourage a strong collaborative effort between academia, industry, and the general public to ensure a sustainable supply of seafood for years to come. "The future of our oceans: A&A" infographic can be viewed on http://www.weforum.org/resources/infographic	12. Climate change - What are the implications of climate change for small island nations, in terms of both sea level rise, and to their ability to meet international conservation commitments while maintaining local food			
324	S4	1	16	Communicating marine conservation (marine conservation awareness and outreach, social media)	0.00/00	0.324-205231	Communicating marine conservation (marine conservation awareness and outreach, social media)	Advancing marine conservation through international agreements	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Speed	Devon	O'Meara	dmeara@ucsd.edu	Infographic creating public and industry awareness of seafood traceability	"The future of our oceans: A&A" infographic creating public and industry awareness of seafood traceability	Communicating marine conservation (marine conservation awareness and outreach, social media)	Advancing marine conservation through international agreements	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	11. Fisheries - What is the most cost-effective way to prevent illegal, unreported, and unregulated harvesting in marine ecosystems?
227	S4	2	16	Communicating marine conservation (marine conservation awareness and outreach, social media)	0.00/00	S.227-289182	Communicating marine conservation (marine conservation awareness and outreach, social media)	Participation in marine conservation science (e.g. citizen and indigenous science)	Marine tourism	Speed	Richard	Rees	richard@madives.whalesharkresearch.org	The Big Fish Network: An Incentive Based Approach to Citizen Science in the Maldives	The Big Fish Network: An Incentive Based Approach to Citizen Science in the Maldives	Communicating marine conservation (marine conservation awareness and outreach, social media)	Participation in marine conservation science (e.g. citizen and indigenous science)	Marine tourism	70. Scientific enterprises - How can scientific and management cultures be changed to promote open sharing of data in formats that are accessible (and standardized)?
468	S4	3	16	Communicating marine conservation (marine conservation awareness and outreach, social media)	0.00/00	0.468-976428	Advancing marine conservation through international agreements	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Speed	Roberto	Crosi	crosti.roberto@mnambiente.it	A transborder marine litter research programme undertaken in two regions between Italy and France in the Pelagos Sanctuary	The increasing awareness of the harm on the marine environment of marine A&A "A&A" litter and the consequent legislative measures (i.e. Waste and Marine strategy EU directive, Barcelona Convention Action Plan) which are undergoing to respond to the problem need an efficient and effective indicator which can assess the composition and trend of abundance of litter in the sea in order to evaluate, particularly in the short time, the success of the litter reducing measures. In 2013 started a project that systematically monitors presence of floating litter (larger than 25 cm and using JRC categories) along two transborder transects between France and Italy using ferries as platforms of observation. Winter finding along the Tuscan archipelago-North Corsica transect were compared with summer results along the same route and with winter findings in the Bonifacio Strait Region transect. Results obtain from a total of 24 replicates runs and 3,000 km travelled, showed that litter density in winter and summer is different (P<0.01 from 1.06 to 2.2 obj/km ²) as is the relative abundance of artificial polymer between the two regions (P<0.05 from 80 to 93%). No difference was found among the frequency distribution of A&A "A&A" materials. Overall the research programme showed that the monitoring protocol allowed, to record, cost effectively, for an indicator of marine litter abundance in the area of interest. The project was funded by the European Union and the Italian Government. The project was funded by the European Union and the Italian Government.	Advancing marine conservation through international agreements	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	
68	S4	5	16	Communicating marine conservation (marine conservation awareness and outreach, social media)	0.00/00	0.68-775108	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Speed	Diana	Pietri	diapn@bu.edu	The human dimensions of marine conservation collaborations	The human dimensions of marine conservation collaborations. The Southern Cross Coastal Resource Management Council (SCCRMC) and the Danajon Double Barrier Reef Management Council (DBRMC) conducted key informant interviews with 35 participants in both collaborations, and social network analysis with active members of the SCCRMC. I found that participants have learned new management approaches from their counterparts from other communities. However, both collaborations have experienced challenges, such as obtaining support and sustaining member commitment. Additionally, participants communicate primarily with those from their own communities, which limits the collaborations' ability to expose members to new ideas and information. My results highlight the importance of considering cross-community relationships in marine conservation collaborations. The Southern Cross Coastal Resource Management Council (SCCRMC) and the Danajon Double Barrier Reef Management Council (DBRMC) conducted key informant interviews with 35 participants in both collaborations, and social network analysis with active members of the SCCRMC. I found that participants have learned new management approaches from their counterparts from other communities. However, both collaborations have experienced challenges, such as obtaining support and sustaining member commitment. Additionally, participants communicate primarily with those from their own communities, which limits the collaborations' ability to expose members to new ideas and information. My results highlight the importance of considering cross-community relationships in marine conservation collaborations.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	61. Policy - What scale-specific governance models have supported the achievement of marine conservation goals?
446	S4	6	16	Communicating marine conservation (marine conservation awareness and outreach, social media)	0.00/00	0.446-965929	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Marine tourism	Communicating marine conservation (marine conservation awareness and outreach, social media)	Speed	RAVI	PANDIT	ravikd@gmail.com	Poachers and Olive Ridley Conservation - An Effective Planning	Uttara Karnataka District in Karnataka (India) is on the western coast of India and is having the coast length of 140 km. Sea Turtles especially Olive Ridley turtles visit the coast for nesting. Unlike in the eastern coast, no artificial is seen in western coast of India and only sporadic nesting is seen. The data collected from CGA (NGO) and IFO has shown the nesting density of 0.032 nest/ha (sq). Hence, protection of nests is an adventurous job for the conservationists. It was not possible to conserve the Sea Turtles independently and hence, effective conservation procedure was required to be evolved. A&A "A&A" is a non-invasive and effective technique used in conservation of sea turtles. Poachers of nests were identified in the area. Series of meetings of poachers and local community, micro level workshops were conducted. Trainings were given to handle the nests and hatchlings. Now they are the informants and root level workers in Turtle Conservation activities in Southern Uttara Karnataka District of Karnataka, State (India). This can be replicated in other parts	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Marine tourism	Communicating marine conservation (marine conservation awareness and outreach, social media)	

97	S4	7	16	0.00/00	S.97-612793	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Climate, ocean acidification, and the changing oceans	Speed	Rob	Maïr	nob@ccanviver.org	American sustainable fisheries for all 232 commercially valuable fish stocks	Today only 26 of the 232 commercially valuable fish stocks in the U.S. are overfished. Since 2000 thirty-four fish stocks have gone from overfished to sustainably fished. This is significant because overfishing is a very old problem. In 1197 Henry St. Clair and Kenneth Most caught cod of what would become known as a Massachusetts shore. The complex challenge is made more so by Fishery Councils moving away from resource sustainability and ecosystem-based management of fish. How are they able to succeed when ocean ecosystems are disassembling due to warming waters, changing currents and increasing acidity? The biggest challenge may be political, best may be communicating marine conservation and engaging a savvy citizenry to act for responsible stewardship of fish and fishing.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Climate, ocean acidification, and the changing oceans	4. Fisheries - To what degree must the foraging needs of top predators and other animal species be considered in our exploitation of fish stocks to ensure healthy ecosystems?
219	S4	8	16	0.00/00	O.219-626382	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Other	Speed	Vanessa	Trijouet	vanessa.trijouet@traf.ac.uk	Estimate grey seal consumption in West of Scotland with limited observed data	Seals are well-known predators of fish around the UK. Previous studies have shown that fish stocks have decreased in the last fifty years, while the grey seal population (<i>Halichoerus grypus</i>) has increased. These observations are responsible for debates between conservationists and fishermen about the role seals would have played in the decrease of fish stocks. Currently opinions are still divided, and further studies need to be done to measure the impact of seals on fisheries and propose future fishery management. Currently, grey seal diet has been estimated following two years of data collection (1985 and 2002). It is then difficult to obtain reasonable estimates of seal consumption for a given number of seals and a given fish abundance. Bayesian Statistics has been used to estimate grey seal consumption and its associated uncertainty from 1985 to 2012 on cod, haddock and whiting, the three main demersal fish species in West of Scotland.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Other	4. Fisheries - To what degree must the foraging needs of top predators and other animal species be considered in our exploitation of fish stocks to ensure healthy ecosystems?
195	S4	9	16	0.00/00	O.195-673291	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Speed	Alison	Green	agreeen@trc.org	Movement patterns of tropical marine fishes and implications for conservation and management	The results obtained fit reasonably well the observed data. The seal outputs for whiting differ substantially depending on the assumption taken as regards to the variability in seal catchability. However, it seems difficult to decide whether the outputs are reliable or denote an inconsistency in the survey's "3, 4, 5" data. Except for cod, the model provides a very low value of vulnerability to seal predation compared to the general and fishery management. For these tools to protect biodiversity and enhance populations of fisheries species, they must be able to sustain local species within their boundaries. Thus the size of spatial management tools must be informed by movement patterns of species for which protection is required. Our review of movement patterns of 34 families (12 species) of coral reef and coastal pelagic fishes demonstrates that movement patterns (home ranges, ontogenetic shifts and spawning migrations) vary among and within species, and are influenced by a range of factors (size, sex, behaviour, density, habitat characteristics, season, tide and time of day). Some species move <0.1-0.3 km (e.g. damselfishes and surgeonfishes), <0.3-3 km (e.g. most parrotfishes and surgeonfishes) or 3-10 km (e.g. large parrotfishes and wrasses), while others move 10s-100s (e.g. some groupers and jacks) or 1000s of kms (e.g. some sharks and tuna). Synthesizing this information in different formats for a range of audiences (scientists, field practitioners, senior government officials and communities) allows us to provide species specific advice to a range of stakeholders to maximize benefits for conservation and fisheries management. This information is now being used to design, monitor and adaptively manage marine reserves.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	41. Ecosystems - Given the variation in characteristics of individual species, how can conservation strategies be implemented to maintain connectivity across taxa, habitats, and scales to ensure resilient marine ecosystems?
31	S4	10	16	0.00/00	S.31-560551	Participation in marine conservation science (e.g. citizen and indigenous science)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Erin	Spencer	etspencer@gmail.com	Community Based Management of Invasive Lionfish in the Florida Keys	Originally from the coral reefs, lionfish appeared off the coast of South Florida in the mid-1980s and have since been recognized as one of the top threats to marine conservation in the world. In the summer of 2013, I received a National Geographic Young Explorers Grant to study local responses to invasive lionfish. I spent one month intensive divers, snorkels, and boat research, and interviewed local residents and government officials who perceived the lionfish problem, as well as learn the methods they employed (if any) to help mitigate the impacts of the fish. I discovered that a new but thriving culture has emerged surrounding lionfish hunting and organizations. Actions include organized lionfish derbies, marketing lionfish in local restaurants, and individual removal with pole spears. Although the lionfish invasion is still a very serious problem, local efforts are making a difference. The response of locals in the Keys is an exciting example of the effectiveness of community-based marine reserves management with the power of social media and nature in inspiring local action.	Participation in marine conservation science (e.g. citizen and indigenous science)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	48. Marine citizenship - What are the best methods and tools available to engage citizens in marine conservation?
476	S4	11	16	0.00/00	O.476-562018	Participation in marine conservation science (e.g. citizen and indigenous science)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Marine tourism	Speed	Monica	Prevati	mp.revati@gmail.it	Back to nature, and for a good cause. The Reef Check Italia experience with diving volunteers	Understanding a human's connection with nature is as well as an environmental literacy that used to be part of our shared cultural heritage. This is often regarded as a root cause of the economic and social disparities at the global level. Sustainable development can only be achieved when no discontinuity occurs between humans and the environment they ultimately depend upon. Reconnecting people with nature is essential to raise awareness on environmental issues by making them personal, and no longer distant or other from self. SCUBA diving allows people to physically immerse in nature, offering precious opportunities to feel, experience and appreciate the richness of the underwater world. Engaging divers in participatory science can maximize these opportunities. Reef Check Italia online relies on hundreds of volunteers, divers gathering distribution and abundance of 43 marine species easily recognizable, across the Mediterranean Sea. They produce baseline information on species distribution and abundance over regional spatial scales, tracking changes that can be used both as early-warning signals and long-time monitoring. Traditional academic-based approach can't do the same, given logistic, economic and practical constraints. The collaboration between scientists and divers is a key to success in marine conservation.	Participation in marine conservation science (e.g. citizen and indigenous science)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Marine tourism	48. Marine citizenship - What are the best methods and tools available to engage citizens in marine conservation?
399	S4	12	16	0.00/00	O.399-439209	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Advancing marine conservation through international agreements	Speed	T. E. Angita	Quinos	tquinos@ucsc.edu	What is more important for seagrass conservation? Measuring environmental & ecological parameters in seagrass beds with different forms of protection	Integrating terrestrial with marine protection can improve coastal conservation efficiency. We examine the relative impacts of marine and terrestrial protection on seagrass health and suggest management options for tropical seagrass conservation. On three islands in the Philippines, one with Terrestrial and Marine Protection, and one with No Protection, we measured environmental and seagrass health parameters during the rainy season. The No Protection site had the most sediment collected, lower visibility, a greater proportion of fine sediments and lower proportion of coarse sediments. The No Protection site had the lowest seagrass species richness, seagrass percent cover, shoot density, length, and epiphytes dry weight. Percent cover and seagrass density contributed to site differences for the ecological data, while grams of sediment collected, proportion of fine sand, silt, and very coarse sand contributed to site differences in the environmental data. Vector overlays on the MDS plots show that Halodule wrightii percent cover, proportion of silt, fine sand, and very fine sand, and grams of sediment collected characterized separation between sites. There were no differences in the environmental and ecological parameters between the Terrestrial Protected only and Terrestrial and Marine Protected sites. These data suggest that terrestrial protection is more important than marine protection for tropical seagrass health.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Advancing marine conservation through international agreements	43. Other anthropogenic threats - What effects do urbanization and changing patterns of land use have on coastal, estuarine, and marine biodiversity, and how can policy and practice be integrated to ensure that these effects are avoided?
697	S4	13	16	0:00/00	S.697-695487	Communicating marine conservation (marine conservation awareness and outreach, social media)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Lina	Mwana Nordlund	linanordlund@gmail.com	The intertidal zone in the Western Indian Ocean - Ocean - undervalued, undermanaged and with poor or no monitoring?	The intertidal zone constitutes the coastal environment where land and sea meet, i.e. the area between extreme high water springs and extreme low water springs. Today land and sea are often separated and managed and conserved as different components and the ocean area in between is often ignored by the different management authorities. Yet this area is not only ecologically diverse harboring some of the richest habitats in tropical coastlines, it provides a wide range of ecosystem services that are increasingly more vulnerable to human pressure. There is a clear lack of scientific publications dealing with this zone in the Western Indian Ocean (WIO), even though it is often mentioned in the grey literature which makes it difficult to develop science-based management interventions. This expert opinion study examined the current status of the intertidal zone in the WIO and ranked and discussed future management approaches. Information was gathered from scientists, practitioners and managers active in the WIO region through an interview form and a workshop during the 7th WIOCMSA symposium. The experts stated that the productive intertidal environment is highly valuable but with several anthropogenic pressures, including pollution, overexploitation, and climate change. The experts ranked important management approaches that could be developed. The experts considered the WIO intertidal zone as generally undervalued, undermanaged and with poor or no monitoring.	Communicating marine conservation (marine conservation awareness and outreach, social media)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	43. Other anthropogenic threats - What effects do urbanization and changing patterns of land use have on coastal, estuarine, and marine biodiversity, and how can policy and practice be integrated to ensure that these effects are avoided?
703	S4	14	16	0.00/00	O.703-466961	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Advancing marine conservation through international agreements	Speed	Jan-Willem	van Bochove	jan-willem.vanbochove@unep-wcmc.org	The Importance of Mangroves to People - A Call to Action	Anthropogenic pressures, including pollution, overexploitation, and climate change, are putting biodiversity help to deliver important goods and services that play a critical role in supporting human well-being. For example, over 100 million people live within 10km of large mangrove forests, benefiting from a variety of goods and services. ; ; ; in spite of their importance to people, mangroves are consistently undervalued and do not figure adequately in decision making about coastal development. They continue to be lost at a rate that is 3-5 times greater than global deforestation rates. The consequences of further mangrove degradation will be particularly severe for the well-being of coastal communities in developing countries, especially where people rely heavily on mangrove goods and services for their daily subsistence and livelihoods. Mangroves need to be understood for the valuable socio-economic and ecological resource they are, and conserved and managed sustainably. ; ; ; This talk provides findings from a 2014 UNEP 'call to action' to policy makers on the importance of mangroves. It will present the latest global statistics on mangrove change, protection and regional values, and highlight management and policy options to i) coordinate global action on mangroves; ii) stimulate mangrove conservation through financial mechanisms and	Communicating marine conservation (marine conservation awareness and outreach, social media)	Advancing marine conservation through international agreements	Advancing marine conservation through international agreements	43. Other anthropogenic threats - What effects do urbanization and changing patterns of land use have on coastal, estuarine, and marine biodiversity, and how can policy and practice be integrated to ensure that these effects are avoided?

681	S2	1	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	0.681-892353	Oral	UK marine conservation initiatives	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	Keith Hiscock	khis@nba.ac.uk	Britain's first marine nature reserve: why has it succeeded and why has it failed?	Britain's first marine nature reserve was Britain's first voluntary (in 1972) and first statutory (in 1986) marine reserve. It hosted the first no-take zone established for biodiversity conservation (in 2003) and was the first Marine Conservation Zone (in 2013). It has a wide range of habitats and an associated rich biota with many nationally rare or scarce species in an attractive landscape around its 15km of coastline. Many of the features present over 40 years ago persist and the no-take zone has led to a great increase in the abundance and size of lobsters. There has been no change in species richness or general character of seabed biota in the no-take zone and some of the attached seabed life has seen a significant decline since the mid-1980s. Such declines within MPAs are not unusual and most often seem to occur because of eutrophication and perhaps the arrival of non-native invasive species. This presentation investigates what has happened at Lundy in the context of experience worldwide and summarizes what MPAs can and cannot do for the conservation of biodiversity. It reviews how the knowledge that we have in conservation science can be better used to advise site managers about what really matters in maintaining sites and how to separate natural from unnatural events. It	53. Policy - How can effective policy-making and evaluation of marine systems be proactively advanced in light of recognized shifting of historical baselines?			
486	S2	2	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	0.486-206981	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	jameal samhour	jameal.samhour@nba.gov	Paving the way for ecosystem recovery: trade-offs between fisheries and other marine ecosystem services	A major challenge for 21st century marine conservation lies in delineating how changes in individual management actions, or combinations of different management actions, shape trade-offs between components of social-ecological systems. In Haida Gwaii (B.C., Canada), Pacific herring occupy a central position in the marine food web, marine economy, and Haida culture. In the 1990s, the Haida Gwaii herring stock declined to the extent that all commercial fisheries for it were closed. Today, the subject of whether, when, and how to re-open fisheries that target the roe of herring is highly controversial, especially given that the predators of herring (especially marine mammals) are more abundant now than anytime in the last century. In this study, we explored two questions: (1) Might fisheries compete with marine mammals for herring as a prey resource? (2) Are there management strategies that can provide an allocation of herring to both fisheries and to marine mammals, while sustaining the herring stock for the long-term? Our approach accounts for the dynamic interaction between recovery of marine mammals and harvest of herring in Haida Gwaii, leading to insights about the utility of historical harvest limits and the potential effect of future harvest regulations on profits to stakeholders.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Participation in marine conservation science (e.g. citizen and indigenous science)	48. Ecosystems - How can tipping points for marine ecosystems and/or individual species be identified, what are the consequences of reaching or passing these thresholds, and can these be avoided?
119	S2	3	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	0.119-519658	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Advancing marine conservation through international agreements	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Speed	Monica Arancibia-Colgan	aranc001@cougars.csu.edu	DataMARES: Streamlining communication and collaboration in marine science	The need for developing a comprehensive platform allowing scientists to communicate with stakeholders and decision-makers is great in marine conservation. As decision-makers deliberate policy in the coming years, an extensive resource that provides access to the latest scientific data is essential. Considering rapidly variable influences (e.g. climate change, ocean acidification, and sea level rise), marine scientists require a tool to yield an up-to-date response. In the age of globalisation and big data, DataMARES seeks to provide a structured platform to streamline communication. The effective use of technology for interdisciplinary collaboration is essential to the capabilities of technology innovation. DataMARES is a free, open-access, interactive platform that promotes accessibility to robust scientific data by stakeholders, decision-makers, scientists and the public. Through the collaborative effort of more than ten research institutions DataMARES has already integrated and visualised about 20 years of underwater monitoring data and fishery data. The addition of data, participants and interdisciplinary efforts through DataMARES will only further opportunities in conservation. DataMARES is the foundation that will allow open, consistent, robust, and secure integration and	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Advancing marine conservation through international agreements	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	70. Scientific enterprise - How can scientific and management cultures be changed to promote open sharing of data in formats that are accessible (and standardised)?
159	S2	4	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	0.159-812729	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Advancing marine conservation through international agreements	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Speed	Crow White	crow131@calpoly.edu	Close the high seas to fishing?	Over 42% of the ocean and one large high seas commons (58% of ocean) with essentially open access. Many high-valued fish species such as tuna, billfish, and shark migrate around these large oceanic regions, which as a consequence of competition (ECSAs) and a global race-to-fish on the high seas, have been over-exploited and now return far less than their economic potential. We address this global challenge by analyzing with a spatial bioeconomic model the effects of completely closing the high seas to fishing. This policy both increases cooperation among countries in the exploitation of migratory stocks and provides a refuge sufficiently large to recover and maintain these stocks at levels close to those that would maximize fisheries returns. We find that completely closing the high seas to fishing would simultaneously give rise to large gains in fisheries profit (>100%), fisheries yields (>30%), and fish stock conservation (>150%). We also find that changing EEZ size may benefit some fisheries; nonetheless, a complete closure of the high seas still returns larger fishery and conservation benefits than any other policy.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Advancing marine conservation through international agreements	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	52. Policy - What are the unique challenges of high seas management and what are the best methods for ensuring effective and credible high seas governance and conservation?
503	S2	5	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	0.503-133968	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Climate, ocean acidification, and the changing oceans	Other	Speed	Robert Rockwood	rockwood@ucsd.edu	Patterns of anthropogenic threats to seabirds in the North Pacific	Given that many species of seabird spend a majority of their time at-sea, the threats they encounter there are likely to have significant importance for survival, health and breeding success. At the same time, at-sea anthropogenic threats are not well known. When they are studied, these threats are often considered in isolation, though additional synergistic effects are undoubtedly important. To assess the distribution and patterns of at-sea anthropogenic threats specific to seabirds, we created a spatially explicit map for the North Pacific. The map includes relative levels for 10 threat categories, with data spanning the Pacific from the equator to 66°N latitude. These threats include three categories related to fisheries: bycatch, trophic disturbance through biomass removal, and direct competition; five categories of pollution: organic chemicals, inorganic chemicals, large oil spills, maritime transport pollution, and marine debris; and two climate change categories: sea surface temperature anomaly, and wind pattern change. We analyze the map to reveal the areas of highest and lowest threat, as well as regions of highest and lowest number of threats. In addition, we assess threat by Exclusive Economic Zones (EEZs) of nations and compare these across nations and discuss these in relation to the regions of priority countries for seabirds. Threats in the North Pacific place some	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Climate, ocean acidification, and the changing oceans	Other	62. Policy - How can the trade of marine species be better regulated, managed, and monitored?
427	S2	6	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	5.427-513266	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Other	Speed	Licia Calabrese	alicescience@rics.ac	Foraging habitat selection and diving depth of Wedge-tailed and Tropical Shearwaters as tool for marine conservation in the western Indian ocean	Seabird movements during foraging trips and their preference for particular areas and depths have recently been the focus of many studies aimed at gaining a better understanding of the ecological requirements of several species. A better knowledge of these requirements is particularly needed in areas where fish exploitation and climate change can play an important role in population and ecosystem health. GPS devices were used on the Wedge-tailed Shearwater and archived tags on both Wedge-tailed and Tropical Shearwaters breeding on Arde Island, Seychelles. The GPS devices allowed the identification of main foraging areas used during early chick-rearing and to assess area-specific foraging habitat selection. One main foraging area (1,313 km ²) was located approximately 100 km east of the colony just outside the granitic bank. The area is characterized by upwelling and higher values of primary production compared to surrounding areas. The archival tags gave additional information on the foraging ecology of the species, in particular on diving depth and feeding frequency. The identification of key marine conservation areas, like those identified in this study, is a priority for designating marine Important Bird Areas and identifying habitat management measures. The results of this study can assist in the development of conservation plans for Wedge-tailed and Tropical Shearwaters and other seabird species in the Western Indian Ocean.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Other	
619	S2	7	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	0.619-571786	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Niall McLoughlin	niall.mcloughlin@alumui.ac.uk	Perceptions of reef health and support for coral reef management in three Caribbean UK Overseas Territories (UKOTs)	Millions of people in the Caribbean rely on ecosystem services provided by coral reefs. Coral reefs face multiple stresses including climate change, unsustainable fishing practices, nutrient and ocean acidification. Good management takes into account the perceptions of people who use reefs, however, large scale social studies of marine perceptions are uncommon. This study seeks to understand how perceptions of reef health influence support for management measures and how this varies between groups that use reefs to differing degrees. Survey data (N = c.600) were gathered from 3 communities in 3 Caribbean UKOTs (Anguilla, British Virgin Islands and Turks and Caicos). Selected areas had economies dependent on tourism, fishing or a mix of both. Respondents were asked to agree or disagree with a series of 10 statements about management, which was used to calculate a Reef-Ecosystem Support for management score (AES-ESM). Respondents were also asked to rate the health of coral reefs and number of fish on the reefs which was combined into a Reef-Ecosystem Health score (AEH-EH). Initial findings suggest that support for management varies with perception of reef health which also differs between user groups. These findings are offered to help managers in the UKOTs understand attitudes towards management.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Participation in marine conservation science (e.g. citizen and indigenous science)	50. Marine citizenship - What are the best ways to frame marine conservation messages in light of different values and perceptions of the marine environment held by different audiences?
599	S2	8	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/0.00	5.599-938954	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Giorgio Bozzini	giorgio.bozzini@gep.it	ARION: a PAM system for real time bottlenose dolphin monitoring in the Portofino MPA	The main objective of the LIFE + project named ARION is the implementation of a real time PAM system for the conservation of bottlenose dolphins (Turpis truncatus) in the Portofino MPA (Italy). ARION gets this aim by the real time tracking of dolphins and boats and by the diffusion of warning messages to all categories involved in order to prevent possible collisions. Two detection units are placed on the coast of Portofino headland. Each unit is a particular type of marine buoy equipped with four hydrophones and an acquisition system which can record the typical AeA -A social communication whistle-AeA -Au emitted by the dolphins and the sounds emitted by boat engines. Signals are elaborated to get the real time position of dolphins and boats. Upon reception of the warnings the boats present in the area will be invited to follow a protocol of conduct supervised by the Coast Guard. This approach will improve the species protection, the sustainable coexistence of dolphins and anthropic activities and will promote responsible activities in the sea, especially in one of the most touristic Marine Protected Areas of the Mediterranean Sea. We illustrate the technical details of the information system for bottlenose dolphin conservation and the results	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Communicating marine conservation (marine conservation awareness and outreach, social media)	Participation in marine conservation science (e.g. citizen and indigenous science)	34. OERs - anthropogenic threats - To what extent and in which ways does anthropogenic noise affect marine fauna, particularly species that depend heavily upon sound, and how do these impacts accrue over time and space?

238	S2	9	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	0.238-516242	Estuary restoration	Other	Speed	Minsoo	Kim	knpsia@knps.or.kr	Long-term Monitoring on Ecological Impact in Marine Environment	In 2011, a Hong Kong-based tanker Hebei Spirit collided with a crane barge belonging to Samsung Heavy Industry off the coast of Taean Peninsula, Korea, spilling 12,547,524 L of crude oil. As most of the affected areas were National Park that was known for its excellent marine ecosystem, immediate response measures and the restoration of the ecosystem were required. Accordingly, a joint research team was organized by the initiative of Korea National Park Service (KNPS). KNPS has implemented long-term monitoring of oil spill in an effort to estimate and monitor changes in ecosystem and the degree of recovery from the very inception of the oil spill incident. Due to characteristics of the marine environment near Taeanhwan National Park such as high tidal range, fast current speed, and high level of turbidity, the 'serious level of oil residue' declined rapidly during 2008 and 2012 as indicated by the following. 60% of the 'serious level of oil residue' declined rapidly during 2008 and 2012 in all field of marine organisms and marine organisms, a stable level is being maintained, but it is not certain whether the condition of marine ecosystem returned to the previous state that was held before the oil spill incident. The Oil Pollution Research Center will obtain data on overall marine environment that is not necessarily related to the oil spill. The information will be utilized as basic data for conservation of natural resources in Taeanhwan National Park from potential risk factors that could arise in the future from other Marine Conservation Science is, by definition, a multidisciplinary discipline. It goes beyond conservation biology, including many other fields. In this interdisciplinary framework, the importance of behavioural ecology and animal behaviour has been widely accepted and the term 'Animal Conservation Behaviour (ACB)' has been introduced to legitimate this new field. Yet, some researchers still debates on the actual contribution of behavioural studies to the conservation of biodiversity. Moreover, the role of these studies is not often explicitly recognized or employed in practical conservation actions. I strongly believe that a better understanding of animal behaviours and mating strategies is fundamental in any program of conservation and management of biodiversity. Reproductive strategies in particular affect abundance of populations and stocks and should be included in fisheries management and conservation efforts. Here a few case studies are presented to show the influential implications of mating systems and strategies in marine populations of fish and crustaceans (with a focus on sequential hermaphrodites, i.e., sex changing species) in the face of over-exploitation and climate change. Effects on effective population size, gene flow and genetic diversity are discussed. This study represents one of the first attempts to assess vertical and horizontal genetic connectivity in a reef fish found on shallow and mesophotic reefs. We utilized mitochondrial and nuclear markers to investigate genetic connectivity in Chromis variegata, a damselfish endemic to the Hawaiian Archipelago and Johnston Atoll. Our results indicate that C. variegata exhibits a dichotomy of high levels of vertical genetic connectivity with more limited horizontal connectivity across its range. The patterns of horizontal connectivity can inform management of marine protected areas in the archipelago. The degree of genetic differentiation between shallow and mesophotic populations illustrates the link between MCEs and shallow reefs, with MCEs possibly serving as sources to shallow populations. This finding lends support to the argument for integrated Ecosystem Assessments (IEAs) offer a framework for science-driven ecosystem based management (EBM) in marine ecosystems. A critical step in the implementation of an IEA is the selection of ecosystem indicators, and evaluating the risk posed to those indicators by various threats to the ecosystem. Pacific herring has been selected as an ecosystem indicator in the Puget Sound, USA ecosystem by the regional management agency, but there is little agreement on the leading threats to herring and, therefore, on strategies for recovery. Here we will discuss the efforts being conducted by a team of collaborators in academia, federal and state agencies, and NGOs to identify the leading threats to the recovery of Puget Sound herring. These studies include analysis of historical data, field studies and qualitative modeling. We are assessing the potential influence of changes in peak spawning timing, predation, loss of habitat, land use, and contaminants on critical life stages of Pacific herring. Resilient investigations will be incorporated into a population model for herring, and inform larger modeling efforts to link Pacific herring to ecosystem services and indicators of human wellbeing. Together, this suite of activities will inform next steps for making progress towards the recovery target regarding the Puget Sound herring. Ecosystem based management (EBM) is a systems approach to conservation concept can be a potent tool on the road to conservation success. For the oceans, our understanding of these anthropogenic benefits is particularly limited and assessment of marine ES is often reduced to relatively easy to assess provisioning (e.g. fish) and regulating services (e.g. carbon storage). How underlying ecosystem processes impact on these ES is not well understood, which might undermine the efficacy of conservation management advice based on ES assessments. This paper presents a case study that elicited ES dependencies from a panel of deep-sea scientists using a Delphi approach (a structured expert consultation method). Ecosystem processes within a submarine canyon environment as well as their temporal and spatial dependencies in respect to ES supply were highlighted. The processes highlighted where consensus among scientists exists and where uncertainties and evidence gaps remain. This paper makes a call for structured expert consultations to inform marine conservation management on where, when and why ecosystem services are supplied. It also shows how this approach can inform future marine conservation scenarios and marine spatial planning. Presenting holistic information on ES is particularly imperative when the supply of ES and the benefits derived from them are uncertain and evidence gaps remain.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Estuary restoration	Other	40. Ecosystems - What restoration methods (e.g., in situ habitat restoration, translocation, etc.) are most likely to enhance natural marine ecosystem function, and services?										
471	S2	10	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	0.471-566913	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Climate, ocean acidification, and the changing oceans	Speed	Chiara	Bevenuto	c.benvenuto@bafford.ac.uk	What has behavioural ecology to do with marine conservation?	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Climate, ocean acidification, and the changing oceans												
118	S2	11	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	0.118-501467	Other	Other	Speed	Kimberly	Tenggardija	tenggard@biology.ucc.edu	Why should mesophotic reefs (30-150 m) be protected? Genetic connectivity insight into a Hawaiian damselfish found on shallow and mesophotic reefs	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	41. Ecosystems - Given the variation in characteristics of individual species, how can conservation strategies be implemented to maintain connectivity across taxa, habitats, and scales to ensure resilient marine communities?												
483	S2	12	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	0.483-999037	Other	Other	Speed	Tessa	Francis	tessa@uw.edu	After the indicator is chosen. Progress towards recovery target for Pacific herring (Clupea pallasii) in Puget Sound, USA	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	54. Policy - What are the best ways to estimate, evaluate, and manage cumulative impacts and multiple anthropogenic stressors in the marine environment?												
606	S2	13	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	5.606-616489	Other	Other	Speed	Niels	Jobstovgt	niels.jobstovgt@ab.dn.ac.uk	Elicitation of expert knowledge to inform marine conservation planning	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	59. Policy - How should evidence from multiple disciplines be used most effectively to underpin marine conservation policy making, and how should contradictions within the evidence base be resolved?												
440	S2	14	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	5.440-198599	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Climate, ocean acidification, and the changing oceans	Speed	Ignasi	Montero-Serna	monteroser@gm.ail.com	Fishing effects, recovery patterns and management strategies for long-lived and structural precious corals	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Climate, ocean acidification, and the changing oceans												
590	S2	15	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	5.590-949855	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other	Speed	Manuel	Muntoni	m.muntoni@homa.ilit	Describing regional fish connectivity patterns: Integration of post-larval otolith microchemistry information in larval dispersal models	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other												
714	S2	16	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	5.714-232595	Climate, ocean acidification, and the changing oceans	Other	Speed	Sharifah Ruqaiyah	Syed Mustafa	ruqaiyah@wfwf.org.my	A flicker of hope: Inter-nesting of green turtles near oil and gas refineries in Terengganu	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Climate, ocean acidification, and the changing oceans	58. Policy - How can marine spatial planning best support marine conservation goals?												
													Precious corals are long-lived structural invertebrates that have been historically overfished and their conservation is currently a worldwide concern. However, the biological processes underlying their recovery are poorly known. Here, we examined fishing effects and recovery process of the red coral <i>Corallium rubrum</i> by analyzing long-term photographic series taken on two populations that were harvested. We compared the relative importance of sexual reproduction and re-growth as drivers of resilience. Fishing heavily impacted coral populations causing large decreases in biomass and strong size-class distribution shifts towards young populations dominated by small colonies. At the end of the study (after 5 and 7 years) a lack of recovery was observed in both populations. Low recruitment rates and high mortality of new recruits demonstrated limited success of sexual reproduction. Adversely, low mortality of harvested adults and large proportion of colonies showing new branches highlighted the importance of re-growth in the recovery process. These results suggested that leaving the basal section of the colonies when harvesting can increase the resilience of coral populations. Further, the low adult mortality in harvested colonies and the biomass reduction in both populations indicate that abundance may not be an adequate metric to assess their conservation status because it can underestimate fishing effects when affected populations persist having lost their structural function.															
													Understanding connectivity patterns among coastal fish populations is a crucial step in the management of marine resources. However, quantifying and measuring the exchange among fish populations is still a hard task because of the difficulties in tracking the trajectory and fate of the larval phase. Moreover, there is a lack of basic knowledge about the bio-ecological traits of many marine coastal exploited species, usually related to their life cycle. To fill these gaps, a variety of approaches have been developed to assess the fish larval population connectivity. The use of models as a tool to identify and measure these patterns in the marine environment is continuously increasing. However, the accuracy of the models is strongly dependent from the precision of the input parameters, that often are not available at the regional scale. One of the most important parameter for evaluating larval dispersal is the pelagic larval duration (PLD). Here, we used the post-larval otolith microchemistry of the species <i>Mullus surmuletus</i> to evaluate the spawning site and the PLD in our area of interest, for which these information were not available. Then, we calibrated the dispersal model using the information previously obtained for improving the reliability of the model. The combination of these approaches is useful to reconstruct the history of the colonies and to describe the patterns of regional connectivity.															
													Keroh is an oil and gas (O&G) industrial area where turtles are targeted in at night, before the inception of oil O&G industry more than 2 decades ago, the 5 km stretch of beach in Keroh was an active turtle nesting ground. Despite the light pollution by O&G refineries, turtles still lay their eggs. Nevertheless, the number of turtles nesting on the beach is thought to have decreased in comparison to 30 years ago. From 2008 to 2013, 17 female green turtles (<i>Chelonia mydas</i>) were tracked using satellite transmitters at two beaches, Ma&D'Daerah and Chakar Hutu in Keroh, just next to the O&G refineries. Home range analysis using the kernel-density estimator (KDE) indicates that their range extends up to 43km off-shore from the point of release. Their core inter-nesting area (95% estimator) however stretched to about 30 km of the coastline. About 20% of the GPS locations were concentrated inside the Keroh (harbour limit) restricted area, a critical inter-nesting area for the green turtles. The movement of the green turtles within the inter-nesting and nesting ground near the brightly lit area likely indicates the ability of the turtles in adapting to environmental change for at least the past 2 decades. Further development of the land nearby is unavoidable. Thus, it is strongly suggested that a marine protected area be established at the two beaches that includes the harbour															

726	S2	17	16	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	0.00/00	0.726-977917	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	Speed	Alexander Thornton	thornton.alex@maui.edu	Pelagic sex using sperm competition theory to infer mating systems in a suite of eastern tropical Pacific dolphins	This study builds on a greater body of work conducted by other researchers using data extracted from the history archive of animals killed and collected by fishery observers as incidental bycatch from tuna purse seine fishery operations within the eastern tropical Pacific (ETP). In a 2003 Perrin & Mesnick article in Marine Mammal Science, they examined geographic variation in the mating systems of two sub-populations of spinner dolphins in the ETP, concluding that high sexual dimorphism and smaller testes size provide strong evidence that Eastern spinner dolphins have a more polygynous mating system than Whitebelly spinners. As observed reproductive behavioral data for pelagic species are impractical to obtain, we turn to proxy indicators of male mating strategy to infer mating systems. In this study, we apply Perrin & Mesnick's hypothesis to four ETP delphinids; specifically, we examine one aspect of reproductive morphology - combined testes and epididymis size. We explore whether mating system inferences can be made based upon a gradient of relative testis size, which increase with the degree of sperm competition. We quantify relative testes size by species, providing a descriptive review of ETP dolphin mating systems. Preliminary results reveal a theoretical scale of biological polygyny inferred using sperm competition theory and new	5. Fisheries - How can the impacts of bycatch from legal and illegal, unreported, and unregulated fisheries be reduced to a level that will allow for reversal of declining trends of affected species?			
588	S3	1	16	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	0.00/00	5.588-798057	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Anita	Polakiewicz@uconn.edu	Genetic divergence of Baltic and North Sea populations of cod, <i>Gadus morhua</i> , inferred from SNP genotyping	The cod is a commercially important fish species in North America and adjacent seas including the Baltic Sea. The Baltic Sea is characterized by decreasing surface salinities from west to the eastern areas reaching almost fresh water conditions to the north. The high salinity waters form a layer in the deeper parts of the Baltic Sea and serve as spawning grounds. Dependence between cod breeding places and environmental conditions makes the structure of Baltic cod population very characteristic. Cod in the Baltic Sea exhibit various adaptations to brackish water conditions. The Baltic cod has significantly bigger eggs in comparison with high salinity waters. Inflow of early North Sea water near the bottom influences the spawning success of the Baltic cod. The Eastern Baltic population is very weakly studied in comparison with the Western population. 9 samples (240 cod individuals) were collected from the Eastern, Southern and Western Baltic, Danish Straits and the North Sea. Genomic DNA was extracted from fin clips. Samples were genotyped using a cod derived SNP-array (Illumina). A set of validated SNPs has been analyzed to assess a differentiation of 9 samples of cod. The obtained results of the population structure analysis indicated a strong disjunction of the Eastern cod with a clear separation of	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	45. Ecosystems - How much emphasis should be placed on identifying and maintaining intraspecific genetic diversity in marine systems?
275	S3	2	16	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	0.00/00	0.275-301938	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Peter	Kuriyama@u.washington.edu	Incentivizing selective fishing under catch shares in the US West Coast Groundfish Fishery	Marine ecosystem managers are charged with maintaining species diversity, and sustaining fisheries. For complex multispecies fisheries, there is a delicate tradeoff among these objectives. In recent years, catch shares have increasingly been implemented to maintain species diversity while preventing overfishing, conserve the marine environment by incentivizing selective harvest, and sustain fisheries by increasing fleetwide profits. Under catch shares, individual fishers are allocated catch quotas for each species, and challenged to catch their quotas of various target species while avoiding overfished species with low quotas. If fishers exceed their quotas for any species, they must cease fishing until additional quotas can be leased from others. As a result, fishers are incentivized to minimize bycatch of non-target species by switching gear types and by fishing in different areas. The US West Coast Groundfish Fishery transitioned to catch shares in 2011, spurred by overfishing. Quotas for overfished species are low. For example, 93% of fishers are allocated 10% or fewer individual Yelloweye rockfish in one year. Currently, there is no overfishing on the 26 managed species, but catches are far short of allowable quotas, except for three species. Additionally, discard rates have declined from 45% to 16% (2002-2012). Thus in the US West Coast, catch shares act as a precautionary conservation policy that has	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	5. Fisheries - How can the impacts of bycatch from legal and illegal, unreported, and unregulated fisheries be reduced to a level that will allow for reversal of declining trends of affected species?
17	S3	3	16	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	0.00/00	0.17-107085	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Mahdi	mahdi.m@uconn.edu	Persian Gulf is potentially a habitat for <i>Nudibranchia</i> by considering 7 new records of Iranian <i>Nudibranchia</i> along with the 21 previous reports	This paper firstly is the report of different species of alien gastropod <i>Nudibranchia</i> of Larak and Oeshm islands which belong to Persian Gulf along with Iranian <i>Nudibranchia</i> . During the 4 year researches on the coral reefs of Larak and Oeshm islands from the Persian Gulf, <i>Nudibranchia</i> have been defined in Iran and new records of <i>Nudibranchia</i> including <i>Gymnodoris rubropurpurea</i> and <i>Chromodoris annulata</i> from the <i>Gymnodorididae</i> family, <i>Phyllidia multifurca</i> from the <i>Phyllidiidae</i> family, <i>Picocampophorus ocellatus</i> from the <i>Trochophoridae</i> family, <i>Hypselodoris</i> sp. from the <i>Chromodorididae</i> family, <i>Nudibranchia</i> from the <i>Polydoridae</i> family and <i>Aplousobranchia</i> and <i>Dicladophora</i> . Also <i>Picocampophorus ocellatus</i> species is the new record of Persian Gulf and Oman Sea. And the second aim of this article is compiling an article which is the collection of Iranian reported <i>Nudibranchia</i> leads to have a valid source for future research. Also, in this study we are going to consider the potential of Persian Gulf as a habitat for the unique species of <i>Nudibranchia</i> .	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	17. Climate change - How will global climate change and ocean acidification affect ocean productivity and, ultimately, biodiversity?
93	S3	4	16	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	0.00/00	0.93-740534	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Silvia	silvia.sm.montoro@uconn.edu	Population structure of pilot whale (<i>Globiophala melas</i>) in Atlantic waters assessed using genetic markers and ecological tracers	The current IUCN <i>Assessment</i> status of Long-finned pilot whale (<i>Globicephala melas</i>) emphasizes the need to understand its genetic and ecological characteristics, to provide a foundation for effective conservation strategies. The integration of both genetic and ecological approaches is a particularly powerful strategy for identifying natural population structure and providing information on habitat use, feeding ecology and social structure, over different time-scales. To investigate the occurrence of population segregation in pilot whales from three areas of the North Atlantic (Bonaire, UK and USA), both genetic markers and ecological tracers were analyzed, and complemented with data from stomach contents analysis. Results of stomach contents analysis, as well as signatures of $\delta^{13}C$ (mostly dietary) and stable isotopes ($\delta^{15}N$ and $\delta^{34}S$) revealed significant dietary differences among the different areas analyzed. Concerning genetic data, there was strong differentiation between the three putative populations, for the mitochondrial control region. The genetic and ecological evidence of segregation between and within oceanic basins may result from limited dispersal mediated through social structure, which is coincident with the occurrence of ecological populations with specific foraging habits. These results from multiple approaches provide baseline information to underpin conservation and management plans, based on both evolutionary and finer ecological timescales.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	41. Ecosystems - Given the variation in characteristics of individual species, how can conservation strategies be implemented to maintain connectivity across taxa, habitats, and scales to ensure resilient marine communities?
28	S3	5	16	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	0.00/00	5.28-172320	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Connessa Ricci	carla@humboldt.edu	Distribution of <i>Symbiodinium</i> sp. in the temperate intertidal sea anemone <i>Anthopleura elegantissima</i> and its response to temperature stresses	The temperate intertidal sea anemone <i>Anthopleura elegantissima</i> is a dominant space competitor within the rocky intertidal (Taylor and Liller, 1982). Many invertebrates, including <i>A. elegantissima</i> , form symbiotic relationships with intracellular algae. For invertebrates that house symbiotic algae, bleaching events have been occurring in response to a rise in oceanic surface temperatures (McCluskey et al., 1995; Saunders and Muller-Parker, 1996; Iglesias-Prieto et al., 1992). Of the zooxanthellae and zooxanthellae species that form these symbiotic relationships, it has been shown that zooxanthellae, most of which have been classified under the genus <i>Symbiodinium</i> , are more resistant to rising temperatures (Secor and Augustin, 2000; Saunders and Muller-Parker, 1997). This study was conducted to assess the number of <i>Symbiodinium</i> species present within the anemone at three locations along the Northern California coastline and determine how the <i>Symbiodinium</i> sp. and the anemone as a holobiont are affected when exposed to prolonged elevated water temperatures. Results show a single genetic species present in all anemones collected belonging to the species <i>Symbiodinium muscatinei</i> haplotype 1 (Saunders and Palumbi, 2011; accession number: JF507794) and increased bleaching and mortality upon the experiment. This has implications for the protection of coastal ecosystems and the need for greater environmental accountability in their wild and farm-raised seafood supply chains. These policies drive change by increasing consumer awareness and creating competition among suppliers for more sustainable practices. Here we focus on the Wild Fishery Decision Ranking Tool (WFDR), a unique method of assessing the environmental risk of individual fishery sectors that NEAq uses to generate advice on wild seafood based on stock health, fishery management, status of endangered, threatened, and protected species, habitat impacts, and other bycatch. For each fishery sector, these factors are weighted and mapped on decision matrices, reflecting that sector's relative impact. Where there is a clear disparity among sectors, NEAq advises one or more of the following sourcing recommendations: engage with stakeholders to address areas of concern; switch to or promote more sustainable options; or reduce the percentage of or halt sales of a high-risk source. Fishers with lower rankings have an incentive to address issues and shift to better practices to improve their relative ranking, whereas, a high-ranked sector has to show continual improvement to keep its position as a preferable source. By engaging in this process with NEAq, businesses are able to implement sustainable practices.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	14. Climate change - How will marine ecosystems and species adapt and respond to the individual and interactive effects of ocean acidification, anoxia, and warming, and to what extent is this response?
330	S3	6	16	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	0.00/00	5.330-927736	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Tees	teers@neaq.org	Using environmental risk assessments to inform large-scale sourcing of wild-caught seafood	The New England Aquaculture (NEAq) partners with businesses to help them implement sourcing policies that ensure greater environmental accountability in their wild and farm-raised seafood supply chains. These policies drive change by increasing consumer awareness and creating competition among suppliers for more sustainable practices. Here we focus on the Wild Fishery Decision Ranking Tool (WFDR), a unique method of assessing the environmental risk of individual fishery sectors that NEAq uses to generate advice on wild seafood based on stock health, fishery management, status of endangered, threatened, and protected species, habitat impacts, and other bycatch. For each fishery sector, these factors are weighted and mapped on decision matrices, reflecting that sector's relative impact. Where there is a clear disparity among sectors, NEAq advises one or more of the following sourcing recommendations: engage with stakeholders to address areas of concern; switch to or promote more sustainable options; or reduce the percentage of or halt sales of a high-risk source. Fishers with lower rankings have an incentive to address issues and shift to better practices to improve their relative ranking, whereas, a high-ranked sector has to show continual improvement to keep its position as a preferable source. By engaging in this process with NEAq, businesses are able to implement sustainable practices.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	
449	S3	7	16	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	0.00/00	5.449-254561	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Salvatore	Soliano@gmail.com	Are we swimming against the tide? Coastal development threatens a nominated Ramsar site along eastern Brazil	Eastern Brazilian coastal plains (EBCP) and adjacent waters have been pointed out recently as highly important for migrating birds and the endangered transcaribbean dolphins. In fact, a variety of habitats, including mangroves, lagoons and beaches, were formerly proposed as a Ramsar site. Brazil joined Ramsar Convention in 1990 and its original proposal includes site <i>Agua Vermelha</i> and <i>Paraíba do Sul</i> marshes <i>Agua Vermelha</i> and <i>Paraíba do Sul</i> marshes. Our studies in the region recorded 70 waterbird species of 15 families, of which <i>Scopelogadus</i> was the most representative, with 15 species. The high Neotropical shorebird species richness observed in the region as staging site for migratory birds at national level. So far, these environments have been exposed to huge anthropic pressure, especially due to the digging of canals, land filling practices, sewage discharges and the construction of resort facilities. The oil and gas industry is demanding logistical structures. No fewer than five ports are under construction or planned on the northern coast of Rio de Janeiro. Despite public awareness campaigns for the conservation of these wetlands and the nomination of a Ramsar site, development is the present rule. An we swim against the tide.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	

515	S3	8	16	0.00/00	S.515-488364	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Clare Fessler	clare.fessler@gmail.com	Testing the Deep Reef Hypothesis	Deep reefs (to-ams) are often proposed as spots for restoration, seeds of hope. Our research project tests a proposal yet improves rate of them; deeper reefs should be conserved, given their potential as 1) a thermal safe haven and 2) a reproductive source within the larger reef matrix. We leverage three innovations. New temperature experiments are made possible because of an untagged dataset AqA-1000 the Caribbean AqA-1000 only cross-depth temperature monitoring project. We examine if bouldering corals sourced from depth-stratified microenvironments along fore reef slope condition some corals to be more climate-hardy, sustainable, more resilient to underwater reef slope by integrating multi-perspective, high-resolution still images. In addition to creating stunning visuals, mosaic images capture the broad ecological patterns we believe hold the key to assessing system-level resilience capacity across depth. Finally, we experiment with AI codes to increase the spatial fidelity of these mosaics. Familiar to smartphone users, we ask whether this mobile tool can encode mosaic survey plots in underwater space. There is an urgent need for sound science to support new, buzz-worthy management guidelines, like conserving deep reefs for resilience. We begin by sharing the preliminary results from this three year study, presenting best experiment results with a field-based coral reef restoration, and conservation that observed them in hand information across the ocean.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	18. Climate change - How can marine climate change be identified and protected to the maximum extent possible?
547	S3	9	16	0.00/00	S.547-708309	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Jame McCray	jmccray@ufl.edu	Sea Turtle Friendly Lighting in Florida: Exploring Hotel "Manager" Behavior (TPB) to Identify the Barriers to Hotel Managers AqA-1000 Adopting Sea Turtle Friendly Lighting Innovations. The information discussed will allow conservation programs to design interventions targeted towards hotel property managers to increase the participation in lighting programs, as well as to increase voluntary compliance with county lighting ordinances.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	64. Social and cultural considerations - How have humankind's various worldviews shaped perceptions, relationships, and narratives related to the marine environment, and how do these influence marine?	
562	S3	10	16	0.00/00	S.562-540860	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Joseph Maina	jmbui@uq.edu.au	Human deforestation increased sediment supply due to conversion of forests to other land uses. Counteracting increased sediment loads require an understanding of the relationship between forest cover and sediment supply, and how this relationship might change in the future. Here we study this relationship by simulating river flow and sediment supply in four watersheds that are adjacent to Madagascar AqA-1000 major coral reef ecosystems for a range of future climate change projections and land-use change scenarios. We predict that all four watersheds are predicted to experience temperature increases and/or precipitation declines that, when combined, result in decreases in river flow and sediment load. However, these climate change-driven declines are outweighed by the impact of deforestation. Consequently, increased sediment loads are predicted to increase in all four watersheds.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)		
586	S3	11	16	0.00/00	S.586-579251	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	MAA_@_gorata	Zbawicka mubawicka@ropan.gda.pl	Identification of natural and introduced populations of Mytilus mussels from New Zealand based on new SNP markers. We discover and characterized new molecular markers based on single nucleotide polymorphisms (SNPs). Selected genes fragments derived from a cDNA library of the Mytilus genome were compared. Genotyping of SNPs was performed using the Sequenom MassARRAY PLEX platform. Sixty three polymorphic SNPs were used to genotype mussels population from New Zealand in order to study possible integration of northern and southern form of Mytilus. To test for the presence of non-native mussels, samples were collected from the ports and regions well removed from the putative influence of shipping, and remote offshore islands. The obtained results indicate the high potential of the new SNPs in the study of population structure and admixture level of mussels of the genus Mytilus. Moreover SNP data appears to be a new tool which could be used to illustrate the altering the distribution of native and introduced populations of mussels in the area where human activities are increasing.	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	45. Ecosystems - How much emphasis should be placed on identifying and maintaining intraspecific genetic diversity in marine systems?	
575	S3	12	16	0.00/00	S.575-924087	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	Speed	Corinne Baulcomb	Corinne.Baulcomb@stuc.ac.uk	2. Identifying and valuing cultural ecosystem services: an application in the context of marine food web conservation	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	66. Social and cultural considerations - How can marine cultural heritage, maritime historical and biological conservation be best integrated to maximize benefits for all stakeholders?	
566	S3	13	16	0.00/00	0.566-708322	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Advancing marine conservation through international agreements	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Speed	Anthony Charles	tony.charles@smu.ca	Marine Conservation Benefits of the FAO AqA-1000 Guidelines on Small-scale Fisheries	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Advancing marine conservation through international agreements	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	51. Policy - How can the effectiveness of AqA-1000 and compliance with AqA-1000 international treaties that increase marine conservation be increased, including at a local level?	
407	S3	14	16	0.00/00	S.407-280664	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other	Other	Speed	Viavney Leos Barajas	vianey@iastate.edu	Estimating Red Snapper Harvest by Charter Boats in the Gulf of Mexico	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Other	Other		
709	S3	15	16	0.00/00	S.709-103444	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Speed	Melita Samoilys	melita.samoilys@gmail.com	Involving fishers in marine science opens the door to community conservation action	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	Food security and the oceans (e.g., sustainable fisheries, aquaculture, and livelihoods)	60. Social and cultural considerations - How can marine cultural heritage, maritime historical heritage, and biological conservation be best integrated to maximize benefits for all stakeholders?	

721	SS	1	16	0.00/00	0.721-995040	Oral	Advancing marine conservation through international agreements	Participation in marine conservation science (e.g. citizen and indigenous science)	Marine conservation on the high seas?	Pelayo	salinas-de-Leon	pelayo.salinas@delraywin.org.ec	A quick stop before heading to pupping grounds? Whale sharks population structure, habitat use and connectivity patterns at Darwin Island, Galapagos Is.	Understanding the history of high motility species, including reproductive ecology and migratory routes, is key to promote alternative conservation measures. Here, we present results from the first whale shark population study around Darwin Island, Galapagos Marine Reserve, following a diversified approach to characterize their presence, population structure, habitat use and their regional connectivity patterns. Whale sharks occurrence is directly related to the cold season (July-December). Between 2011-2013, we photo-identified 82 whale sharks, the great majority (91.5%) adult female individuals showing clear signs of pregnancy. Population dynamics analysis for pregnant sharks revealed the presence of 4.92±0.48 sharks in the study area per day with an individual residency time of 2.10±0.24 days, resulting in an estimation of 886 pregnant whale sharks during the cold season. Movement patterns of over 40 pregnant individuals tracked with acoustic and satellite tags revealed an intense use of Darwin's Arch, followed by a migratory pattern towards the West. All our results point to Darwin Island as an important stopover in a migration with reproductive purposes rather than an aggregation site, and large-scale movements suggest the presence of pupping grounds	Ecosystems	Given the variation in characteristics of individual species, how can conservation strategies be implemented to maintain connectivity across taxa, habitats, and ecosystems?		
34	SS	2	16	0.00/00	0.34-213710	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Nohora	Galvis	nohora.galvis@gm.ac.il	Economic Valuation of the impact on the fisheries after the appearance of lionfish in the Colombia Caribbean coral reefs	Colombia, was in October 2010, by divers of RENOBOS / RENOVOS (Colombian Networks of volunteer reporters of the coral reefs) from the Foundation ICRI Colombia in Pro of Coral Reefs. The Association of Fishermen of Capurgana PESCAPUR, encouraged their accountant to work with us in the report of fisheries statistics from 2009 till present in order to identify any changes in productivity after the lionfish infestation. Losses are evident in the analysis. However, a new local market is developing the lionfish for consumption is gaining customers and the price is getting up after engaging audiences and an official communication of INVIMA (Equivalent to FDA) that allowed the damification the venom of lionfish was a risk for human health in 2012. This event is also shown in the graphics with supporting	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	8. Fisheries - How can partial fishing closures be used to maximize the benefits of Marine Protected Area (MPA) networks?
517	SS	3	16	0.00/00	0.517-17019	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Climate, ocean acidification, and the changing oceans	Speed	Rebecca	Klaus	rebecca.klaus@se-norckenberg.de	Empowering local marine resource users to prepare Marine Protected Area management plans: the next step towards improving co-management effectiveness	Intensive fishing pressure in the Koorogee region had significant negative impacts and resulted in drastic declines in fisheries landings and fisher livelihoods. Recognizing the need to address these issues, standard participatory processes were used to help the local fishing community identify four Marine Reserves, which were designated in 2007. Then this approach, and an alternative approach, and instead of using external experts, it also aimed to empower local stakeholders to actually write the Marine Reserves Management Plan themselves. A series of training workshops were held to build local capacity in management planning and to capture local knowledge using participatory mapping techniques. Through the workshops, participants were tasked with developing the on-management governance framework and the vision, goals, strategies and actions. A core group of stakeholders (fishers, NGO and tourism representatives and fisheries enforcement officers) then used the workshop outputs, results of previous scientific studies and their local knowledge to write the plan. Extensive consultations were held with local communities to ensure their interests were represented. The approach used to complete the plan brought marine resource users to the heart of the decision-making process and developed a strong sense of pride and ownership amongst the local community, and built support for co-management. Priority actions from	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Climate, ocean acidification, and the changing oceans	43. Marine citizenship - What are the best methods and tools available to engage citizens in marine conservation?
508	SS	4	16	0.00/00	5.508-601032	Marine renewable and non-renewable energy	Participation in marine conservation science (e.g. citizen and indigenous science)	Communicating marine conservation awareness and outreach (social media)	Speed	Luciana	Araujo	lida2@cam.ac.uk	How can oil and gas companies and marine biota observers (MBOs) be encouraged to improve marine science in Brazil?	Marine renewable and non-renewable energy	Participation in marine conservation science (e.g. citizen and indigenous science)	Communicating marine conservation awareness and outreach (social media)	70. Scientific enterprise - How can scientific and management cultures be changed to promote open sharing of data in formats that are accessible (and standardized)?	
33	SS	5	16	0.00/00	0.33-874038	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Speed	Hirokyu	Ii	hiro@center.wakayama-u.ac.jp	Heavy Fe and Zn contamination of seaweed in the Kanagawa Bay in Kii peninsula central Japan	Fe and Zn concentration of seaweed was found to reach 3 % dry weight in the Kanagawa Bay. The sea pine mine, Kanagawa mine opened beside the bay. One mine was 50 % pyrite FeS ₂ , 5 % galena PbS and 5 % chalcocite Cu ₂ FeS ₂ . Then mine waste contained high concentration of Fe and Zn. Although the mine site was fenced off after the coast-to-coast water flow in the bay. The pH value of seepage water was 3 and Fe, Zn, Pb and Cu concentration reached 90, 90, 0.1 and 0.4 ppm. Total load of Fe and Zn per year reached 500 kg. Fe ion was oxidized and precipitated in the bay and rocks and seaweeds became brown color. Then, no animals eat the seaweed and adhering algae was found however 11 kinds of seaweeds were found. The 11 species and another kind of seaweeds were found out of the bay. Therefore, the 11 species were taken to high Fe and Zn condition. 11 species contained more 0.1 % Fe and Zn dry weight. Pb and Cu concentration of seaweeds were 100 to 1600 and 10 to 500 ppm.	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Participation in marine conservation science (e.g. citizen and indigenous science)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	66. Scientific enterprise - How can tacit scientific expertise be increased in order to reduce uncertainty in the conservation and management of marine resources?
39	SS	6	16	0.00/00	5.39-236688	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Marine renewable and non-renewable energy	Speed	Sarah	Wise	swie888@gmail.com	Renewable Energies and the Practice of Marine Spatial Planning on the North Sea Littoral	This paper examines how people living and working in the North Sea littoral participate in marine spatial planning (MSP). The North Sea is a large, diverse and unique bio-geography area ideal locations for marine energy. Tidal energy requires proximity to the shore to maximize energy capture. The littoral zone, the thin strip of littoral coastline, has valuable and distinct social and ecological features. McGray identifies the littoral as particularly complex and ambiguous due to its transitory characteristics. Building on McGray's work, this paper explores how boundaries negotiated to establish legitimate resource claims in coastal areas undergoing MSP? While interest in marine energy is growing globally, the social effects of marine development is uncertain. Recent research suggests social acceptance of marine energy projects is key to successful implementation. Increasingly, MSP is used to achieve ecological, economic, and social objectives; however many energy installations claim space within and across different marine sectors. Central to effective marine management is a better understanding of the people involved with and affected by emerging forms of industry, community, and governance. Using a narrative framework, this paper focuses on participation in coastal planning, and spatial allocations relating to renewable energy projects in the North Sea littoral.	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Participation in marine conservation science (e.g. citizen and indigenous science)	Marine renewable and non-renewable energy	67. Social and cultural considerations - How are socially just and equitable marine conservation processes and outcomes (incorporating gender, inter-generational, and socioeconomic equity) best developed and implemented?
481	SS	7	16	0.00/00	0.481-925284	Participation in marine conservation science (e.g. citizen and indigenous science)	Other	Marine tourism	Speed	Carmen	Bazua	bazua@unam.mx	Assessing dolphin behavior with acoustics: The bottlenose dolphin Turiposus truncatus behavior on what dolphins do	Whistles are a dolphin phonation emitted during most activities. This paper compares whistle repertoires of wild bottlenose dolphins recorded in Laguna de TA'Adminis in the southern Gulf of Mexico, associated with four activities: socializing, feeding, traveling, and resting. With whistle contours, the whistle repertoire was obtained to further categorize whistle types into four general classes to obtain a complexity index. Results show that these parameters are useful to compare whistle repertoires. The whistle repertoire was large (21 whistle types) with a high complexity (C=0.62) while socializing and was small (8) with a high complexity (C=0.63) while resting. Dolphins were feeding when the repertoire was large (26) with a medium complexity (C=0.47) and were traveling when it was small (18) with a low complexity (C=0.36). It is necessary to implement new measures like these ones to better understand how dolphins are using whistles, since acoustic communication is the most important sense in dolphin species and we should be able to use their whistles to assess the activities they perform. This is specially important in areas where dolphins are exposed to humans, and where underwater eavesdropping is limited like in Mexico, because other behavioral studies at acoustics are nearly impossible in these habitats (supported by CONACYT and PAPIT-UNAM).	Participation in marine conservation science (e.g. citizen and indigenous science)	Other	Marine tourism	41. Ecosystems - Given the variation in characteristics of individual species, how can conservation strategies be implemented to maintain connectivity across taxa, habitats, and ecosystems to ensure resilient marine ecosystems?
638	SS	8	16	0.00/00	0.638-309672	Participation in marine conservation science (e.g. citizen and indigenous science)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	Speed	Stephanie	Green	stephanie.green@science.oregonstate.edu	Fishing debies: An unconventional tool for public engagement in invasive species control	With complete eradication of established marine invasions often beyond the resources available to managers, how can we harness sufficient human and economic capital to tackle ocean invasions at ecologically relevant scales? The rapid invasion of predatory Indo-Pacific lionfish throughout the Western Atlantic, Caribbean and Gulf of Mexico is a prime example of this problem. Recently single day fishing debies have emerged as a tool for increasing local participation in lionfish removal. However, the degree to which these events suppress invasive populations remains unknown. We quantified the magnitude and scale of control achieved by debies in Green Cay, Bahamas and Key Largo, Florida, and found that debie participants affected a greater than 60% reduction in lionfish densities within the 100-150m ² debie areas, compared with pre-debie density. Population suppression was isolated to the area where the debie occurred. Crucially, we found that debie removals were sufficient to reduce lionfish below densities at which they are predicted to deplete the native fish prey. Our works shows that using unconventional methods like debies in high priority	Participation in marine conservation science (e.g. citizen and indigenous science)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	
411	SS	9	16	0.00/00	5.411-86485	Participation in marine conservation science (e.g. citizen and indigenous science)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	Speed	Ewa	Borowska	ewa.borowska8@gmail.com	Determining Genotypes from Bloodhole Exhalation Samples of Harbour Porpoises (Phocoena phocoena)	The use of non-invasive tools for research on marine mammals often creates difficulties. One huge challenge is to obtain genetic samples from free-ranging as well as captive animals without exposing them to stress. Here, blood samples and blowhole exhalation samples were collected from 11 harbor porpoises (Phocoena phocoena) held in captivity. The mitochondrial DNA sequences and microsatellite alleles scores extracted from the blowhole exhalations were comparable to the ones from the blood samples. Thus this non-invasive method of blow sampling is appropriate for obtaining high quality DNA samples from smaller cetaceans for studies on population genetics. These results open up for the possibility to study population genetics of this species from exhalation air samples and also from other cetaceans. These findings may greatly facilitate non-invasive genetic	Participation in marine conservation science (e.g. citizen and indigenous science)	Effective conservation planning (to include EBM and MPAs, cumulative impacts)	Other	

349	S5	10	16	Participation in marine conservation science (e.g. citizen and indigenous science)	0.00.00	O.349-851659	Food security and the oceans (e.g. fisheries, aquaculture, and livelihoods)	Participation in marine conservation science (e.g. citizen and indigenous science)	Other	Speed	Elizabeth	Mdean	elmdean@my.uri.edu	Fishers' Local Ecological Knowledge and perceptions in Samaná/A, Dominican Republic	A better understanding of how people relate to their environment can help further environmental conservation and human well being. Recently, the study of Local Ecological knowledge (LEK) has emerged as a powerful tool to complement western scientific knowledge. LEK may be useful to understanding the challenges in small scale fishing communities and to promote sustainable use of natural resources. The challenge is to increase our ability to understand LEK through a systematic process. For this study 152 fishers from 11 communities on the NE coast of the Dominican Republic were interviewed to understand their LEK and the connections that exist between their shared knowledge and how they relate to their environment. A multi-disciplinary approach based on the Grounded Theory and a cultural consensus model was used in the analysis. Perhaps because fishers targeted many different species, there was limited evidence that they formed a single group with shared knowledge. For subgroups for which there was cultural consensus on LEK, there was no relationship between this and how they perceived management regulations and changes in their fishery. Most fishers perceived the fishery as declining, and an increase in destructive practices was widely perceived as a major contributory factor. Hypothesize that economic and social pressures lead to ongoing overfishing, despite the fact that fishers are knowledgeable about the decline of their fishery and its ecological consequences.	Food security and the oceans (e.g. sustainable fisheries, aquaculture, and livelihoods)	Participation in marine conservation science (e.g. citizen and indigenous science)	Other	64. Social and cultural considerations - How have humankind's various worldviews shaped perceptions, relationships, and narratives related to the marine environment, and how do these influence marine
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