2015 Report on *Advancing the Deep Ocean Stewardship Initiative (DOSI)*

DEEP-OCEAN STEWARDSHIP INITIATIVE

www.dosi-project.org

Since its initial founding in April 2013, DOSI has come a long way towards becoming *the* central organizing arena for deep-sea scientists who wish to apply their work to supporting sustainable management and conservation of the deep sea. Below we report on community discussions, scientific presentations, and working group plans achieved in Aveiro, Portugal. The community is clearly engaged and DOSI exhibits much momentum. DOSI is very grateful to the JM Kaplan fund for their support.

Open DOSI Meeting. Aug. 30, 2015. With seed funding from the JM Kaplan Foundation, DOSI was formally established in April 2013 in Mexico City by a group of 24 experts from 14 countries. Since then DOSI has grown, largely by Internet and word of mouth, to include almost 350 members. It soon became clear that the next steps required for advancing DOSI's development were determined to be (a) broad integration with the scientific community including students who represent the next generation of practitioners and (b) inclusive working group planning sessions. To this end we held a general DOSI science meeting on Aug. 30, 2015 in conjunction with the 14th International Deep-Sea Biology Symposium (Aveiro, Portugal). The goals were to (a) introduce DOSI and its goals to a broader scientific community (b) provide a venue to share information about ongoing and planned deep-sea stewardship activities (c) engage new participants (d) develop new directions and activities for the future (e) consider funding options and ethical issues and (f) provide an opportunity for working groups to meet and plan activities.

Approximately 136 people attended the Aug. 30 meeting from 24 countries, including many students. The morning discussion reviewed the origins, mission and objectives of DOSI and presented past DOSI and working group actions and products. A description of the working groups and updated web site were presented. Open discussions were held to (a) take suggestions on new DOSI themes and actions, (b) update participants on other international and national programs of relevance to DOSI, (c) discuss possible sources of funding for DOSI, and (d) discuss conflict of issues and how to increase transparency. All participants were given an opportunity to sign on to one or more of 9 working groups. Lunch was provided to all participants.

The afternoon was spent in working group meetings. Six groups met: minerals impacts and management for deep-sea mining (led by C. Smith), oil and gas impacts (led by E. Cordes and D. Jones), deep-sea fishing (led by M. Gianni), and marine genetic resources (led by H. Harden-Davies and K. Gjerde), and submarine mine tailings disposal (led by E. Ramirez-Llodra) and Climate Change (led by N. LeBris and L. Levin). A plenary session was held at the end of the meeting to share working group plans. Following this the Consortium for Ocean Leadership met with the DOSI advisory board to discuss potential collaborations.

Two new working groups emerged from DOSI deliberations, one on Climate Change (led by LeBris and Levin) and one on New Technologies (to be led by D. Lindsay). A third on marine debris in the deep ocean is under consideration.

Summary of Updates to Working Group Plans and Activities

Minerals. Key new areas of focus will include the deep pelagic, transparency issues, guidance on policies within national jurisdictions, and a seagoing observer program. To tackle the many issues relating to deep-sea minerals, informal sub-groups were established. These subgroups aim to:

- Assess existing best practices, standards and guidelines for sampling and monitoring
- Streamline existing standards and guidelines to produce a best practice document for environmental managers
- Review the SPC report on standards for scientific research for mineral exploration and exploitation and provide comments prior to its publication
- Investigate the impact of mining of the deep pelagic through workshops, such as VentBase 2016, to be held in the Azores
- Investigate the potential for forming an independent scientific advisory committee through DOSI to assist with quality control of baseline studies and risk assessments relating to deep-sea mining
- Work with the International Seabed Authority (ISA) to assess the potential for independent observers to be posted on mining vessels to ensure the transparency of the science conducted
- Review the current ISA and other guidelines relating to the availability of environmental data collected by mining companies
- Streamline existing data transparency guidelines to produce a best practice document for environmental managers
- Work with the ISA to establish a meta database to contain a summary of the environmental data available from mining companies
- Pursue the development of standard assessments to assign an economical value to environmental integrity; would inform decisions on the cost-benefit of mining projects, particularly for developing nations
- Define Vulnerable Marine Ecosystems (VMEs) with respect to deep-sea mining, in collaboration with other DOSI working groups
- Develop Strategic Environmental Management Plans (SEMPs) for the (i) Atlantic and (ii) SW Indian Ridge through a workshop and other planned activities

Oil and Gas This working group, with 46 members, identified a new co-lead – Dan Jones – to work with E. Cordes. Major themes include industry impact assessment, including gas hydrate development, and definitions of VMEs and high densities. Key activities include:

- Communication/Capacity building - Make a generic presentation available to raise the Oil and Gas stewardship issue across EEZs
- Review of regulations: (a) identify issues via a standardized questionnaire and (b) identify adequacy of industry baseline surveys and impact assessments through (i) an international review of reviews, (ii) implementation via stakeholder involvement.
- Definitions of "high density" and "VME" (a) review definitions, (b) develop concepts in context of O&G, (c) work on standardization of metrics across regions.
- Development of "Best Practices" advisory document through (a) review of existing efforts (b) internationalization of the guidance.

Deep-sea Fisheries. Key questions to be addressed include recovery from disturbance, mismatch between scale of studies and impacts, whether one set of VMEs can be applied across biomes, identification of trends and knowledge gaps in deep sea fisheries and stocks, differentiating between natural variability and human impacts, managing MPA benefit

expectation, monitoring, management setting precedents and cross linkage with mining. Activities will focus on:

- Setting standards for high quality, robust, and comprehensive impact studies/EIAs and establishing protocols and decision frameworks for indicator selections and designs related to fisheries impact questions
- Advising regional fishery management organizations (RFMOs) on ecosystem-wide consequences of deep sea fishing
- Evaluating implementation of UNGA resolutions and developing recommendations to RFMOs for improving performance
- Comparing and contrasting benefits and impacts of small-scale deep sea fisheries compared to industrial fisheries
- Providing independent scientific advice on all aspects of deep sea management (e.g., MPA design and implementation, gear types, trophic-level interactions)
- Promoting systematic conservation planning

Marine Genetic Resources. This group met twice (once in a town hall setting). Major objectives include engaging with the UN process developing a legally binding instrument on biodiversity beyond national jurisdiction, convening roundtables/briefings on MGR in ABNJ and access and benefit sharing, developing guidelines for collection of biological samples for MGR ABNJ, providing opportunities for scientists to share information, concerns, and experiences re: access and benefit sharing related to MGR and seeking input from scientists from developing countries on priorities for capacity building and technology transfer
Key activities will include:

- Briefing paper discussing marine genetic resources as part of ABNJ (protecting biological life and facilitating scientific research)
- Survey on priorities for facilitating MSR
- Sign on letter for 1st BBNJ Prepcom (facilitating research for MSR ABNJ (Jan 2016)
- Proposal for capacity building workshop 2016
- Speaking textbook on MGR, wABNJ, what this means for science

Deep Sea Tailing Disposal. This working group is composed, currently, of 56 members: 39 research, 3 policy, 6 NGO/environmental organizations, 3 industry (including WOC) and 5 independent consultants. In 2016, the WG secured funding from the Norwegian Research Council and INDEEP to organize a multi-sectoral workshop on DSTP in collaboration with the International Maritime Organization (IMO) and GESAMP. The workshop took place in Lima (Peru) in June 2016 and a follow up discussion took place in Aveiro. The following activities are planned by the DSTP-working group :

- Complete and analyze a DOSI-DSTP online survey (ongoing)
- Prepare a scoping paper on DSTP (ongoing)
- Generate a GIS map of DSTP (first discussions with GRID-Arendal established for mapping facilities)
- Initiate a data repository (discussion phase)
- Continue Communication with IMO/GESAMP, NYKOS
- and the CHILE DSTP.
- Enhance capacity building in PNG: two representatives of the PNG ministries have been approached and discussions are ongoing.

Climate Change. This new group has over 25 members from 9 countries. The working group will work with other DOSI groups to make sure that climate change is included in relevant discussions. To facilitate this a liaison was identified for each working group with the climate group. Outputs will include

- A short consensus statement to COP 21 (this was written and signatures are being obtained from the deep sea community)
- A bibliographic data base on climate change in the deep sea
- Three review papers on climate change and the deep sea will be prepared: (1) the role of deep sea ecosystems in climate change, (2) impacts & services- scales and thresholds, and (3) Natural carbon sinks/sources & geoengineering issues
- Awareness raising activities including museum exhibits, a Limnology and Oceanography Lecture slide series, and input to major international programs including the Deep Ocean Observing System, IPCC, CBD and sustainable development initiatives, IPBES, ISA, EU Initiative and WCMC.

More comprehensive outlines for each of the DOSI working groups may be found on the new DOSI website – www.dosi-project.org

DSBS Activities. DOSI members continued to be active throughout the 14th Deep Sea Symposium. On the first day, DOSI sponsored a keynote presentation by Kristina Gjerde on deep seabed mining and hosted a day-long session on *"International Research and Stewardship for our Deep Oceans"*, with 17 talks and 11 posters. DOSI also held a lunchtime town hall meeting for those not able to attend the Aug. 30 meeting and convened a special lunchtime session to broaden the discussion on questions related to the sharing of benefits of marine genetic resources derived from areas beyond national jurisdiction. DOSI members also organized a special half-day session on the environmental impacts of seabed mining.

The newly established DOSI working group on climate change circulated a statement to the UNFCCC (United Nations Framework Convention on Climate Change) 21st Conference of Parties for signature by DSBS participants about the important role of the deep ocean in climate mitigation and potential impacts of climate change (http://dosi-project.org/working-groups/climate-change). We currently have around 250 signatures.

DOSI members and other experts who had been involved in the first workshop on developing a strategic environmental management plan for the Atlantic Basin met to plan further work for advancing this effort, including a possible second workshop in Brazil.

DOSI was also on the agenda of the newly formed student group of the Deep Sea Biology Society. They demonstrated great enthusiasm for DOSI involvement and recommended that the advisory board include a student representative, and that they assign a student liaison to each working group.

SUMMARY: The importance of DOSI to advancing stewardship of the deep ocean is now clear. JM Kaplan Fund support has been instrumental in achieving this broad base of support and relevance in the policy-making arena. We are now looking to scale-up the capacity of DOSI to facilitate and support the efforts of its Working Groups, and are investigating possible options for establishing one or more small but permanent offices for a DOSI secretariat. We would greatly appreciate the opportunity to discuss further with the JM Kaplan Fund our exciting plans for DOSI's future.

Budget:

JM Kaplan funding supported organization and meeting expenses (20 hotel rooms for participants from developing nations and DOSI leadership, food for all) for a one-day meeting in Aveiro, Portugal in association with the 14th DSBS and to host the Aug. 31 DOSI session *"International Research and Stewardship for our Deep Oceans"*. Travel funds were used to bring 4 experts in policy (Gjerde), transparency (Ardron), and economics (Pendleton, Squires) to the meeting on Aug. 30 and the DOSI session on Aug. 31.

Supplementary Attachments:

1. Aug. 30 DOSI Meeting Agenda
2. List of Aug. 30 Attendees
3. List of Aug. 31 DOSI session talks and posters
4. List of suggestions contributed by DOSI meeting participants
5. DOSI slide presentation from Aug. 30, 2015

Deep Ocean Stewardship Initiative Workshop: Information and planning for the future

30 August, 2015
Aveiro, Portugal

Since its inception in April 2013, DOSI has pursued environmental stewardship of the deep ocean through a series of briefs, workshops, symposia, webinars, survey input, and publications. The objectives of this open meeting are to: (a) provide information to the scientific community about DOSI and its goals; (b) provide a venue to share information about ongoing and planned deep-sea stewardship activities: (c) engage as many new and existing DOSI participants as possible in DOSI activities; (d) develop new directions and DOSI activities for the future; and (e) consider and discuss DOSI funding options. We will meet from 9AM to 1.00 PM in plenary, provide lunch and meet in the afternoon in working groups to formulate action plans. We will come back together in plenary for the last hour to share ideas. The input received will help shape future directions for DOSI. Please join us!

Draft Programme

8.30 - 9.00	**Arrival of participants with coffee and pastries**
Time	**Session**
9.00 - 9.20	**Review the short history of DOSI and the objectives of the workshop** (Lisa Levin)
9.20 - 10.30	**Brief overview of DOSI activities to date:** • Deep-Sea Minerals (Craig Smith, Verena Tunnicliffe, Jeff Ardron -10 mins) • Oil and Gas (Erik Cordes – 5 mins) • Fisheries (Matt Gianni – 5 mins) • MGR (Kristina Gjerde – 5 mins) • DSTP (Eva Ramirez-Llodra - 5 mins) • Climate Change (Nadine Le Bris – 5 mins) • Capacity building in developing nations (Bronwen Currie – 5 mins) • Knowledge Gaps and Global Ocean Assessments (Maria Baker – 5 mins)

	• Facilitating communication and networking (Maria Baker, Linwood Pendleton – 5 mins) **Future planned activities:** • Bellagio – Mining Economics (Dale Squires – 5 mins) • SNIS – next gen sequencing for impact assessment, (Jan Pawlowski – 5 mins)
10.30-11.00	*Refreshments*
11.00-13.00	**Open discussions (Chair: Lisa Levin)** a. new issues to see DOSI address I. relationship with INDEEP II. need for new or merged working groups? III. deep-sea observations in support of management -to tie industry and regulators to DOOS, Ventbase IV. dealing with potential conflicts of interest b. facilitating engagement (e.g. International Seabed Authority) c. funding opportunities (e.g. Center for Ocean Leadership (COL) interest) d. special sessions and meeting opportunities
13.00 – 14.00	*Lunch*
14.00-16.30 15:00-16:30	**Working Group breakout meetings to formulate action plans for future:** • Deep Sea Mining (Craig Smith/Verena Tunnicliffe/Jeff Ardron) • Oil and Gas (Erik Cordes) • Fisheries (Matt Gianni/Les Watling) • DSTP (Eva Ramirez-Llodra) • Climate Change (Nadine Le Bris) **MGR Working Group breakout meeting to formulate action plans for future:** • MGR (Kristina Gjerde/ Harriet Harden-Davies)
16.30-17.00	*Refreshments*
17.00-18:00	**PLENARY (to include 5 mins feedback per breakout group and discussion of transcending issues: capacity building, transparency, knowledge gaps, ocean assessments etc.)**
18.00 - 18.30	**Presentation to DOSI AB and WG Leads by Consortium of Ocean Leadership and discussion of potential collaboration**
End of DOSI Day	

	DOSI MEETING PARTICIPANTS	
Adrian Glover	Jackson Chu	Oliver Kersten
Alanna Durkin	Jamie Wagner	Paris V. Stefanoudis
Amanda Netburn	Jan Pawlowski	Paulo Sumida
Amanda Reichelt-Brushett	Jeff Ardron	Pawlowska Alina
Amanda Ziegler	Jeffrey Marlow	Phil Weaver
Ana Colaco	Jennifer Durden	Phillip Turner
Andrew Gooday	Jennifer Le	Plaiti Wanda
Andrew Thurber	Jeroen Ingels	Rachel Boschen
Angelika Brandt	Jessica Whelpley	Rachel Jeffreys
Anna Metaxas	Jian-Wen Qiu	Ralph Spickermann
Antonio Teixeira	Jill R. Bourque	Robert P. McGuinn
April Cook	Jin SUN	Robert S Carney
Ascensão Ravara	Joan Manel Alfaro Lucas	Robyn P. Payne
Ashley Alun Rowden	Joana R Xavier	Rosanna Milligan
Astrid Leitner	Joanne Clarke	Rui Pedro Vieira
Aurélie Goineau	José Pedro Marques Queirós	Samuel Georgian
Bhavani Narayanaswamy	Jozee Sarazin	Sandra Brooke
Brit Finucci	Judith Gobin	Santiago Herrera
Bronwen Currie	Kalinda Gianni	Sarah
Cátia Cardoso	Karen Donaldson	Seshnee Maduray
Chih-Lin Wei	Kc Cerveny	Sofia Pinto Ramalho
Christoph Plum	Kerry Sink	Suzanne Williams
Chuck Fisher	Kerstin Kroeger	Swaantje Bennecke
Cindy Lee Van Dover	Kirk Sato	Takehisa Yamakita
Clara Rodrigues	Kristina Maria Gjerde	Telmo Morato
Clifton C. Nunnally	Laura Duran Suja	Teresa Paula Fernandes Amaro
Corinna Breusing	Laura Grange	Thomas Dahlgren
Craig M Robertson	Lauren Mulliineaux	Thomas Schlacher
Craig R. McClain	Le Bris Nadine	Tim O'Hara
Craig Randall Smith	Lea-Anne Henry	Tina Molodtsova
Daniel Jones	Lenaick Menot	Tomo Kitahashi
Danielle DeLeo	Linwood Pendleton	Torsten Thiele
David Billett	Lisa Levin	Tracey Sutton
Dhugal Lindsay	Luciana Genio	Verena Tunnicliffe
Diva Amon	Luciano Gomes Fischer	Yao Zhou
Dorte Janussen	Mackenzie Gerringer	Zoleka Filander
Erik Cordes	Malcolm Clark	
Erin Easton	Maria Baker	
Eulogio Soto	Maria Milititsky	
Eva Ramirez-Llodra	Mariana Dias Almeida	
Fanny Girard	Marjolaine Matabos	
Florenc Pradillon	Matthew Gianni	
Frine Cardone	Mauricio Shimabukuro	
George Kauli Smion	Mia Elasar	
Harriet Harden-Davies	Miyoko Sakashita	
Helema Adcio	Naiti Morales	
Helena Winklund	Nélia Cristina da Costa Mestre	
Henk-Jan Hoving	Nestor Ardila	
Hiromi Watanabe	Nikolaos Lampadariou	
Holly Bik		

DSBS Plenary session August 31, 2015
10:45 **1 Gjerde KM**, Gebicka A - Deep seabed mining on the near-term horizon: What will future environmental management look like?

Stewardship of our deep oceans (DOSI) – Oral Session Aug. 31, 2015
Chairpersons: Maria Baker, Lisa Levin

11:30 **6 Ingole BS**, Sautya S, Singh R et al - Diversity and distribution of benthic meio and macro fauna in the nodule rich Central Indian Ocean

11:45 **7 Rowden AA**, Leduc D, Torres LG et al - Distribution of epifaunal communities associated with phosphorite nodule deposits on Chatham Rise, Southwest Pacific: implications for management of seabed mining

12:00 **8 Currie B** - A step into the unknown? Namibia's caution to mine marine phosphates

12:15 **9 Smith CR**, Amon DJ, Drazen J et al - Nodule mining and ocean stewardship in the CCZ: An overview of the ABYSSLINE project with results on macrofaunal diversity and community structure

12:30 **Lunch break**

14:00 **10 Ardron JA** - Deep-sea mining: not yet a done deal

14:15 **11 Boschen RE**, Rowden AA, Clark MR, Gardner JPA - Variation in megabenthic assemblage structure at seafloor massive sulfide deposits

14:30 **12 Zhou Y**, Ossorio PN **-** A study of the International Seabed Authority as a governance institution for deep seabed

14:45 **13 Gianni MG** - Managing the impacts of fishing and mining in the deep sea: political, policy and scientific challenges

15:00 **14 Trueman CN** - Carbon capture and storage roles of slope-depth demersal fish ecosystems: community function and policy relevance

15:15 **15 Clarke J**, Bailey DM, Neat FC - Drawing a line under deep-sea fishing: a scientific basis for regulation by depth

15:30 **Coffee break**

16:00 **16** Althaus F, Williams A, Alderslade P, **Schlacher TA** - Conservation of marine biodiversity on deep continental margin: how representative are large offshore reserves for deep-water octocorals

16:15 **17 Harden-Davies H** - Governing marine genetic resources beyond national jurisdiction: what role for non-monetary benefit sharing?

16:30 **18 Ramirez-Llodra E**, Shimmield T, Baker MC et al - Environmental impacts of disposal of terrestrial mine tailings in the deep ocean: current knowledge and gaps

16:45 **19 Le JT**, Carson RT, Grupe BM, Levin LA – Ecosystem services: a framework for environmental management of the deep sea

17:00 **20 Juniper SK**, Baker M - Biological research as a deepsea stakeholder

17:15 **21 Sink KJ**, McQuaid KA - Stakeholder participation to support offshore protection: Lessons from Africa

17:30 **22 Donaldson K**, Larkin K, Rogers A - Investment in deep-sea research: The European landscape

Stewardship of our deep oceans (DOSI) – Poster Session

202 Turner PJ, Van Dover CL - Conservation of rare species in the deep-sea: understanding importance and methodology

203 Metaxas A, Desilets K, Bennecke S, Lacharité M - Deep-water corals, biodiversity and conservation on the NW Atlantic continental margin: scientific collaboration informing conservation

204 García-Alegre A, Sánchez F, Gómez-Ballesteros M, Rodríguez A- Habitat suitability model as a tool to optimize data and improve species distribution mapping on a deep-sea ecosystem: El Cachucho Marine Protected Area

205 Filander Z, Sink K, Samaai T et al - Identifying and mapping sensitive deep-sea ecosystems in South Africa

206 Simon-Lledo E, Vierod ADT, Davies AJ – Habitat suitability for deep-sea stony corals in the Mediterranean Sea

207 Cobley AC, Piechaud N, Howell KL – Predictive bioregionalisation modelling of the global deep-sea benthos by physio-chemical properties and its application to a Marine Protected Area (MPA) network design

208 Gougeon S, Kemp K, **Yesson C** - Mapping and classifying the seabed of West Greenland

209 Hourigan TF, **McGuinn RP**, Dornback M et al – Linking science to management: NOAAs Deep-Sea Coral and Sponge Database and Map Portal

210 Baker M, Ramirez-Llodra E, Menot L et al – INDEEP NOW!

211 Steeds O, **Ross SW,** Wallace J - NEKTON launches Project Twilight

212 Afonso RM, Laranja A, Morim S et al - Within sight, within the mind… How to mobilize the public to foster deep-sea conservation?

Special session on mining impact Chairpersons: Adrian Glover, Craig Smith, Ana Colaço

9:15 **190 Martins I**, Goulart J, Marín S et al - Lucky Strike mussel *Bathymodiolus azoricus* exposed to Cu acute toxicity under pressurized conditions

9:30 **191 Mestre NC**, Cardoso C, Costa P et al - Deep-sea sediments toxicity assessment

9:45 **192 Phillips BT** - Deep-sea mining and its potential impact on the biology of hydrothermal and volcanic plumes

10:00 **193 Carreiro-Silva M**, Riou V, Reydet N et al - The effects of mining-generated sediment plumes on the physiology of the cold-water octocoral *Dentomuricea meteor*

10:15 **Coffee break**

10:45 **194 Shulse CN**, Maillot B, Nielsen TN et al – Microbial diversity and metabolic potential of a polymetallic nodule field

11:00 **195** Sweetman AK, **Smith CR**, Maillot B et al - Bacteria,not macrofauna, are key players in the short-term degradation of phytodetritus in abyssal

11:15 **196 Goineau A**, Gooday AJ - Evaluation of benthic foraminiferal assemblage characteristic in the abyssal eastern equatorial

11:30 **197 Gooday AJ**, Goineau A, Weber AAT - The biodiversity of xenophyophores (Rhizaria, Foraminifera) from the eastern Clarion Clipperton Zone (Equatorial Pacific)

11:45 **198 Glover AG**, Dahlgren TG, Wiklund H – Environmental stewardship of the central Pacific Clarion-Clipperton Zone mining frontier requires a vastly improved knowledge of species taxonomy and natural history

12:00 **199 Wiklund H**, Dahlgren TG, Glover AG – Phylogenetics of the Clarion-Clipperton Zone abyssal fauna: species concepts, diversity and origins

12:15 **200 Amon DJ**, Smith CR, Ziegler AF – Megafaunal community structure and biodiversity in the UK-1 claim area of the Clarion-Clipperton Zone

12:30 **201 Leitner AB**, Drazen JC, Nunnally CC - Analysis of scavenging megafauna of the Clarion-Clipperton Zone using a baited camera

12:45 **Discussion**

Mining impact - the Clarion-Clipperton Fracture Zone – Poster Session

228 Kersten O, Smith CR, Vetter EW - Abyssal benthopelagic zooplankton in the Clarion Clipperton Zone

229 Goineau A, Gooday AJ - Radiolarian tests as snug microhabitats for novel 'squatter' benthic foraminifera: observations from the abyssal eastern equatorial Pacific (Clarion–Clipperton Fracture Zone)

230 Kamenskaya OE, Gooday AJ - Xenophyophorea and Komokiacea (Protista, Foraminifera) from the French claim area of the Clarion-Clipperton Fracture Zone

231 Macheriotou L, Vanreusel A, Leliaert F - Diversity and biogeography of deep-sea nematodes in the Clarion- Clipperton Fracture Zone: integrating morphology and genetics

232 Kim D, Min W, Rho H et al - Standing stocks and distributional patterns of meiobenthos on the deep seafloor of KODOS area in the Clarion-Clipperton Fracture Zone (NE Pacific)

233 Mohrbeck I, Janssen A, Kaiser S et al – Isopod distribution patterns in polymetallic nodule fields: German vs UK License Area

234 Glover AG, Dahlgren TG, Wiklund H, Smith CR – DNA taxonomy and population connectivity (macrofauna and megafauna) methods for work in the abyssal Clarion- Clipperton Zone (CCZ), central Pacific Ocean

235 Simon-Lledo E, Solan M, Huvenne VAI, Jones DOB - Megafaunal biodiversity assessment of the APEI-4 zone of the CCFZ, North Pacific

236 Ziegler AF, Amon DJ, Smith CR - A qualitative assessment of megafaunal diversity and biogeography of the UK-1 mining claim area within the CCZ

237 Yu OH, Kim D, Kim KH et al - An environmental baseline study of the macrobenthos from the KR5 block of the Korea Deep Ocean Study (KODOS) area, Northeastern Pacific

238 Radziejewska T, Wawrzyniak-Wydrowska B, Rokicka- Praxmajer J - Twenty years later or follow-up research at an experimental disturbance test site in the Clarion- Clipperton Fracture Zone (CCFZ, sub-equatorial NE Pacific) nodule field: the IOM BIE case study

239 Sweetman AK, **Smith CR** - First assessment of the importance of dark inorganic carbon fixation in abyssal sediments of the equatorial Pacific

Ideas from DOSI Planning Meeting – 30 August 2015

1) Exhibition in Darwin's Museum in Moscow on deep-sea and possibility to list DOSI and INDEEP as co-sponsors for advertising (Tina Molodtsova – tina@ocean.ru)
2) Call for nominations to nominate African representative(s) on DOSI advisory board (Zeleka Filander – zfilander@environment.gov.za / zfilander@gmail.com)
3) Within the WGs, help come up with very small, doable parts of larger goals that many people could contribute to in order to generate a final document that compiles each part (anon)
4) Terminology: VMEs has come up in 3 WGs. Maybe a need for a workshop to pool how each WG views VMEs: (a) combinations of attributes; (b) challenges in data collection to define them; (c) what data to define them. WG VME workshop could pool the viewpoints. Then a publication produced to discuss them, collate and put the VME term into context for each WG (Phil Turner, Duke University)
5) Establish a WG on marine debris/plastic in the deep-sea. Henk-Jan Hoving offered to help with this initiative (*as has Susan Von Thunn post DOSI meeting*). I suggest that first activities could be to identify organisations looking at plastic debris that could be liaised with and funding sources. A bibliographic database could be the next step (Jen Durden, NOC – Jennifer.durden@noc.soton.ac.uk)
6) There could be a channel to engage with environmental companies that work in the field conducting surveys for clients from industry (oil & gas, deep-sea mining) in the sense of standardisation and definition of best practices; data availability (which could in turn be agreed with the client) etc. Needs and constraints differ considerably from academic ones. Both parties could benefit and ultimately improve the standards of deep-sea surveys. Maria.Milititsky@gardline.com (Guardline Environmental Ltd)
7) DOSI student group: this could help to effectively communicate DOSIs positions to the public and through international students most of DOSIs content could be translated to other languages (Paris Stefanoudis, Uni of Southampton – p.v.stefanoudis@soton.ac.uk
8) DOSI Funding suggestion: approach oil/gas companies (most non-national) in Trinidad and Tobago to fund DOSI activities in the Caribbean (Judith Gobin – Judith.gobin@sta.uwi.edu)
9) We need guidelines and terms of reference. We also need an advisory board with scientists, NGOs, and Industry (WOC for example) (Ana Colaco – acolaco@uac.pt)
10) Did DOSI develop terms of reference? If not maybe we shall and have them on the web pages. That would give us more credibility (Kerstin Kroger – JNCC, UK)
11) Deep-Sea Monitoring: JNCC currently develops as part of UK Marine Biodiversity Monitoring R&D programme, options on deep-sea monitoring in response to MSFD and other potential obligations. Deep-sea monitoring would sit nicely with EIA and baseline assessments. Therefore I suggest to add deep-sea monitoring to EIA and baseline assessments (Kerstin Kroger – Kerstin.kroeger@jncc.gov.uk)
12) How can the multinational investigations of manganese nodule habitats create a globally accessible database (beyond published research) that can effectively synthesise species lists, genetic profiles and other relevant data from the CCZ? Possible funding of maintaining and operating an initial synthesis proposal could come from Pew Foundation, IUCN or ISA. Species data within this large habitat cannot exist within a national vacuum and for it to serve as a useful tool for conservation it must be a global list verified between partners. Protection of APEIs that will serve a conservation area should be studied collaboratively as part of national surveys (Clifton Nunnally, Uni of Hawaii – cnunn@hawaii.edu)
13) Technology and methodology and standardisation for EIAs – new WG (including data). (Dhugal Lindsay – dhugal@jamstec.go.jp)
14) Pelagic – deep pelagic. Make sure always have representation OR have own WG but within benthic representation on it (Dhugal Lindsay – dhugal@jamstec.go.jp)
15) Student leverage – travel scholarships and salary funding distributed for DOSI – set goals with time limits, modest funds (e.g. £5000) for a few months work to be presented as data tables in a DOSI set format. Funding to trustworthy people (I have never taken money from industry). (Dhugal Lindsay – dhugal@jamstec.go.jp)