<table>
<thead>
<tr>
<th>Session #1</th>
<th>Marine debris efforts often involve collaborations among many different organizations and disciplines. As the NOAA Marine Debris Program states, “Marine debris is everyone’s problem.” This session is dedicated to exploring case studies that tell an interesting, holistic marine debris “story.” Regional successes and challenges will be highlighted in this session as will projects that utilize partnerships among varied stakeholders. The focus of this session is prevention of land-based sources of marine debris.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.a. Stories of success: Place-based partnerships to prevent land-based sources of marine debris Chair: M. Memon Salon 1</td>
<td>1.a.1. Proactive collaboration to stem debris - Tropical cyclone debris case study P. MURPHY 1.a.2. Sleeping with the enemy! - Can an environmental NGO and the plastics industry work together to prevent marine litter? S. KINSEY 1.a.3. Harnessing resources for a clean and healthy planet: A look at what industry is doing to end marine debris A. MONTJOY 1.a.4. Preventing debris at the water’s edge: working with marinas and boaters S. SHINGLEDECKER 1.a.5. Protecting the marine ecosystem and human health in the Gulf of Guinea from uncontrolled disposal of plastics and other municipal wastes K. CHANON</td>
</tr>
<tr>
<td>1.b. Stemming the tide of trash: Model education and outreach programs to prevent marine debris 1/2 Chair: S. Sikich Salon 2</td>
<td>1.b.1. Measures implemented to reduce marine debris from New Zealand fishing vessels A. LANE 1.b.2. Development and distribution of marine debris education kit for fishermen in Korea J. LEE 1.b.3. Plastic free Hawaii: Moving toward freedom from plastic...one community at a time N. MCKINNEY 1.b.4. Anthropogenic marine debris in the SE Pacific: Citizens discover the problem on their beaches M. THIEL 1.b.5. Engaging communities and volunteers in ongoing partnerships to reduce marine debris in the Great Lakes Region J. CROSS</td>
</tr>
<tr>
<td>Time</td>
<td>Session #2</td>
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</table>
| 2:45-3:00pm | 2.a. Reducing marine debris from shipping: The reality of regulation beyond the horizon  
Chair: A. Lane  
Salon 1  
2.a.1. Reducing marine debris from shipping: The reality of regulation beyond the horizon - Recent developments & prospects for solutions  
S. RAAYMAKERS  
2.a.2. Protecting the Caribbean Sea from marine-based pollution: Lessons from the MARPOL Annex V Special Area Designation  
C. CORBIN  
2.a.3. MARPOL Annex V - Achieving consensus to change international law  
P. MUDROCH  
2.a.4. Open Oceans and Marine Debris: Reforms to the lax enforcement of MARPOL Annex V  
A. RAKESTRAW |
| 3:00-3:15pm | Effective education and outreach efforts targeted at marine debris pollution prevention and reduction are needed to influence individual behavior change. This session will focus on a series of case studies designed to educate the general public about the impacts associated with marine debris, and simple steps each individual can take to help prevent their contribution to the problem. Essential elements, creative approaches, and effective partnerships needed to implement effective marine debris education and outreach programs will be discussed, as well as lessons learned to apply to the future development of marine debris educational efforts.  
2.b.1. Marine debris education in a non-formal education setting  
K. WILLIAMS  
2.b.2. Algalita Marine Research Foundation's Ship-2-Shore Education Program: Connecting classrooms with plastic marine debris research  
H. GRAY  
2.b.3. Ocean garbage patches beware: We have the technology and are inspiring people to clean you up  
R. MILLER  
2.b.4. Curbing plastic bag pollution: grassroots and viral efforts to bag the bag  
S. SIKICH |
| 3:15-3:30pm | 2.c. Addressing abandoned and derelict vessels  
Chair: M. Wright, N. Parry  
Salon C  
2.c.1. Derelict vessels as marine debris- Environmental and administrative considerations  
D. HELTON  
2.c.2. Marine debris and abandoned vessels Identification, reduction and prevention through community-based education and action  
A. VON HARTEN  
2.c.3. Removal of the F/V Ocean Clipper on St. Paul Island  
E. AMMANN  
2.c.4. Delivering disaster recovery through increased responsiveness, efficiency and effectiveness by a state agency  
N. BEWARD  
2.c.5. TBD  
D. BEAUCHENE |
Moderator: M. Memon  
Salon C  
Waste reduction is integral to reducing and preventing land-based sources of marine debris. Panelists will describe current methodologies for obtaining the goal of waste reduction and/or zero waste and efforts to recycle and reuse plastic packaging materials. The panel will identify best practices to minimize waste in urban and coastal areas, thus reducing the sources of marine debris. The panel discussion will focus on identifying the common elements of successful actions that can be replicated nationally and globally.  
1. U.S. Environmental Protection Agency  
2. Peter Jones, Environmental advisor to Mayor of London  
3. Derek Stephenson, Steward Edge, President  
### Session #3

#### 3.a. Outreach and education techniques and approaches

<table>
<thead>
<tr>
<th>1/2 Chair: E. Guilbaud-Cox</th>
<th>Session Description</th>
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<tbody>
<tr>
<td></td>
<td>This session includes approaches to outreach and education through artwork, classroom activities, and community involvement. This session includes stories of successful formal and informal education for many audiences. The goal of this session is to present outreach options for a variety of audiences and locations.</td>
</tr>
</tbody>
</table>

- **3.a.1. MARE 410 Marine Debris in the Pacific**
  - Teaching undergraduates at the University of Hawaii-Hilo
  - K. McDERMID

- **3.a.2. Engaging urban communities**
  - to reduce litter and marine debris
  - A. GREENE

- **3.a.3. Marine Debris Awareness**
  - Student Art Project
  - S. FRAZER

- **3.a.4. Visualizing marine debris**
  - Using drifter buoys and debris tracking data to visualize marine debris movement and distribution
  - M. MCBRIDE

#### 3.b. Modeling marine debris movement and transport

<table>
<thead>
<tr>
<th>Chair: N. Maximenko</th>
<th>Session Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>This session was formed by combining abstracts that focus on marine debris movement and transport in aquatic environments. Presentations will cover a variety of topics but are linked in the common discussion of fate and transport of different types of marine debris. As this session contains information useful to the Risk Analysis session, it will be scheduled directly before that session.</td>
</tr>
</tbody>
</table>

- **3.b.1. Numerical simulation**
  - of plastic pellets dispersal in coastal systems as a tool for the identification of potential sources
  - A. MANZANO

- **3.b.2. Global Ocean Alert System**
  - focusing on the world's river mouth outflows as a source of marine debris
  - D. WOODRING

- **3.b.3. Plastic debris pathways and areas of accumulation in statistical Lagrangian model based on drifter trajectories**
  - N. MAXIMENKO

- **3.b.4. Storm influenced marine debris movement into Prince William Sound, Alaska**
  - C. PALLISTER

- **3.b.5. Influences of weather and tidal patterns on beach debris accumulation**
  - S. WILSON

- **3.b.6. Numerical modeling with application to tracking marine debris**
  - J. POTEMRA

#### 3.c. Designing meaningful protocols for monitoring marine debris

<table>
<thead>
<tr>
<th>Chair: E. Adler</th>
<th>Session Description</th>
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<tbody>
<tr>
<td></td>
<td>This session is focused towards researchers who are developing scientific monitoring programs to assess the distribution, amount, types, and impacts of marine debris. Environments considered include shorelines, wetlands, wathes, surface waters, the water column, and the benthos. An emphasis will be placed on statistical rigor, determination of environmental covariates that may affect debris movement and breakdown, development of standard procedures and sampling schemes, and methods of reporting results to appropriate audiences. Further, this session will emphasize the need to first determine the question that will guide the monitoring program.</td>
</tr>
</tbody>
</table>

- **3.c.1. What makes a good marine debris monitoring program?**
  - C. RBHC

- **3.c.2. A first UK marine litter assessment of northern European waters**
  - T. MAES

- **3.c.3. NOAA protocols for marine debris monitoring and assessment along shorelines and in coastal surface waters**
  - C. ARTHUR

- **3.c.4. Characterization of individual marine debris items by mass**
  - J. JAMBECK

- **3.c.5. A standard protocol for monitoring marine debris using seabird stomach contents: the Fulmar EcoQO approach from the North Sea**
  - J. VAN FRANEKER

- **3.c.6. Plastic ingestion by North Pacific seabirds: Progress review and future directions**
  - D. HYRENBACH

#### 3.d. Panel: At-sea detection of marine debris: Capturing local ecological knowledge and observations

<table>
<thead>
<tr>
<th>Moderator: K. Souza</th>
<th>Session Description</th>
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<tr>
<td></td>
<td>Fields from climate change to fishery management have taken advantage of observational knowledge held by lay experts: local or indigenous community members with intimate knowledge of and experience with natural resources. The vast expanses of the ocean pose an observing challenge to academic and government researchers, and access to those who hold this knowledge is sometimes difficult. Mining the experiences of those who spend much of their time at sea is a valuable way to gain knowledge. This experiential knowledge, while not collected using the scientific method, may illustrate trends only now being detected by science, cover a timeline longer than any research project, and lead to new and better management actions. Panelists may describe the frequency of marine debris sightings and encounters (e.g., propeller entanglements, fouling of active fishing gear), debris types encountered, geographic and temporal distribution of debris encounters, and insights into debris behavior and movement. This discussion is a way to capture observational knowledge based on panelists’ experiences and observations as well as actions panelists feel could make a difference in the problem.</td>
</tr>
</tbody>
</table>

- **1. Capt. Robert Lamb, Matson’s Manager of Marine Operations for Hawaii**
- **2. LT Kelley Sage, NOAA Commissioned Officer Corps**
- **3. US Navy (confirmed)**
- **4. US Coast Guard (invited)**
- **5. Pacific Voyaging Society (invited)**
- **6. Longline fishing industry (invited)**
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Chair/Contact Information</th>
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<tbody>
<tr>
<td>11:15-11:30am</td>
<td>4.a. Outreach and education techniques and approaches</td>
<td>2/2 Chair: M. Thiele Salon 1</td>
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<tr>
<td></td>
<td>4.a.1. Expanding the reach of a one-day event: California Coastal Cleanup Day's year-round impact</td>
<td>E. SCHWARTZ</td>
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<td>4.a.2. Scaling it up: Advancing the environmental literacy of citizens through local, regional and global education and outreach efforts</td>
<td>D. FIGUEROA</td>
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<td></td>
<td>4.a.3. Raising awareness: The ripple effect of acting local and thinking global</td>
<td>A. HOWE</td>
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<td></td>
<td>4.a.4. Marine debris can save the world</td>
<td>K. WILLIAMS</td>
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<td></td>
<td>4.a.5. From cleanups to the classroom to community events: Marine debris education in San Diego</td>
<td>A. GLASSCO</td>
</tr>
<tr>
<td>11:15-11:30am</td>
<td>4.b. Risk analysis: Using predictions of the source and distribution of marine debris to assess their impacts</td>
<td>Chairs: D. Hardesty, C. Wilcox</td>
</tr>
<tr>
<td></td>
<td>4.b.1. Understanding the types, sources, and at-sea distribution of marine debris in Australian Waters</td>
<td>B. HARDESTY</td>
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<td></td>
<td>4.b.2. Impact of ingested marine debris on sea turtles of eastern Australia: Life history stage susceptibility, pathological implications and plastic bag eating preference</td>
<td>K. TOWNSEND</td>
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<td></td>
<td>4.b.3. Evidence for increasing plastic ingestion in Northern Fulmars in the Pacific</td>
<td>H. NEVINS</td>
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<td></td>
<td>4.b.4. Habitat associations of seabirds and marine debris in the North East Pacific at multiple spatial scales</td>
<td>A. TITMUS</td>
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<td></td>
<td>4.b.5. Plastic ingestion by North Pacific seabirds: Towards a hierarchical risk assessment</td>
<td>D. HYRENBACH</td>
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<td></td>
<td>4.b.6. Ghost net impacts on marine biodiversity</td>
<td>C. WILCOX</td>
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<tr>
<td>11:45am-12:00pm</td>
<td>4.c. Designing meaningful protocols for monitoring marine debris</td>
<td>2/3 Chair: C. Ribic Salon 3</td>
</tr>
<tr>
<td></td>
<td>4.c.1. Eyeballs, nets, and digital scanners: The influence of methodology in assessing plastic debris in the North Pacific Central Gyre</td>
<td>M. GOLSTEIN</td>
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<td></td>
<td>4.c.2. Ocean Voyages Institute/Project Kaisei reports on four development projects of marine debris collection equipment</td>
<td>M. CROWLEY</td>
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<tr>
<td></td>
<td>4.c.3. Application of balloon aerial photography to measure total marine litter weight across a beach and the quantification of heavy metals carried by plastic litter</td>
<td>E. NAKASHIMA</td>
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<td></td>
<td>4.c.4. EPA shoreline and pelagic marine debris monitoring methods</td>
<td>K. WIEB</td>
</tr>
<tr>
<td>12:15-12:30pm</td>
<td>4.d. Stories of success: Place-based partnerships to assess and remove marine debris</td>
<td>Chair: N. Barnea Saloon C</td>
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<tr>
<td></td>
<td>4.d.1. The Oregon partnership to address lost crab pots: Project overview</td>
<td>N. BARNEA</td>
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<td></td>
<td>4.d.2. Lessons learned from developing a derelict fishing gear program in Puget Sound: Behind the scenes stories</td>
<td>G. BROADHURST</td>
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<td>4.d.3. The Gulf of Carpentaria, Northern Australia</td>
<td>R. GUNN</td>
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<td></td>
<td>4.d.4. The Gulf of Mexico Marine Debris Project: Survey and mapping of marine debris after Hurricanes Katrina and Rita</td>
<td>N. BARNEA</td>
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<td></td>
<td>4.d.5. CoastWalk: A regional model for a global community</td>
<td>P. CHANDLER</td>
</tr>
<tr>
<td>12:30-12:45pm</td>
<td>4.e. From cleanups to the classroom to community events: Marine debris education in San Diego</td>
<td>A. GLASSCO</td>
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</table>
5a. In-water technology to detect derelict fishing gear in marine/estuarine ecosystems
Chair: P. Murphy
Salon 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Details</th>
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<tbody>
<tr>
<td>2:00-2:15pm</td>
<td>5.a.1. Quantifying the relationship between fishing effort and derelict fish traps (DFT) using autonomous underwater vehicles (AUV) in the U.S. Caribbean A. CLARK</td>
</tr>
<tr>
<td>2:15-2:30pm</td>
<td>5.a.2. Towed-diver derelict trap surveys in Florida Keys National Marine Sanctuary A. UHRIN</td>
</tr>
<tr>
<td>2:30-2:45pm</td>
<td>5.a.3. Utilizing high resolution side scan sonar to detect derelict fishing gear (nets, pots/traps) in Washington State’s Salish Sea K. ANTONELIS</td>
</tr>
<tr>
<td>2:45-3:00pm</td>
<td>5.a.4. Detecting derelict fishing gear in the Stellwagen Bank National Marine Sanctuary using the HabCam habitat mapping camera system A. YORK</td>
</tr>
<tr>
<td>3:00-3:15pm</td>
<td>5.a.5. Sonars, robots and seeing through the dark: Using integrated technology to find and remove marine debris from a variety of locations R. MILLER</td>
</tr>
<tr>
<td>3:15-3:30pm</td>
<td>5.a.6. Detection, identification and diving: Lessons learned in planning and execution of a derelict crab pot detection project in SE Alaska P. MURPHY</td>
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</table>

5b. Panel: Plastic Recovery for a Trash Free Ocean
Moderator: K. Weiler Salon 2

<table>
<thead>
<tr>
<th>Session #5</th>
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<tbody>
<tr>
<td>2. John Kieser, Environmental Manager – Coastal Provinces, Plastics Federation of South Africa</td>
</tr>
<tr>
<td>3. Keith Christman, Managing Director, Plastic Markets, American Chemistry Council</td>
</tr>
<tr>
<td>4. Margretta E. Morris, Director, Environmental Science &amp; Community Affairs, Covanta Energy Corporation</td>
</tr>
<tr>
<td>5. Melissa Hockstad, Vice President, Science, Technology &amp; Regulatory Affairs, SPI: The Plastics Industry Trade Association</td>
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5c. Results and synthesis of marine debris monitoring projects
Chair: T. Maes Salon 3

<table>
<thead>
<tr>
<th>Session Details</th>
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<tbody>
<tr>
<td>5.c.1. Midway Island as a sentinel site for Pacific Region marine debris C. RBIBC</td>
</tr>
<tr>
<td>5.c.2. Coastal cleanup and marine debris trends analysis in Puerto Rico (2002-2010) A. TRUJILLO</td>
</tr>
<tr>
<td>5.c.3. Characterization of beach litter in Cijin and its implications on solid waste management T. LIU</td>
</tr>
<tr>
<td>5.c.4. Monitoring marine debris in Trinidad P. WRIGHT</td>
</tr>
<tr>
<td>5.c.5. Trends in marine debris along the coast of the continental United States 1996-2007 C. RBIBC</td>
</tr>
<tr>
<td>5.c.6. Plastic marine debris in the Portuguese coastline J. MARTINS</td>
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5d. Microplastic in the environment: Causes and consequences
1/2
Chair: M. Browne, R. Thompson Salon C

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>5.d.1. Microplastic: From domestic sinks to global sinks M. BROWNE</td>
</tr>
<tr>
<td>5.d.2. Bio-plastics and their interaction with the environment K. POLKANE</td>
</tr>
<tr>
<td>5.d.3. Plastic marine debris in the Atlantic Ocean and Caribbean Sea: Abundance, distribution, characteristics, and trends K. LAW</td>
</tr>
<tr>
<td>5.d.4. Spatial and temporal distribution of microplastics in the Puget Sound, USA J. BAKER</td>
</tr>
<tr>
<td>5.d.5. A summary of neustonic plastic density and abundance in the North Pacific Gyre, 1999-2009 G. LATTN</td>
</tr>
<tr>
<td>5.d.6. Abundance, distribution, and ecology of plastic microdebris in the North Pacific Central Gyre M. GOULDSTEIN</td>
</tr>
</tbody>
</table>
This session is devoted to experiences in assessment and management for marine protected areas on a variety of aspects concerning debris, such as survey and removal, transport of non-native organisms, and effects on protected species. Protected areas in the marine environment can have challenges concerning the assessment and management of marine debris. Marine sanctuaries can pose difficulties to activities associated with marine debris management due to factors such as remoteness or inaccessibility of habitats and the presence of protected species. The session will discuss the challenges of dealing with baseline assessment in unique habitats and steps taken to achieve debris removal and threat abatement for protected species.

### Session #6

#### 6.a. Managing marine debris in marine protected areas
- **Chair:** S. Godwin
- **Salon 1**

<table>
<thead>
<tr>
<th>Subsession</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.a.1.</td>
<td>Design-based surveys of lost fishing gear and other marine debris in the Florida Keys. M. Chiappone</td>
</tr>
<tr>
<td>6.a.2.</td>
<td>The removal and disposal of a derelict vessel from a remote marine protected area in Hawai‘i. S. Godwin</td>
</tr>
<tr>
<td>6.a.3.</td>
<td>Indigenous protected areas: Challenges and triumphs. S. Morrison</td>
</tr>
<tr>
<td>6.a.4.</td>
<td>Dealing with marine debris in Marine Protected Areas at Europe’s extremities. D. Johnson</td>
</tr>
<tr>
<td>6.a.5.</td>
<td>Hazardous marine debris in Marine National Monuments. L. Woodward</td>
</tr>
</tbody>
</table>

#### 6.b. Preventing land-based sources of debris through solid waste management
- **Chair:** M. Memon
- **Salon 2**

<table>
<thead>
<tr>
<th>Subsession</th>
<th>Description</th>
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<tbody>
<tr>
<td>6.b.1.</td>
<td>Waste management in small island states - Spreading the success of innovative ideas, integrated systems and practical community action for large-scale change. S. Judd</td>
</tr>
<tr>
<td>6.b.2.</td>
<td>Avoiding unintended consequences - Controlling land-based sources of marine debris while enhancing terrestrial waste management and recycling policy, law, and practice. L. Monroe</td>
</tr>
<tr>
<td>6.b.4.</td>
<td>Global partnership on waste management. M. Memon</td>
</tr>
<tr>
<td>6.b.5.</td>
<td>Waste Management and Recycling in the Galápagos Islands. I. Larrea</td>
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</tbody>
</table>

#### 6.c. Designing meaningful protocols for monitoring marine debris
- **Chair:** F. Galgani
- **Salon 3**

<table>
<thead>
<tr>
<th>Subsession</th>
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<tbody>
<tr>
<td>6.c.3.</td>
<td>Tridimensional sampling method to estimate abundance of plastic pellets in sandy beaches. M. Fisner</td>
</tr>
<tr>
<td>6.c.4.</td>
<td>Creating a citizen-science monitoring program to quantify microplastic marine debris. J. Paschal</td>
</tr>
<tr>
<td>6.c.5.</td>
<td>Rapid assessment of beach litter pollution in the beaches of Busan, Korea: Application of Litter Pollution Index. J. Lee</td>
</tr>
<tr>
<td>6.c.6.</td>
<td>Using a rapid survey approach to identify morphodynamics factors that promote the accumulation of micro- and meso-debris on sedimentary shoreline in Southwest England. N. Biber</td>
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</table>

#### 6.d. Microplastic in the environment: Causes and consequences
- **Chair:** M. Browne, R. Thompson
- **Salon C**

<table>
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<tr>
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<tbody>
<tr>
<td>6.d.1.</td>
<td>Characterization of the microbial community structures associated with ocean polymers. C. Stam</td>
</tr>
<tr>
<td>6.d.2.</td>
<td>Biological communities in concentrations of debris regions: Who shares the ocean surface with plastic in the Eastern Pacific and North Atlantic? S. Moret-Ferguson</td>
</tr>
<tr>
<td>6.d.3.</td>
<td>Reshaping and relocating: Seabirds as transformers and transporting of microplastics. J. van Franeker</td>
</tr>
<tr>
<td>6.d.4.</td>
<td>GESAMP initiative on microplastic particles as a vector for persistent, bio-accumulating and toxic compounds. P. Kershaw</td>
</tr>
<tr>
<td>6.d.5.</td>
<td>How concerned should we be about the accumulation of microplastics in the environment? R. Thompson</td>
</tr>
</tbody>
</table>
Thursday, March 24, 2011

### Session #7

#### 7.a. Monitoring and reducing the impact of ‘ghost’ fishing by derelict fishing traps

| Chair: K. Havens  
| Salon 1 |
| 7.a.1. Derelict crab pots in the Chesapeake Bay, USA  
| K. HAVENS |
| 7.a.2. Quantifying the impacts of derelict Blue Crab traps in Chesapeake Bay  
| S. GIORDANO |
| 7.a.3. Survey and impact assessment of derelict crab pots in the Southeast Alaska, commercial Dungeness crab fisheries  
| J. MASELKO |
| 7.a.4. Investigating the “ghost-fishing” capacity of derelict lobster traps  
| M. SMITH |
| 7.a.5. Derelict spiny lobster traps in Florida Keys National Marine Sanctuary: Tradeoffs between habitat impacts and ghost fishing  
| T. MATTHEWS |
| 7.a.6. Derelict Trap Hotspots in Chesapeake Bay: Integrating a Spatially Explicit Model with Waterman Ingenuity to Clean-up Derelict Traps  
| W. SLACUM |

### Session #7

#### 7.b. Many hands make light work: Global and regional partnerships to prevent, mitigate and remove marine debris

| Chair: D. Russo  
| Salon 2 |
| 7.b.1. Partnering for a regional strategy: West Coast efforts to comprehensively address marine debris  
| E. SCHWARTZ |
| 7.b.2. Hawaii Marine Debris Action Plan: An archipelago-wide approach focused on results  
| K. MCELWEE |
| 7.b.3. Regional action on marine litter in the North-East Atlantic  
| D. JOHNSON |
| 7.b.4. A NETwork of partners  
| R. GUNN |
| 7.b.5. The role of an MPA network in marine debris reduction in the wider Caribbean Region  
| E. DOYLE |
| 7.b.6. Regional cooperation in dealing with marine litter: NOWPAP experience  
| A. TKALIN |

### Session #7

#### 7.c. Environmental impacts of chemicals in marine plastics

| Chair: H. Takada, H. Karapanagioti  
| Salon 3 |
| 7.c.1. Chemicals in marine plastics: Global distributions and potential risk to marine ecosystem  
| H. TAKADA |
| 7.c.2. Surface properties of beached plastic pellets and the effects of salinity on their sorptive properties for phenanthrene and 1-naphthol  
| K. FOTOPOULOU |
| 7.c.3. Partitioning and bioavailability of persistent organic pollutants in marine plastic debris  
| U. GHOSH |
| 7.c.4. The role of plastic production pellets in the accumulation and transport of trace metals in the marine environment  
| L. HOLMES |
| 7.c.5. Understanding the occurrence of floating and beached plastics and the interactions between plastic pellets and organic micropollutants in the Mediterranean Sea  
| H. KARAPANAGIOTI |
| 7.c.6. Environmental and health impacts of marine debris: plastic and chemical contaminants in juvenile yellowtail jacks (Seriola lalandi) from the North Pacific gyre  
| M. GASSEL |

### Session #7

#### 7.d. Shoreline marine debris: Removal and disposal methods

| Chairs: M. Ferguson, M. Sudakovsky  
| Salon C |
| 7.d.1. Aerial surveys and derelict fishing gear removal along Main Hawaiian Island nearshore environments: A case study  
| M. FERGUSON |
| 7.d.2. Seven years “net” progress a.k.a. Picking up the pieces on Hawai‘I Island  
| M. LAMSON |
| 7.d.3. Using volunteer and professional crews to clean remote northern Gulf of Alaska beaches  
| P. PALLISTER |
| 7.d.4. Removal and disposal methods used in Alaskan marine debris cleanups  
| D. GAUDET |

### Session #7

#### 7.e. Talking trash: Successes and challenges associated with policies to prevent plastic marine pollution

| Chair: K. James  
| Leahi Ballroom |
| 7.e.1. The Lay of the Land: single-use plastic pollution policy and legislative approaches in California the USA and beyond  
| L. TAMMINEN |
| 7.e.2. Working to End Plastic Bag Pollution in California  
| K. JAMES |
| 7.e.3. Plastics, Litter, and the Precautionary Principle: Carrots and sticks in San Francisco  
| R. HALEY |
| 7.e.4. Surfrider Foundation Law & Policy Advocating for Local Change: Municipal Ordinances Addressing Marine Debris  
| A. HOWE |
### Session 8a: Engaging fishermen to address derelict fishing gear

**Chair:** S. Morison  
**Salon:** Salon 1

Providing fishermen with the means to get involved in derelict fishing gear removal (potentially recovering their own lost gear) and working with them to identify ways to prevent gear loss are key avenues to reducing the overall amount of derelict fishing gear. These topics will be explored in this session, which is targeted to those people trying to reduce the amount of derelict fishing gear by engaging fishermen in removal and prevention activities.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.a.1 Engaging fishing communities through the Fishing for Energy partnership</td>
<td>E. DUGGAN</td>
</tr>
<tr>
<td>8.a.2 Measuring the cost of marine debris to Hawai’i’s longline fishery</td>
<td>J. HOSPITAL</td>
</tr>
<tr>
<td>8.a.3 Fishermen-led derelict gear recovery in California</td>
<td>K. GILARDI</td>
</tr>
<tr>
<td>8.a.4 Mobilizing fishermen to recover derelict lobster gear - Overcoming misgivings and mistrust</td>
<td>L. LUDWIG</td>
</tr>
<tr>
<td>8.a.5 Rule changes and partnerships with commercial fishermen increases impact of derelict crab trap clean ups in Florida</td>
<td>E. STAUDLER</td>
</tr>
<tr>
<td>8.a.6 Engaging unemployed commercial fishermen to retrieve lost Blue Crab pots in the Chesapeake Bay</td>
<td>K. HAVENS</td>
</tr>
</tbody>
</table>

### Session 8b: Coastal cleanup programs - A solution to the problem or just to the symptom?

**Chair:** R. Alkalay, G. Pasternak  
**Salon:** Salon 2

Routine coastal cleanups and enforcement actions can create a visible improvement in coastal cleanliness. But is there a significant change in public awareness of the need to reduce plastic usage and waste production? Are we really dealing with the problem, or just the consequences? This session will address the following question: is keeping the coast clean solving the problem of littering, or do we need to start at the source?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.b.1 “Clean Coast” Program - A leverage for a long-time change</td>
<td>R. ALKALAY</td>
</tr>
<tr>
<td>8.b.2 Waitemata Harbour Clean-Up Trust video presentation</td>
<td>H. SMITH</td>
</tr>
<tr>
<td>8.b.3 Marine debris pollution along the coasts of Korea: Results from a nationwide monitoring and clean-up campaign</td>
<td>S. HONG</td>
</tr>
<tr>
<td>8.b.4 How addressing symptoms can lead to a solution to the problem</td>
<td>R. GUNN</td>
</tr>
<tr>
<td>8.b.5 Laying a path to solve the marine litter problem</td>
<td>Y. OHKURA</td>
</tr>
<tr>
<td>8.b.6 Using marine debris data from cleanups to support successful advocacy efforts</td>
<td>E. GLANVILLE</td>
</tr>
</tbody>
</table>

### Session 8c: Environmental impacts of chemicals in marine plastics

**Chair:** H. Takada, H. Kampourigioti  
**Salon:** Salon 3

In this session, scientists will provide an overview of the latest researches on chemicals in marine plastics and their potential biological effects. The fields include uptake of plastics by marine organisms, characterization of chemicals in the marine plastics, sorption and desorption processes of the chemicals from the plastics, and adverse effects of the plastic-derived chemicals on marine biota. The session will facilitate the studies and activities to reduce the plastic inputs from terrestrial environments and abundance of plastics and chemical risk in the ocean.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.c.1 Microbial biofouling of plastic marine debris</td>
<td>G. PROSKUROWSKI</td>
</tr>
<tr>
<td>8.c.2 Adsorption of POPs to different types of plastic pellets deployed in San Diego Bay, California</td>
<td>C. ROCHMAN</td>
</tr>
<tr>
<td>8.c.3 Quantifying phthalates and bisphenol A in marine organisms</td>
<td>S. ALI</td>
</tr>
<tr>
<td>8.c.4 Chemicals in marine plastics and potential risks for a seabird like the Northern Fulmar (Fulmarus glacialis)</td>
<td>J. VAN FRAKENSWEER</td>
</tr>
<tr>
<td>8.c.5 Effects of plastic debris ingestion on PCBs in seabirds</td>
<td>R. YAMASHITA</td>
</tr>
<tr>
<td>8.c.6 Marine debris and heavy metal contamination in Flesh-footed Shearwaters (Puffinus carneipes)</td>
<td>J. LAVERS</td>
</tr>
</tbody>
</table>

### Session 8d: Panel: Building on maritime industry best practices to catalyze action

**Moderator:** Salon C

Preventing marine debris from ocean-based sources requires the commitment and efforts of the companies operating in the marine environment. This includes the corporate culture, policies, protocols, and practices to ensure that company activities at sea do not generate marine debris. The panel will bring together representatives from shipping and cruise industries to present case studies on their programs. Panelists will include representatives from merchant shipping, cruise ship tourism, and fisheries industries. The panelists will share best practices and lessons learned in order to inspire and inform other companies in undertaking their own efforts. They will present information on:

- The rationale, drivers, and decision-making that led to company commitments to address marine debris.
- The practical aspects of creating programs: getting a policy in place, developing operational practices, creating training and education programs, monitoring compliance by staff, etc.
- The practical aspects of implementing programs: creating training and education programs, monitoring compliance by staff, etc.

The panel discussion will focus on identifying the common elements of successful programs that other companies can use when developing marine debris prevention programs. The focus of the discussion will be on pulling results together into the elements of a strategy and the content of guidelines/best practices that would help move other companies towards more fully addressing marine debris.

1. Kathy Metcalf, Director, Maritime Affairs, Chamber of Shipping of America  
2. Lisa M. Swanson, Director Environmental Affairs, Matson Navigation Company  
3. Cruise ship industry association representative (TBC)  
4. Cruise ship company TBC
Can ocean conservation films make a difference? This session will invite some of the top filmmakers and media producers in the industry to explore the trends behind successful films and media campaigns—specifically those serving to increase the public’s attention to the threats of marine debris. These filmmakers will engage in an insightful and candid dialogue about what drives some films to produce tangible results and create positive social change.

The panelists will showcase clips from their respective advocacy films and discuss how their films all had great impact on public awareness and social action, providing personal insight on what it takes to create an effective crossmedia campaign.

This panel will focus on esteemed filmmakers producing successful ocean conservation films specifically focused on marine debris. What have been some of the tangible measurements of success or positive outcomes from these media campaigns? Common links will be drawn from these case studies in order to begin to formulate a blueprint that can be applied to marine debris and other ocean issues.

Topics to discuss:
1. Panel: Ocean filmmakers
2. Conveying the science message—360° campaign
3. Turning science into action and protection
4. What are real measurements of success?
5. What are the common elements of successful conservation films?

Chair: J. Schmidt

Session Description

### Salon 1

1. Representative of the short film “Plastic Bag” (TBC)
2. Jeremy Irons, Narrator of “The Magnificent Bag”, a nature mockumentary released by Heal the Bay, a local CA nonprofit.
3. Danielle Russo, Plastic Pollution Coalition Co-founder to speak on “Bag It!”
4. Kyle Thiermann, Surfer & Producer of three short advocacy videos (Invited)

This session includes discussions of law, policy, and economic instruments to address marine debris. The goal of this session is to learn from case studies that lay out the components necessary for successful governance, as defined as fewer marine debris impacts to the marine environment.

### Session 9c

1. Economics + marine debris: A market-based solution to marine debris
2. Open source legislative database and the Global Map
3. You can’t put a price on that: Marine debris emergency response and preparedness
4. A market-based solution to marine debris

Chair: J. Bollock

### Salon 2

1. Volunteer beach cleanup data: Sources of error and reinforcing community based data collection
2. Engaging ocean-going sailors
3. Technology in the trenches: Citizen scientists and marine debris monitoring protocols
4. A mobile application for citizen scientists to participate in data collection, leading to the development of a long term database. The focus will be on ways to design methodology and sampling equipment in such a manner that they are accessible, citizen-friendly, and safe for a wide age spectrum, while producing data that is valuable to governments and the scientific community. The conversation will be open to all aspects of marine debris monitoring.

Chair: J. Paschal

### Session 9b

1. Volunteer beach cleanup data: Sources of error and reinforcing community based data collection
2. Engaging ocean-going sailors
3. Technology in the trenches: Citizen scientists and marine debris monitoring protocols
4. A mobile application for citizen scientists to participate in data collection, leading to the development of a long term database. The focus will be on ways to design methodology and sampling equipment in such a manner that they are accessible, citizen-friendly, and safe for a wide age spectrum, while producing data that is valuable to governments and the scientific community. The conversation will be open to all aspects of marine debris monitoring.

Chair: J. Paschal

### Salon C

1. Ocean voyages to study and quantify pelagic debris
2. Ocean voyages to study and quantify pelagic debris
3. Ocean voyages to study and quantify pelagic debris
4. Ocean voyages to study and quantify pelagic debris

Chair: N. Mallos
<table>
<thead>
<tr>
<th>Time</th>
<th>Session #10</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00-4:15pm</td>
<td>10.a. The role of ocean filmmaking in educating the public about marine debris</td>
</tr>
<tr>
<td>4:15-4:30pm</td>
<td>10.b. Citizen scientists and marine debris monitoring: Standardizing and simplifying debris monitoring and analysis methods to allow for standardized data collection and analysis. The aim is to develop a framework for standardizing debris monitoring and analysis methods. The session will review successful debris monitoring projects and discuss the importance of standardizing and simplifying debris monitoring and analysis methods to improve data quality and comparability. The session will also discuss the role of citizen scientists in debris monitoring and the challenges they face.</td>
</tr>
<tr>
<td>4:30-4:45pm</td>
<td>10.c. Ocean voyages to study and quantify pelagic debris</td>
</tr>
<tr>
<td>4:45-5:00pm</td>
<td>10.d. Shoreline marine debris: Removal and disposal methods</td>
</tr>
<tr>
<td>5:00-5:15pm</td>
<td>10.e. Characterization of plastic marine debris: Methods and tools for characterizing plastic marine debris</td>
</tr>
</tbody>
</table>

**Thursday, March 24**

**THURSDAY, MARCH 24**

**Session #10**

**10.a. The role of ocean filmmaking in educating the public about marine debris**
- **Chair:** J. Schmidt
- **Salon 1**
- **10.a.1. PLASTIC OCEANS - A global perspective on plastic debris in the oceans**
  - **S. ELLIOTT, M. STUBELJ ARS**
- **10.a.2. Filmmaking in the North Pacific**
  - **Chair:** S. Werner, C. Rouam
  - **Salon 2**
  - **10.a.3. The value of community engagement in ocean conservation**
    - **H. TAYLOR**
  - **10.a.4. From nurdles to nets: The role of citizen scientists in ocean conservation**
    - **C. ROUSE, C. ROUS**
  - **10.a.5. Ocean photography: A tool for raising awareness about marine debris**
    - **B. ROBERTSON, C. VANCE**

**10.b. Citizen scientists and marine debris monitoring: Standardizing and simplifying debris monitoring and analysis methods to allow for standardized data collection and analysis. The aim is to develop a framework for standardizing debris monitoring and analysis methods. The session will review successful debris monitoring projects and discuss the importance of standardizing and simplifying debris monitoring and analysis methods to improve data quality and comparability. The session will also discuss the role of citizen scientists in debris monitoring and the challenges they face.**
- **Chair:** M. Ferguson, M. Sudnovsky
- **Salon 3**
- **10.b.1. Australian Marine Debris Project - The value of community engagement in debris monitoring**
  - **H. FRIEDMAN, C. KING, A. GLASSCO**
- **10.b.2. Prince William Sound Alaska Marine Debris Monitoring Project**
  - **Chair:** H. NOH
  - **C. ROUAM, E. ENGLISH, J. A.I.TU, A. GLASSCO**
- **10.b.3. Marine debris in Central California - The value of community engagement in debris monitoring**
  - **Chair:** H. TAYLOR
  - **C. ROUSE, C. ROUS**
  - **Chair:** H. NOH
  - **C. ROUAM, E. ENGLISH, J. A.I.TU, A. GLASSCO**
- **10.b.5. 25 years of global trash: 8.7 million people, 144 million pounds of trash, 291,000 miles of coastline affected by marine debris**
  - **Chair:** G. PASTERNAK, C. ROUSE, C. ROUS**
  - **10.b.6. Quantification of plastic debris in marine environments**
    - **Chair:** S. MAXIMENKO
    - **N. MAXIMENKO, A. GLASSCO**

**10.c. Ocean voyages to study and quantify pelagic debris**
- **Chair:** G. Hanke
- **Leahi Ballroom**
- **10.c.1. Characterization of plastic marine debris: Methods and tools for characterizing plastic marine debris**
  - **Chair:** S. Werner, C. Rouam
  - **Salon 1**
  - **10.c.2. Regional fisheries management organizations and future needs**
    - **Chair:** E. ENGLISH, J. A.I.TU
    - **Salon 2**
  - **10.c.3. Lessons learned from ten years of the OceanVoyages Institute/RCAI**
    - **Chair:** A. GLASSCO, C. ROUSE
    - **Salon 3**
  - **10.c.4. Which governance for plastic-free seas and oceans?**
    - **Chair:** A. GLASSCO, H. NOH
    - **Salon 4**
  - **10.c.5. Policies and implementation of the integrated marine litter management plan: A panacea for marine debris problem**
    - **Chair:** C. ROUSE, C. ROUS
    - **Salon 5**
  - **10.c.6. An integrated approach to managing marine debris: A panacea for marine debris problem**
    - **Chair:** S. Werner, C. Rouam
    - **Salon 6**

**10.d. Shoreline marine debris: Removal and disposal methods**
- **Chair:** M. Ferguson, M. Sudnovsky
- **Salon 3**
- **10.d.1. From nurdles to nets: The role of citizen scientists in ocean conservation**
  - **Chair:** H. TAYLOR
  - **C. ROUSE, C. ROUS**
- **10.d.2. Cleaning Kanapou, Hawaii: The challenges of marine debris removal from remote areas**
  - **Chair:** B. ROBERTSON, C. VANCE
  - **10.d.3. The challenges of marine debris removal and disposal on St. Croix, U.S. Virgin Islands**
    - **Chair:** M. BROWN
    - **10.d.4. Reducing waste generated in coastal communities to combat abandoned, lost or otherwise discarded fishing gear (ALDFG)**
      - **Chair:** B. ROBERTSON, C. VANCE
      - **10.d.5. Marine debris in Central California - The value of community engagement in debris monitoring**
        - **Chair:** H. TAYLOR
        - **C. ROUSE, C. ROUS**
      - **10.d.6. Quantification of plastic debris in marine environments**
        - **Chair:** S. MAXIMENKO
        - **N. MAXIMENKO, A. GLASSCO**

**10.e. Characterization of plastic marine debris: Methods and tools for characterizing plastic marine debris**
- **Chair:** M. Ferguson, M. Sudnovsky
- **Salon 3**
- **10.e.1. Characterization of plastic marine debris: Methods and tools for characterizing plastic marine debris**
  - **Chair:** S. Werner, C. Rouam
  - **Salon 1**
  - **10.e.2. The OceanGybe Expedition: A global perspective on plastic debris in the ocean**
    - **Chair:** G. PASTERNAK, C. ROUSE
    - **Salon 2**
  - **10.e.3. Lessons learned from ten years of the OceanVoyages Institute/RCAI**
    - **Chair:** A. GLASSCO, C. ROUSE
    - **Salon 3**
  - **10.e.4. Which governance for plastic-free seas and oceans?**
    - **Chair:** A. GLASSCO, H. NOH
    - **Salon 4**
  - **10.e.5. Policies and implementation of the integrated marine litter management plan: A panacea for marine debris problem**
    - **Chair:** C. ROUSE, C. ROUS
    - **Salon 5**
  - **10.e.6. An integrated approach to managing marine debris: A panacea for marine debris problem**
    - **Chair:** S. Werner, C. Rouam
    - **Salon 6**
### FRIDAY, MARCH 25

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.a.</td>
<td>8:30-9:00am</td>
<td>Education and outreach programs, effective laws and policies, a sound waste management infrastructure, and a system of fair and vigilant enforcement of waste management laws are the essential building blocks for successful marine debris prevention initiatives. The most successful programs take integrated approaches to changing the behaviors and practices of civil society, as well as those of industry and government. This session will examine a number of public/private partnerships and similar programs already in place as a means of identifying best practices. It will highlight innovative strategies being developed within the private sector and through partnerships to make sure that material innovations and product design breakthroughs are helping to reduce environmental impacts. The session will also explore how partnerships with local governments and reclaimers can help to create secure, financial business opportunities and make recycling a cost-effective solution. And, finally, the session will explore the impacts of how consumer education is essential, and how local management of solid waste can help or hinder progress. This session will focus on collaborative success stories and opportunities for improvement and innovative educational and technological activities that can be implemented nationally and disseminated on a global scale.</td>
</tr>
<tr>
<td>11.a.1.</td>
<td>The power of partnerships</td>
<td>A. CROW</td>
</tr>
<tr>
<td>11.a.2.</td>
<td>Private sector efforts to create effective, collaborative partnerships to reduce litter</td>
<td>A. CARLSON</td>
</tr>
<tr>
<td>11.a.3.</td>
<td>Marine debris solutions through public-private partnerships: Industry, government &amp; NGO partners collaboratively provide recycling opportunities in public spaces</td>
<td>C. FLOWERS</td>
</tr>
<tr>
<td>11.a.4.</td>
<td>PlasticEurope’s proposed way forward</td>
<td>J. JOHANSSON</td>
</tr>
<tr>
<td>11.b.</td>
<td>9:00-10:00am</td>
<td>This session will explore the use of different diving methodologies for marine debris removal including safety precautions, specific trainings, and debris handling techniques. Potential topics to be covered include scuba diving, hookah, snorkeling operations, and more. Presenters may also explain safety practices and precautions taken for particular operations. Discussions may include the need for specific trainings such as small boat operations, debris handling methods, and proper rescue certifications (e.g., CPR, First Aid, Oxygen Administration). Specific case studies can be utilized to provide examples of both successful and flawed approaches.</td>
</tr>
<tr>
<td>11.b.1.</td>
<td>In-water surveys and removal of marine debris following a tsunami in American Samoa</td>
<td>M. MANUEL</td>
</tr>
<tr>
<td>11.b.2.</td>
<td>Volunteer scuba divers and underwater marine debris removal, assessment, and data collection: Challenges and opportunities</td>
<td>A. BUDZIAK</td>
</tr>
<tr>
<td>11.b.3.</td>
<td>Dive methodologies used in California to recover lost fishing gear</td>
<td>J. RENZULLO</td>
</tr>
<tr>
<td>11.b.4.</td>
<td>Derelict fishing gear removal in the Papahānaumokuākea Marine National Monument</td>
<td>K. KOYANAGI</td>
</tr>
<tr>
<td>11.c.</td>
<td>10:00-11:00am</td>
<td>This session will explore how a comprehensive social marketing campaign can address the challenges faced in reducing or eliminating marine debris and thus negating its effects on wildlife. It will discuss how to create a campaign centered on changing individual and industry behaviour when it comes to trash disposal and reducing or eliminating marine debris.</td>
</tr>
<tr>
<td>11.c.1.</td>
<td>Cigarettes, fishing nets, and Facebook: The utility of social media in ocean conservation</td>
<td>H. GRIDLEY</td>
</tr>
<tr>
<td>11.c.2.</td>
<td>Litter and recycling in America: A look at recent studies and trends, with recommendations for action</td>
<td>R. WALLACE</td>
</tr>
<tr>
<td>11.c.3.</td>
<td>Social marketing and the California Thank You Ocean campaign</td>
<td>S. MARQUIS</td>
</tr>
<tr>
<td>11.c.4.</td>
<td>Using social activation strategy to promote change</td>
<td>D. RUSSO</td>
</tr>
<tr>
<td>11.d.</td>
<td>11:00-12:00pm</td>
<td>This session will highlight successful alternative marine debris waste management scenarios including waste-to-energy and recycling, while exploring the more innovative (uncommon for marine debris yet proven for other materials) practices of gasification and pyrolysis. While describing successful projects, logistics of collection and costs will be incorporated into talks. For innovative technologies, cost of facility construction and operation (and waste throughput costs) will be presented. This session is for people currently conducting marine debris and derelict gear cleanups who desire an alternative disposal option from landfills; the session is also for people planning logistics for cleanups who want to use alternative disposal options.</td>
</tr>
<tr>
<td>11.d.1.</td>
<td>GhostNet gear: Turning trash into treasure</td>
<td>J. GOLDBERG</td>
</tr>
<tr>
<td>11.d.2.</td>
<td>Assessment of the viability of using marine debris as a feedstock in advanced gasification solutions for disposal and energy production</td>
<td>G. GRADMAN</td>
</tr>
<tr>
<td>11.d.3.</td>
<td>Developing a 21st century waste to energy facility in American Samoa</td>
<td>M. NICHOLLS</td>
</tr>
</tbody>
</table>
## Session #12

### 12.a. Public/private partnerships for reducing and preventing marine debris through education and outreach

**Chairs:** K. Christman, S. Sheavly

**Salon:** Salon 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-8:45am</td>
<td>12.a.1. CPIA – Working with Canada’s plastic industry to support successful education programs and industry innovations related to plastics C. CIRKO</td>
</tr>
<tr>
<td>8:45-9:00am</td>
<td>12.a.2. Supply and contamination issues affecting plastics recycling in North America G. FISHBEECK</td>
</tr>
<tr>
<td>9:00-9:15am</td>
<td>12.a.3. The Fishing for Energy partnership: removing the barrier of derelict gear disposal M. PICO</td>
</tr>
<tr>
<td>9:15-9:30am</td>
<td>12.a.4. Mainstreaming marine litter management in Caribbean SIDS through government and civil society partnerships C. CORBIN</td>
</tr>
</tbody>
</table>

**Description:**

Education and outreach programs, effective laws and policies, a sound waste management infrastructure, and a system of fair and vigilant enforcement of waste management laws are the essential building blocks for successful marine debris prevention initiatives. The most successful programs take integrated approaches to changing the behaviors and practices of civil society, as well as those of industry and government. This session will examine a number of public/private partnerships and similar programs already in place as a means of identifying best practices. It will highlight innovative strategies being developed within the private sector and through partnerships to make sure that material innovations and product design breakthroughs are helping to reduce environmental impacts. The session will also explore how partnerships with local governments and reclaimers can increase the amount and types of materials that can help to create secure, financial business opportunities and make recycling a cost-effective solution. And, finally, the session will explore the impacts of how consumer education is essential, and how local management of solid waste can help or hinder progress. This session will focus on collaborative success stories and opportunities for improvement and innovative educational and technological activities that can be implemented nationally and disseminated on a global scale.

### 12.b. Assessing the dangers and removal of sea-dumped munitions and other hazardous debris

**Chair:** P. Walker, F. Longinotto

**Salon:** Salon 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-8:45am</td>
<td>12.b.1. Research effort to document military munitions disposal sites worldwide R. STAUBER</td>
</tr>
<tr>
<td>8:45-9:00am</td>
<td>12.b.2. Ordnance Reef coral impact assessment and mitigation of remotely operated underwater munitions recovery system demonstration project R. O’CONNER</td>
</tr>
<tr>
<td>9:00-9:15am</td>
<td>12.b.3. Assessing the dangers and removal of sea-dumped munitions and other marine hazardous debris P. WALKER</td>
</tr>
</tbody>
</table>

**Description:**

The topic considered here is the hazard posed by toxic underwater munitions and other hazardous marine debris materials, including efforts to prioritize risks among sites by developing a comprehensive database, bringing these threats to light in a series of meetings and international dialogues, and, finally, examining ultimate clean-up strategies. Key points include the need for an international agreement to tackle the issue, the need for a coordinated global database, awareness to raise political will, policy alternatives, dangers to human health and the environment, and the need for new technology to mitigate impacts of hazardous debris. Though some research has been conducted into the broader environmental consequences on the marine habitat, for example on coral and fish stocks, it has not yet been coordinated or reported globally and databases are still dismally patchy. In other words, the situation, which has received very limited attention to date, could be a serious sleeper ready to cause severe damage in the future if disregarded now.

### 12.c. Biological impacts of marine debris

**Chair:** D. Johnson

**Salon:** Salon 3

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>8:30-8:45am</td>
<td>12.c.1. Marine debris: More than a low grade fever for marine mammals and sea turtles V. CORNISH</td>
</tr>
<tr>
<td>8:45-9:00am</td>
<td>12.c.2. Microbial comparison of epibenthic communities on Sargassum and plastic debris vs. surrounding water in the North Atlantic gyre L. AMARAL-ZETTLER</td>
</tr>
<tr>
<td>9:00-9:15am</td>
<td>12.c.3. Plastic ingestion and cephalopod prey selection in Pacific Northern Fulmars (Fulmarus glacialis) collected in Monterey Bay, California in 2003 and 2007: Are plastic and prey correlated? E. DONNELLY</td>
</tr>
</tbody>
</table>

**Description:**

This session was formed from submitted abstracts that discuss the interaction of marine debris with the biological aspects of marine ecosystems. The focus of this session is to better understand the interactions of debris with marine species and to elucidate the broader impacts of debris on marine communities. Presentations will cover a host of different topics but are linked by the common focus on specific biological impacts that marine debris has on aquatic ecosystems.

### 12.d. Aerial remote sensing of marine debris

**Chair:** W. Pichel

**Salon:** Salon C

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:30-8:45am</td>
<td>12.d.1. Large scale monitoring of surface floating marine litter by high resolution imagery G. HANKE</td>
</tr>
<tr>
<td>8:45-9:00am</td>
<td>12.d.2. SCUD - Ocean surface current product in aid to pelagic marine debris studies J. HAFNER</td>
</tr>
<tr>
<td>9:00-9:15am</td>
<td>12.d.3. Aerial marine debris coastal survey method and standardization T. VEENSTRA</td>
</tr>
<tr>
<td>9:15-9:30am</td>
<td>12.d.4. Remote sensing for marine debris detection – GhostNet project experience in the North Pacific Subtropical Convergence Zone W. PICHEL</td>
</tr>
</tbody>
</table>

**Description:**

This session will focus on the remote sensing of marine debris, particularly at sea but also on beaches. The goal of debris remote sensing is locating areas where marine debris is likely to be found, detection prior to removal, debris census/mapping, or technology development. This session addresses technology and procedures for remote sensing of marine debris using in-air platforms such as satellites, aircraft, and Unmanned Aerial Systems. Remote sensing instruments include visible, infrared, LIDAR, sonar, and radar – single channel, multi-channel, or hyper-spectral. Session presentations will provide information on such topics as: (1) a survey of the state-of-the-art technology for the remote sensing of marine debris, (2) results of past marine debris surveys, (3) problems yet to be solved before operational marine debris detection and removal is feasible and cost-effective, and (4) successes and challenges in the use of various pertinent technologies. It is expected that the presentations and resulting discussion in this session will clarify the road ahead in regard to development of technology and procedures for operational detection and removal of marine debris at sea.
Monday AM - Wednesday AM

a. Stories of success: Place-based partnerships to prevent land-based sources of marine debris
   1. Improving coordination and communication for rapid response to marine debris reported on beaches and reefs around O‘ahu, Hawaii | R. SELBACH
   2. Success story of limiting land-based sources of debris | M. MAMUN

b. Wildlife entanglement in marine debris: Assessment and response
   3. An innovative use of a “capture cage” to disentangle California sea lions, *Zalophus californianus*, in Oregon | K. RAUM-SURYAN

c. Stemming the tide of trash: Model education and outreach programs to prevent marine debris
   4. Marine debris and service learning | K. WILLIAMS
   5. Bringing marine debris education inland through community recreation centers | A. HAMILTON
   6. Google Earth tours: An engaging and effective tool for intermediate students to investigate and communicate marine debris issues | S. KELLY
   7. Nearshore seafloor mapping as a tool for developing curriculum based marine debris classroom programs | J. MECHLING

d. Biological impacts of marine debris
   8. Plastic ingestion by planktivorous fishes in the North Pacific Central Gyre | C. BOERGER
   9. Assessing impacts of benthic marine debris on coral communities in the inner Gulf of Thailand | T. YEEMIN
   10. Incidence, mass, and variety of plastics ingested by Laysan and Black-footed Albatrosses recovered as by-catch in the North Pacific Ocean | H. GRAY
   11. Plastic ingestion by Black-footed and Laysan Albatross at Kure Atoll, Hawai‘i | A. TITMUS
   12. Biodegradable cull panels decrease lethality of lost and abandoned blue crab traps | D. STANHOPE

e. Outreach and education techniques and approaches
   13. EPA addresses and prevents marine debris through education, monitoring, and research tools | A. GREENE
   15. Engaging Virgin Islanders in addressing the problem of marine debris | M. TAYLOR
   16. Scuba Dogs Society battles the trash fish in Puerto Rico | A. MARTI
   17. Southeast Atlantic Marine Debris Initiative (SEA-MDI) | J. JAMBECK

f. Aerial remote sensing of marine debris
   18. Unmanned aircraft use for marine debris survey | T. VEEENSTRA

g. Stories of success: Place-based partnerships to assess and remove marine debris
   20. Success and challenges of marine debris monitoring in Tainan | Y. TAI

h. In-water technology to detect derelict fishing gear in marine/estuarine ecosystems
   21. Automated identification of derelict fishing gear in the Stellwagen Bank National Marine Sanctuary from HabCam optical imagery | B. COWIE-HASKELL
   22. Distribution and abundance of derelict spiny lobster traps and trap-generated debris in Florida Keys National Marine Sanctuary | A. UHRIN
i. Law, policy, and economic considerations for successful governance
   23. A total systems analysis of the Great Pacific Garbage Patch | C. ORNELL
   24. Derelict trap retrieval and trap debris removal programs in Florida | K. MILLER

j. Don’t fill our landfills: Alternative disposal methods for marine debris and derelict fishing gear
   25. Marine biodegradable material testing | B. KETTL

k. Many hands make light work: Global and regional partnerships to prevent, mitigate and remove marine debris

l. Engaging fishermen to address derelict fishing gear
   27. Ghost nets: A wicked problem | K. VIDLER

m. Preventing land-based sources of debris through solid waste management
   29. Municipal solid waste management in coastal towns of Gujarat State, India | S. SHAH

n. Managing marine debris in marine protected areas
   30. Derelict fishing gear removal from the Northwestern Hawaiian Islands | R. REARDON

o. Addressing abandoned and derelict vessels
   31. State-level responses to abandoned and derelict vessels in the USA | N. PARRY

p. Coastal cleanup programs - A solution to the problem or just to the symptom?
   32. Okinawa, Ryukyu Islands cleanup 20 year report & update on regional marine litter initiatives (work in progress) | E. HEINRICH-SANCHEZ

q. Shoreline marine debris: Removal and disposal methods
   33. Gore Point marine debris cleanup and monitoring project | E. PALLISTER
   34. Exclusive beach cleanup applications for small islands | Z. OTSUKA
   35. Removal and disposal methods of marine debris in Japan | W. TAKAHASHI

r. Using social marketing to cause a sea change on marine debris pollution
   36. Pacific Ocean cleanup | M. PERCY

Wednesday PM - Friday AM

s. Monitoring and reducing the impact of “ghost” fishing by derelict fishing traps
   37. Abrasion stress to benthic coral reef organisms from lost fishing gear and other marine debris in the Florida Keys | M. CHIAPPONE

t. Designing meaningful protocols for monitoring marine debris
   38. Use of disposable lighters as an indicator item to monitor marine debris | S. FUJIEDA
   40. Characterization of tracer chemcials to describe marine debris ingested by Hawaiian seabirds | F. NILSEN
   41. Four easy-to-ship and easy-to-use aluminium neuston trawls designed and fabricated by Algalita Marine Research Foundation for use on different vessels of opportunity. Results of field tests and preliminary intercallibration efforts | C. MOORE

u. Environmental impacts of chemicals in marine plastics
   42. Polychlorinated biphenyls (PCBs) in plastic pellets from Santos, Brazil | M. FISNER
   43. Examining the relationship between plastic marine debris and toxic substances | R. ENGLER
   44. New ocean contamination generated from marine debris plastics | K. SAIDO
   45. Organic pollutants in microplastics from two beaches of the Portuguese coast | J. FRIAS
   46. Understanding the kinetics involved in the sorption and desorption of contaminants from plastic resins | B. APPLEGATE
47. Macro and micro plastic debris adsorb and transport endocrine disrupters in the ocean | L. RIOS MENDOZA

**v. Ocean voyages to study and quantify pelagic debris**
48. An investigation of plastic marine debris across the North Atlantic Subtropical Gyre | G. LATTIN
49. Long-term quantitative monitoring of plastic debris in the Pacific Ocean during repeated undergraduate research cruises | P. JOYCE
50. A characterization of marine debris in the Northeast Pacific deep ocean | S. VON THUN

**w. Risk analysis: Using predictions of the source and distribution of marine debris to assess their impacts**
51. A hazard assessment of coastal pollution on endangered leatherback sea turtles (*Dermochelys coriacea*) | C. PINCETICH
52. What’s eating Kaho’olawe’s marine debris? “Sharkastics” are providing many clues, and it’s not fantastic news… | C. KING
53. To eat or not to eat? The roles of choice and vision in ingestion of marine debris by sea turtles | Q. SCHUYLER

**x. Results and synthesis of marine debris monitoring projects**
54. International Coastal Cleanup Thailand | S. PRAISANKUL
55. Temporal and spatial distribution of marine debris on select beaches in the Gulf of Alaska | J. MASELKO
56. Assessment of solid waste pollution on Slovenian coastline | A. PALATINUS
57. Anthropogenic debris on the beaches in the Rio de Janeiro/SE Brazil | J. BAPTISTA-NETO
59. Impact of marine litter in the northern part of Gulf of Mannar, Southeast coast of India | M. SUBRAMANIAN
60. Analysis of solid wastes in the estuary of Santos and Sao Vicente, Santos, SP, Brazil | D. MARCHESANI
61. Floating marine debris in Guanabara Bay – Rio de Janeiro/SE Brazil | J. BAPTISTA-NETO
62. Study on composition and amount of marine litter in coral reef areas | P. SURASWADI
63. Composition of marine debris in Nigerian coastal waters | N. OGUGUAH

**y. Microplastic in the environment: Causes and consequences**
64. Welcome to the beach of the future: The physical properties of plastic sediment | H. CARSON
64.a. Ingestion and incorporation of microplastic particles by common cockles (*Cerastoderma edule*) in an intertidal mudflat | N. BIBER

**z. Citizen scientists and marine debris monitoring: Standardizing methods and establishing a database**
65. Marine debris information clearinghouse – A tool for collaboration and coordination | P. MURPHY