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## Conference Highlights

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### Governor's Proclamation

Governor Cayetano proclaims August 6-12 as Marine Debris Awareness week in Hawai`i. ([Click here](#) for the complete text of the Governor's proclamation.)

### Host's Welcome

Conference host, Allen Tom, manager of the Hawaiian Islands Humpback Whale National Marine Sanctuary [welcomes](#) all participants, both those at the conference and those following the proceedings through the Internet, to the Conference Web site.

### Conference News

Members of the conference communications team provided a series of articles on conference presentations and activities.

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## Monday, August 7

### **The First Day - Towards International Consensus and Pragmatic Action**

With a traditional Hawaiian chant and the sounding of a conch shell, the International Marine Debris Conference convened on Monday amid high hopes that the harmful impacts of derelict fishing gear can be reduced or prevented...

([Click here](#) for the complete story.)

### **Mary Donahue Summarizes Current Efforts at Debris Removal**

Dr. Mary Donohue, Marine Debris Coordinator for the National Marine Fisheries Service, Honolulu Laboratory, today summed up current efforts to address derelict fishing gear in the Pacific...

([Click here](#) for the complete story.)

### **Young Environmentalists Entertain and Engage**

The Trash Busters strutted their stuff at the International Marine Debris Conference...

([Click here](#) for the complete story.)

## Tuesday, August 8

### **Two Speakers Urge Conference to Seize the Moment**

The task of forging an action plan today began in earnest at the International Marine Debris Conference, as participants broke into working groups organized thematically around special problems caused by derelict fishing gear. Before the start of breakout sessions, several featured speakers weighed in with words of encouragement...

([Click here](#) for the complete story.)

### **Dr. Baker Reports the Successes of the U.S. Coral Reef Task Force**

Dr. D. James Baker, administrator of the National Oceanic and

Atmospheric Administration (NOAA) and under secretary for Oceans and Atmosphere at the U.S. Department of Commerce, speaks to conference participants about the new U.S. coral Reef Task Force...

([Click here](#) for the complete story.)

## Wednesday, August 9

### **New Zealand Woman Stops Debris From Going Down the Drain**

As the director of a non-governmental organization that addresses marine debris problems, Gael Arnold, makes some interesting observations...

([Click here](#) for the complete story.)

### **Panelist Describes Hard Times for Taiwanese Trashbusters**

In addressing the Education and Outreach Panel, Dr. John Wang delivered the kind of news that normally would make the largely conservationist-minded types in the room cringe with dismay:

"Whatever gear fishermen leave shore with, they simply let it go. It all goes overboard into the sea..."

([Click here](#) for the complete story.)

### **Rationalization of Fishing Effort Could Reduce Derelict Gear, Fishermen Say**

Fishing industry representatives from Hawaii, Alaska, Washington, California, Florida and the South Pacific met Wednesday to develop recommended actions to reduce the amount of derelict fishing gear in the ocean environment...

([Click here](#) for the complete story.)

### **Participants in the Monitoring and Removal Working Group Express Their Views**

Dr. Mary Donohue, Marine Debris Coordinator with the National Marine Fisheries Service, chaired today's working group on derelict fishing gear monitoring and removal...

([Click here](#) for the complete story.)

## Thursday, August 10

### Working Groups Continue to Draft Recommendations

Shortly before subdividing into small teams as part of the solution-seeking process at the International Marine Debris Conference, participants in the education and outreach group were cautioned that the devil would, as usual, be in the details ...

([Click here](#) for the complete story.)

### Working Groups Report Preliminary Recommendations

On the fourth day of the conference the six working groups report their preliminary recommendations for managing marine debris...

([Click here](#) for the complete story.)

## Friday, August 11

As the conference draws to a close, conference hosts Allen Tom and Kitty Simonds bid [farewell](#) to the participants and extend special gratitude to all those who made this international event possible.

### Tongan Official Summons Up Reverence for the Sea in Closing Marine Debris Conference

Invoking the time-honored authority of Polynesia—one of the world's oldest seafaring cultures—the Secretary of Fisheries from the Kingdom of Tonga delivered the closing address at the International Marine Debris Conference...

([Click here](#) for the complete story.)

### An Ocean Issue Goes Global

It takes more than technology to solve a problem that is as big as the ocean itself, said celebrity diver Jean-Michel Cousteau in a closing address at the International Marine Debris Conference in Honolulu. “The problems are so complex that people tune out. They tend to think nothing will get so bad in their lifetime....Well, they are wrong,” said Cousteau...

([Click here](#) for the complete story.)

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## Daily Scenes

*Below is a visual sampling of the conference happenings.*

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## Monday, August 7

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The International Marine Debris Conference opens with a traditional Hawaiian blessing and ceremony. The conch shell blower, chanter, and *keiki* (child) walked through the audience to the head table. Speakers include (L-R): Honolulu Mayor Jeremy Harris, Jim Cook, Jim Coe, Kitty Simonds, and Allen Tom. (photo: Robert Rock)



As part of the interpretation of the blessing, the chanter teaches the keiki (child) a hula. (photo: Robert Rock)



Senator Daniel Inouye and Allen Tom, Conference Co-Chair. (photo: Robert Rock)



Participants of the fourth International Marine Debris Conference meet for a photo outside the Hawai`i Convention Center. More than 25 national and international agencies, gathered together to raise awareness and find ways to minimize the many problems caused by derelict fishing gear.



Senator Daniel Inouye and the Trash Busters, a group of students from Alaska, American Samoa, Hawai`i, Commonwealth of the Northern Mariana Islands, the Marshall Islands, and Palau, who participated in a beach clean up project in Lagoon Drive, Hawai`i. Their video presentation at the conference was a hit with the attendees. (photo: Robert Rock)

U.S. Coast Guard Lt. Lane Johnson, chief of waterways management and port operations for the 14th Coast Guard District, shows Dr. Ilse Kiessling, natural



resource policy manager for the World Wide Fund for Nature in Australia some of the trash he collected from Waimanalo Beach, O`ahu. Among the garbage were clinkers, or partially incinerated plastic waste, and tops of detergent bottles. Johnson said many different types of vessels use detergent to breakdown oil when cleaning they clean their decks, and many times the tops will find their way into the ocean.

## Tuesday, August 8



NOAA Administrator D. James Baker at news conference announcing the agreements reached last week at the U.S. Task Force Meeting on Coral Reefs, held in American Samoa.





TV camera panning the audience during Dr. Baker's news conference.



Honolulu CBS affiliate KGMB-TV interviewing Dr. Baker.



Dr. Baker, the Honorable Eni Faleomavaega, U.S. Congressional Representative from American Samoa; Kitty Simonds, Western Pacific Fishery Management Council and conference co-chair; and Michael Julian, Australia Maritime Safety Authority at Washington Place.



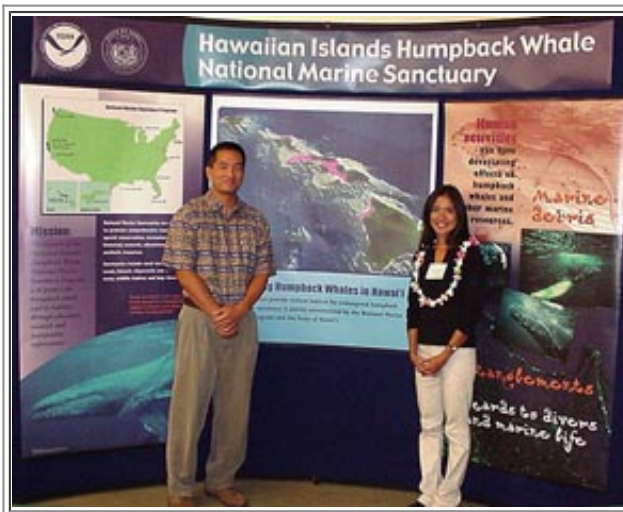
Daniel Basta, Acting Director of the National Marine Sanctuaries Program and Kitty Simonds, Executive Director of the Western Pacific Fishery Management Council, and co-chair (along with Allen Tom) of the International Marine Debris Conference.



Participants enjoy the food and company at Washington Place. (L-R) Bud Antonelis, Seba Sheavly, Chris Woolaway, and Daniel Torres.

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## Wednesday, August 9



Allen Tom, sanctuary manager and conference co-chair, and Naomi McIntosh, assistant sanctuary manager, stand in front of the sanctuary's display in the exhibits hall.



Wednesday Poster Session: Rod Kennett, Australia's Center for Indigenous Natural and Cultural Resources, Ilse Kiessling, World Wildlife Fund, Mary Donohue and Djawa Yunupingu, pose in front of their poster depicting sources of marine debris found on the shorelines of northern Australia.



Peter Lingren, of Florida-based Lindgren-Pitman Inc., learned that ingestion of lightsticks and other plastics led to the deaths of innumerable albatross chicks, he spent months designing a new lightstick that would sink when lost. Here, Peter shows his environmentally friendly lightstick that is now on the market.



Wednesday luncheon panelists, (L-R) Kitty Simonds, Michael Julian, Roger Rufe and Rebecca Lentz.

## Thursday, August 10



Participants in one of Thursday's working group sessions. Jeff Walters, State sanctuary co-manager, and Todd Jacobs (standing L-R) are the facilitators for the Prevention and Legal Issues group.

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## Governor Benjamin J. Cayetano's Proclamation

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**WHERE AS**, the Hawaiian Islands are home to more than 14,000 square kilometers (5,405 square miles) of coral reef ecosystems that support diverse communities of over 5,000 marine plants and animals, a quarter of which are found nowhere else on Earth; and

**WHERE AS**, coral reefs surrounding the eight main islands and 124 small islands, atolls and shoals of the Hawaiian archipelago represent almost 84 percent of all the coral reefs under the United States jurisdiction; and

**WHERE AS**, Hawai`i has the fourth longest coastline in the United States and is surrounded by an Exclusive Economic Zone which encompasses an area of 922,967 square miles; and

**WHERE AS**, Hawai`i's coral reefs protect shorelines from waves and storm surges and provide refuge for juvenile fish

and essential habitat for many species; and

**WHERE AS**, marine debris severely impacts marine ecosystems by abrading reef corals, entangling seabirds, sea turtles, and the endangered Hawaiian monk seal, and advances the introduction of alien marine species; and

**WHERE AS**, Hawai`i's citizens also suffer direct economic loss and decreased recreational opportunities from the impacts of marine debris; and

**WHEREAS**, more than 35 tons of derelict fishing nets have been removed from the reefs and shorelines of the Hawaiian archipelago and an estimated 2,000 to 3,000 tons still remain in the Northwestern Hawaiian Islands;

**NOW, THEREFORE, I, BENJAMIN J.**

**CAYETANO**, Governor of the State of Hawai'i, do hereby proclaim the week of August 6 to 12 to be

### **MARINE DEBRIS AWARENESS WEEK**

in Hawai`i and hereby recognize and commend the work of the multi-agency partnerships that organized the INTERNATIONAL MARINE DEBRIS CONFERENCE and the efforts of its participants to evaluate the ecological, economic, social and political impacts of maritime sources of marine debris in Hawai'i and the Pacific.

**DONE** at the State Capitol, in the Executive Chambers, Honolulu, State of Hawai`i, this 6th day of August, 2000.

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## Host's Welcome

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**Aloha,**

Welcome to the Web site of the International Marine Debris Conference. Your interest and support ensure that the issues raised at this conference will become part of a global dialogue on protecting the world's oceans. In the next few days, representatives from government, academia, and environmental and industry groups will be confronting problems associated with derelict fishing gear. Their insights on marine debris impacts and their proposals for prevention and mitigation will be posted on this Web site.



No doubt there will be innovative recommendations for shaping new policy and technology, but keep in mind that your help is needed too. Like many other modern environmental problems, solving problems associated with marine debris requires a change in our collective outlook and behavior. The change can only begin with the widespread recognition of the fact that a problem exists. Indeed, even a decade ago the term "marine debris" did not connote the risk and tragedy it does today.

For centuries, trash was discarded into the sea and was

assimilated over time. Today, however, the invention of plastics and other synthetic material inexorably altered the situation. More and more knots of rope and fishing line began washing up on shores—often at great distances from the apparent source. Reports surfaced on marine animals being injured, trapped, or throttled to death by abandoned materials such as monofilament. The international community became increasingly alarmed at the unintended consequences of seemingly benign human activities. The stage was set to challenge the commonplace notion that the vast and trackless ocean could be a repository for unlimited amounts of debris.

The first International Marine Debris Conference, which took place in Honolulu in 1984, brought definition to the problems of marine debris and articulated the deleterious impacts of derelict fishing gear: the realization took hold that so-called "ghost nets" live up to their nickname, for all their deadly effects. By entangling plants and animals or by abrading and scouring coral reefs in the ocean depths, discarded gear kills off sea creatures and upsets the balance and integrity of marine ecosystems. Over the years, this information has grown even more compelling in light of an increased awareness of the ocean's contribution to human health, economy, and quality of life.

The good news is the ocean has become somewhat of a rallying point, attracting a diversity of stakeholders who see the wisdom in sacrificing short-term goals in order to ensure the sustainability of valuable marine resources. Since its inception, the Hawaiian Islands Humpback Whale National Marine Sanctuary has been a benefactor of the heightened public interest in keeping oceans debris-free. On occasion, when we've scheduled beach clean-ups, I am struck by the overwhelmingly positive response from Hawaii residents and visitors. Likewise, our call for sanctuary volunteers is always answered by a variety of people—dispelling any pre-existing stereotype of who does and doesn't feel a special kinship for the humpback whale's breeding grounds in Hawaiian waters. Every year, the sanctuary responds to reports of whale entanglements in our waters. On several occasions, we have had to respond to stranding directly related to derelict fishing gear.

Congress in 1999 provided a focus for marine debris



mitigation by tasking the Hawaiian Islands Humpback Whale National Marine Sanctuary to plan and host the first ever international marine debris conference to highlight the problems associated with derelict fishing gear. As with my reaction to the vigor of individual volunteer efforts with the sanctuary, I am overwhelmed with gratitude for the support this conference has attracted.

I hope that this conference continues the work started by many concerned individuals and agencies. While we agree marine debris is something we don't want in our lives, my hope is that this conference continues to keep the issue in the forefront of our minds. As the first international marine debris conference of the new millennium, I am grateful to everyone interested in this issue and especially those searching for solutions.

Mahalo,

Allen Tom  
Manager, Hawaiian Islands Humpback  
Whale National Marine Sanctuary  
Co-Chair, International Marine Debris  
Conference on Derelict Fishing Gear and the Ocean  
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## The First Day - Towards International Consensus and Pragmatic Action

### Monday, August 7

With a traditional Hawaiian chant and the sounding of a conch shell, the International Marine Debris Conference convened on Monday amid high hopes that the harmful impacts of derelict fishing gear can be reduced or prevented.

While participants are slated to break into small groups to hammer out recommendations later in the week, they spent the first session listening to experts outline the themes that are bound to fuel discussion for the duration of the conference.

Several speakers reiterated a call for unity and cooperation amongst stakeholders. Citing urbanization and population growth as the causes of ocean pollution in the Pacific region, Honolulu Mayor Jeremy Harris predicted problems associated with marine debris could reach staggering proportions, unless ocean users with different interests agree to act as a single



The International Marine Debris Conference opens with a traditional Hawaiian blessing and ceremony. The conch shell blower, chanter, and keiki (child) walked through the audience to the head table. Speakers include (L-R): Honolulu Mayor Jeremy Harris, Jim Cook, Jim Coe, Kitty Simonds, and Allen Tom.

community. "Pollution knows no national boundaries. We must form a consensus or we will fail," Harris said. (photo: Robert Kock)

Jim Cook, Hawai`i Chairman of the Western Pacific Fishery Management Council, was among several speakers who noted that the conference addresses an on-going and increasingly contentious public debate on the use of ocean resources. Cook said fishermen were among the first to sound the alarm over the harmful effects ingestion of plastic has on black-footed albatross in the Northwestern Hawaiian Islands. "Fishermen know their livelihood depends on the health of the ocean," said Cook, who also credited fishermen with being eager to solve the problems traced to derelict fishing gear.

Sponsored by the Hawaiian Islands Humpback Whale National Marine Sanctuary with assistance from several state, federal and county agencies, the conference marks the first time experts have come together to focus exclusively on the lines, nets and ropes, which can cause death and injury to marine creatures and create hazards for marine vessels. Voluntary abandonment of gear is prohibited by the provisions of the international MARPOL treaty, though fishermen are often forced by rough conditions at sea to discard the material. Manufactured primarily out of plastics which persist in the environment, the gear causes harm through entangling or abrading substances it encounters.

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While many of the 278 participants are concerned about the effects of derelict fishing gear, the scope of the problem is not yet fully understood, said Dr. Charles Fowler, who told Monday's gathering that documented cases of death by entanglement are probably just "the tip of the iceberg". Fowler, a lead researcher for the National Marine Fisheries Service, described findings of an experiment where the offspring of entangled fur seal mothers had a significantly higher mortality rate than their normal counterparts. Fowler said further research is likely to reveal that derelict fishing gear is having a dire impact on the entire marine environment where the inter-relatedness of all species means a sudden or small change in one component can throw off the balance of the entire ecosystem.

Fowler presented slides, which showed creatures mangled by monofilament and other human-generated plastic trash. Such images have become the iconic definition for an environmental problem, which is just beginning to gain widespread public definition. In addition to the

degradation of the marine environment, several of Monday's speakers highlighted social and economic costs brought by derelict debris impacts.

According to National Marine Fisheries Service agent Samuel G. Pooley, fishermen don't want to lose or abandon gear. However, Pooley said, they find it cost-prohibitive to maintain or dispose of old gear in a way that complies with the law. Adding more regulation and enforcement would only increase the burden on fishermen, he said. "Fisheries should bear the liability, but industry and government can find ways to provide funding, so that the outcomes are fair to everyone." Pooley told conferees that tax incentives or an insurance liability measure would provide fishermen with the necessary economic motivation for retaining their gear--"much like a refund for cans or bottles encourages recycling". While it may be true in an ethical sense that all ocean users bear equal responsibility for derelict fishing gear, the notion is hard for many people to accept, when debris is carried for thousands of miles from its point of origination and often persists for many decades after being dumped.

Jim Coe echoed Pooley's perspective in remarks where he urged participants to look at ways to ensure that solutions are equitable for the fisheries, which, he said, are on the frontline of any marine debris problem. Coe told the audience that fishermen would be more likely to recover or recycle gear if they weren't under tremendous competitive pressures that result from current fishery regulations.

"If fishermen were guaranteed some ownership of the share of the resource, they wouldn't take risks that result in the abandonment of lines and nets," said Coe. "For example, if the regulated (fishing) season is too short, then you have fishermen trying to maximize (their catch) by going out in stormy weather where gear is more likely to get lost." As a solution, Coe called for the support of more "conservation engineering" --or the development of pragmatic measures such as gear recycling mechanisms.

Many of Monday's speakers characterized the International Marine Debris Conference as a continuation of past conferences and workshops which have succeeded in raising public awareness of the marine debris problem. However, there was general consensus that time had come for widespread concern to be parlayed into pragmatic action.

Highlighting yet another side effect of marine debris which is just beginning to receive some attention, Coast Guard Lt. Lane Johnson cited the public safety hazards that result from vessels at sea becoming disabled by

entanglement in derelict gear. Johnson said an alarming increase in reports of boats disabled by the problem prompted the Coast Guard to conduct a survey of Pacific Rim Nations. Johnson said the results of the survey underline the need for the development of an international mechanism for reporting incidents of propeller fowling and other problems caused by abandoned gear, which are likely to increase with more vessel traffic at sea. Johnson cited education and outreach as key in the solution-making process.

The concerns of opening-day speakers will be explored in greater detail in conference breakout sessions, which begin Tuesday afternoon. Recommendations of participants will be recorded and published on this Web site.

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## Mary Donahue Summarizes Current Efforts at Debris Removal

**Monday, August 7**

Dr. Mary Donohue, Marine Debris Coordinator for the National Marine Fisheries Service, Honolulu Laboratory, today summed up current efforts to address derelict fishing gear in the Pacific. She addressed removal and mitigation efforts for dealing with derelict fishing gear at the International Marine Debris Conference at the Hawaii Convention Center.

Derelict fishing gear (marine debris made up mostly of natural fiber and synthetic lines from trawl, drift, seine and gill nets) is blamed for abrading coral reefs, advancing the introduction of alien marine species and entangling wildlife. Drifting clumps of fishing lines and nets can hamper an animal's movement, prevent it from eating, inflict wounds or cause suffocation.



Since 1982, divers have found 170 endangered Hawaiian monk seals entangled in nets. (photo: U.S. Coast Guard)

According to Donohue, the most effective mitigation efforts to date are physical removal of derelict fishing gear. Current removal strategies target six areas in the Northwestern Hawaiian Islands--birthing and nursing grounds of the endangered Hawaiian monk seal. Last year, 25 Hawaiian monk seals were killed by derelict fishing

lines and net. Donohue estimates their total population at between 1,200 and 1,400.

Since 1996 an unprecedented multi-agency collaborative effort has been underway to aid in the daunting mission to remove derelict marine debris from Hawaiian waters. Focusing their efforts on the French Frigate Shoals, Lisianski Island and Pearl and Hermes Reef, and with the aid of the Coast Guard Cutter Walnut and the NOAA research vessel *Townsend-Cromwell*,



A tendril from a net weighing approximately 300 pounds hangs on a coral head at French Frigate Shoals. (photo: Ray Boland/NMFS)

five small boats and two inflatable; 14 divers with the National Marine Fisheries Service in Hawaii, the U.S. Navy and the U.S. Coast Guard are towed on manta boards in search of marine debris. If the gear is caught on coral heads, the divers cut them loose. So far, divers have removed 77,000 pounds of derelict fishing nets from the reefs and shorelines of the Hawaiian archipelago. In the process, divers also untangle monk seals caught in the derelict fishing gear.

Found usually in large conglomerates, net, line and other debris is hauled to the service ship in small craft, or dragged along the surface in giant nets and winched aboard. There the total weight is measured, separated and analyzed by type and entangled coral removed. The derelict gear is brought back to the islands where it is buried in landfill or used as filters in aquaculture projects.

Few realize that most of the coral reefs in the U.S. lie in Hawaii waters. Sixty-nine percent are in the Northwestern Hawaiian Islands, while an additional 15 percent are found in the main Hawaiian Islands. To help further identify locations of stranded derelict fishing gear in the islands, the National Marine Fisheries Service is looking toward the use of hyper- or multi-spectral imaging. "Integrating this new technology and refinement of current methods with diving surveys, will make removal of derelict fishing gear from fragile coral reefs more feasible and more efficient," Donohue said.

Another field excursion to the Northwestern Hawaiian Islands is planned for this October. Survey members will examine cleaned beaches to assess accumulation rates for marine debris in the area. Donohue says her agency plans to continue expanding its partnerships, refine and implement

its current procedures, work on net source identification and expand its studies of accumulation rates in the Northwestern Hawaiian Islands.

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## Young Environmentalists Entertain and Engage

Monday, August 7

The Trash Busters strutted their stuff at the International Marine Debris Conference. Under the coordination of Hawaii science teacher Patty Miller, 12 Pacific Islander teens from Hawaii, Palau, American Samoa, Rota, Commonwealth of the Northern Mariana Islands, Papua New Guinea, Majuro, Marshall Islands and St. Paul Island, Alaska, debuted their student-made video on derelict fishing nets, plastics and rope while they voiced their concerns for maintaining a clean ocean environment on their home islands.



Senator Daniel Inouye and the Trash Busters. Their video presentation at the conference was a hit with the attendees. (photo: Robert Rock)

The youths had spent the previous day cleaning up trash from a Hawai`i site off Lagoon Drive near the Honolulu airport. They used this same debris—mostly plastic, rope and netting—to construct a conceptual art piece on display in the conference exhibit room.

Trash Busters were hand-picked based on their motivation and interest in preserving a clean marine environment. They closed their presentation with "Wonderments," a list of questions for the experts in the audience. Examples include:

- "How can we encourage people to protect the environment?"
- "Why aren't manufacturers making biodegradable plastics?"
- "Can't we figure out where the marine debris is coming from?"
- "How do we monitor marine debris dumping?"

As experts address the problem of derelict fishing gear and the ocean environment, they hope to send these teens home with some answers they can count on.

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## Two Speakers Urge Conference to Seize the Moment

Tuesday, August 8

The task of forging an action plan today began in earnest at the International Marine Debris Conference, as participants broke into working groups organized thematically around special problems caused by derelict fishing gear. Before the start of breakout sessions, several featured speakers weighed in with words of encouragement for the over 200 conferees, many of whom bring to the table expertise in how man-made trash at sea leads to economic, social and environmental losses. Many are also stakeholders in marine issues and feel strongly about their respective agendas for reducing or preventing the problems they've identified.



"Now is the time to tie together what we all know into the bigger community fabric. We must take ownership of the problem, we must work within a systematic structure and we must take advantage of the existing technology to keep us connected and to focus partnerships," Dan Basta told the crowd in prepared remarks. The Acting Director of the National Marine Sanctuaries Program said the recommendations which participants

Daniel Basta, Acting Director of the National Marine Sanctuaries Program, is shown here with Kitty Simonds, Executive Director of the Western Pacific Fishery Management Council, and co-chair of the International Marine Debris Conference.

will hammer out before Friday, will help catalyze much needed support from "the virtual community once they are posted on this Web site."

Like many speakers at the conference, Basta noted that public interest in issues of marine debris seems to be running at an unprecedented high. "We must take advantage of this window of opportunity or we will be having the same discussions on marine debris in ten years--only by then the problems will be worse." The challenge for cooperative efforts is especially great for resource managers, he said. "We can take care of clean-up (of debris) but we can't solve the source problem unless we operate as a community."

Conference participants heard praise for some of their past efforts in solution-seeking from Seba Sheavly, a Director with the Center for Marine Conservation. But Sheavly warned that the marine debris movement now stands at somewhat of a crossroads as initial momentum of a new environmental effort fades and supporting resources are cut back. "We need to be sure we do not reinvent the wheel" she said, urging more follow through on strategies that are already in place: "Industry has started making equipment modifications, which make it easier for fishers to retrieve (abandoned gear), conservationists have had success with clean-up and educators are succeeding in raising public awareness."

Following the morning "pep talk", conference participants divided into separate panel presentations. The three areas of focus included legal issues, the reduction of impacts and source identification. Today's discussions on these issues were expected to lay the groundwork for the development of recommendations that will frame the action plan.

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## Dr. Baker Reports the Successes of the U.S. Coral Reef Task Force

**Tuesday, August 8**

Dr. D. James Baker, administrator of the National Oceanic and Atmospheric Administration (NOAA) and under secretary for Oceans and Atmosphere at the U.S. Department of Commerce, speaks to conference participants about the new U.S. coral Reef Task Force. In the past year, the task force supported the removal of nine longline fishing vessels that grounded among reefs in American Samoa, and granted 2 million dollars to states, territories and commonwealths to support local efforts in protecting coral reefs. As a result of the task force's initiative, all U.S. coral reefs in the Pacific are being mapped and initial approval was received by the International Maritime Organization's to create areas where large ships may not anchor in order to protect the reefs. Baker said by protecting coral reefs we are not only preserving beautiful areas, we are also sustaining communities, cultural heritage and coastal economies.



Dr. D. James Baker, administrator of the National Oceanic and Atmospheric Administration (NOAA) and under secretary for Oceans and Atmosphere at the U.S. Department of Commerce.

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## New Zealand Woman Stops Debris From Going Down the Drain

Wednesday, August 9

As the director of a non-governmental organization that addresses marine debris problems, Gael Arnold said today that she savors her "freedom to be outrageous. You don't worry about using up the budget and not getting renewed, she says wryly.

Make no mistake, though, Arnold's group--the Island Care New Zealand Trust--draws the line at being confrontational. While Arnold admits to sometimes "embarrassing" parties responsible for what she calls "rubbish at sea", she says the most effective MO for clean-up and prevention is a "cooperative community approach".



Gael Arnold

Speaking to the Education and Outreach panel at the Wednesday session of the International Marine Debris Conference, Arnold told participants about the success Island Care has scored with its unusual way of doing marine debris intervention business.

Among other projects, Arnold described the "storm drain litter" removal effort. This has consisted of identifying strategically located storm drains in

congested areas and intercepting the rubbish run-off, which otherwise is destined to flow into the sea. In the next step, (probably the most outrageous one), Arnold and colleagues sleuth out the humans who live and work in proximity to the implicated storm drain. "People would often deny that they had dumped plastics and such. But we are here to listen. We don't confront and we don't blame, because that won't do any good."

According to Arnold, people eventually come out of their denial—especially when they are politely shown some undeniable evidence. But knowledge lacks power without action, said Arnold, intoning what could be the mantra of Island Care. In the next and very important step, the environmental NGO sets up a meeting with the confessed litter perpetrator to elicit ideas for better trash disposal. "They very frequently have these great ideas, though they will often ask us to implement them. We tell them `No this is what you know is right for you. It will work best if you do it.'"

As to what does get done, Arnold said people are given a plan with goals and a timeline. And her organization regularly checks in and makes suggestions for revision or improvement, if needed. "We manipulate the process and the environment to replace habitual behavior with new habits," Arnold told the panel participants.

While it may sound as though Arnold is combining a psychologist's skill at behavior modification with an ecologist's passion for the environment, she is actually a financial planner for a university by trade with a background in accounting. Her work for Island Care is largely pro bono, often garnering the kind of results no salary could adequately compensate. "We have gotten people from many different sectors to talk to one another (about marine debris). These are people who normally don't communicate on any other subject, but with sea rubbish they find a way to work together."

Funding remains a challenge for Island Care, and members must expend a lot of energy looking for grants. Though Arnold told the panelists there have been milestones. For example, the storm drain litter project has demonstrated its efficiency to a point where it has been adopted in other parts of the world. Using slides, Arnold presented a flow chart intended to detail the various cause and effects inherent in the behavioral changes effected by the project. Capping off her presentation with what is probably a characteristically expressive flourish, she reminded those present: "Even if you don't go to the beach, your rubbish does."



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## Panelist Describes Hard Times for Taiwanese Trashbusters

**Wednesday, August 9**

In addressing the Education and Outreach Panel, Dr. John Wang delivered the kind of news that normally would make the largely conservationist-minded types in the room cringe with dismay: "Whatever gear fishermen leave shore with, they simply let it go. It all goes overboard into the sea. They bring back nothing."

Wang, a scientist and specialist in cetacean evolution, was speaking about Taiwan. "This is a country that is infamous for its record of poor stewardship," he candidly told conferees.



Dr. John Wang

But the news Wang brings from Taiwan is not all bad. In fact, Wang's presence at the education panel speaks volumes about the blossoming of new environmental awareness in the Pacific Rim nation. Wang is one of the founders of the Kuroshiro Ocean Education Foundation in Taiwan, an organization which aims to plant the seeds of improved stewardship. Accompanying Wang at the conference is foundation member Hung-Chi Liao, a veteran Taiwanese fisherman, who has become an ad hoc ecologist, conducting beach tours on the shores of his island home, where

he points out wildlife and also draws attention to the piles of nets and other types of garbage that has marred the scenery as a result of the actions of his colleagues at sea. Translating for Liao, who does not speak English, Wang said Liao's marine debris disposal practices were once no different than those of his fishermen colleagues but he changed his ways--inspired by "the site of the ocean's natural beauty."

According to Wang, history and culture have conspired to shape low environmental consciousness in Taiwan. The Nationalist Party, which fled to Taiwan from Communist China in 1949, instilled in citizens the sense that the new country was not to be viewed as a homeland, but only a temporary place of exile, where all resources--natural and human--were poured into a military build-up that would enable a triumphant return to the mainland, Wang said. "Environmentalism was repressed and even punished. It was seen as un-patriotic," Wang told conferees. Though he couched the pronouncement with words many of the marine science educators present, no doubt, would find promising: "The new generation sees the harm of destroying natural habitat. They are more apt than their parents to view Taiwan as their homeland and they want to improve fisheries practices."

Currently regulations governing fishing in Taiwan are few and are poorly enforced, said Wang. Though, he added, this is also changing, as the Asian nation has grown both more affluent and more democratic and is better able to support marine debris clean-up.

Admittedly, though, Wang said Taiwan is hardly a major player in the movement to end marine debris. "Getting fishermen to change old habits is going to be very hard," he said. In the meantime, Wang said the Kuroshiro Foundation is chipping away at a mindset molded so profoundly by a collective past, fraught with much hardship and uncertainty. "We are developing curriculum and activities we hope to see incorporated in Taiwanese schools. We are even considering hiring fishermen to clean up the debris that has piled up on beaches."

In an anecdotal account&mdash;perhaps destined to mark the path to success, Wang related to panel participants that his efforts to pull plastic bags out of the water in the course of whale-watch tours used to provoke nothing but skepticism. "People used to say there's too many. You won't even make a dent." But, he indicated, persistence of human will can prove to be more durable than pollutant plastics. "Practices are slowly

changing."

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## Rationalization of Fishing Effort Could Reduce Derelict Gear, Fishermen Say

Wednesday, August 9

Fishing industry representatives from Hawaii, Alaska, Washington, California, Florida and the South Pacific met Wednesday to develop recommended actions to reduce the amount of derelict fishing gear in the ocean environment.

The majority agreed that effort rationalization should be explored as a mitigation tool and that government should take steps to allow its use. Individual quotas (IQs) and individual transferable quotas (ITQs), which Congress currently prohibits, were highlighted as measures worth pursuing.

"With rationalization, fishermen focus on trying to minimize costs, including gear lost," noted Brent Paine, executive director, United Catcher Boats, Washington. "A quota-based system is one solution."



James Coe, acting science and research director, National Marine Fisheries Service, Alaska Fisheries Science Center, Washington, agreed. Open-access, derby style fishery contributes to lost fishing gear by promoting risk taking by fishermen, he said.

Jim Coe, Alaska Fisheries Science Center, and Chris Woolaway, Hawaii Sea Grant

Michelle Longo-Eder said the West Coast sablefish fishery, which her husband participates in, is an example. The directed fishery is open for nine days a year. "There is not adequate time to set, fish and retrieve gear," she said. "Implementation of IQs would allow a safer and sounder fishery."

Peter Leipzig, executive director, Fisherman's Marketing Association, cited the California and Oregon trawl fishery as another example. Before it became a limited entry program, there were 400 trawlers, he said. About 100 permits were subsequently retired when factory trawlers bought them. It is estimated that the fleet still needs to be reduced by half, he added.

"The number of fishing vessels in the water will decline in the future," Leipzig predicted. As a result, the amount of potential derelict fishing gear will also be reduced.

## Educate Everyone

Industry representatives also identified education as an important action item. The public, resource managers, administrators, legislators, fishing industry and conservation organizations, especially in developing countries, should be informed about the true character and impacts of marine debris, the group noted.

"I didn't know derelict fishing gear from Alaska was ending up on Hawaii atolls," Paine confessed. "I don't think that the average Alaskan fisherman knows that. We need an educational program for fishermen to know that."

Lindsay Chapman, fisheries development adviser for the Secretariat of Pacific Community, concurred. There is a lack of awareness in the South Pacific of derelict fishing gear, he said.

Another participant noted the positive effects education had following the 1984 and 1987 conferences on marine debris. Dutch Harbor, Alaska, now has 800 tons of fishing nets going ashore each year, whereas before little was coming in. The same hold true for Kodiak, he said.

Learning about the impacts of derelict fishing gear has also affected the way business is done by at least one gear manufacturer. After Peter Lindgren, of



Florida-based Lindgren-Pitman Inc., learned that ingestion of lightsticks and other plastics led to the deaths of innumerable albatross chicks, he spent months designing a new lightstick that would sink when lost. One year and a quarter-million dollars later, a reusable, environmentally friendly lightstick is now on the market.



Peter Lindgren shows his sinking lightstick.

### **More Actions Proposed**

Additional recommended actions identified by the industry working group include the following:

Support the Hawaiian Islands program designed to collect derelict fishing gear from coral reefs as well as identify the origin and source of the material involved. Studies should look at historical and current marine debris involved in cluttering coral reefs.

- Promote more recycling procedures and infrastructure where applicable.
- Establish a national and/or international marine debris Web site to assist in the identification of derelict fishing gear and probable sources.
- Establish a gear loss reporting (without penalty) and documentation procedure.
- Promote expansion of port receiving stations for discarded fishing gear.
- Have fishery managers evaluate current and future regulations as to their contributions and consequences to lost fishing gear.
- Promote government programs in conservation engineering designed to develop methods, technology and/or tactics that reduce gear losses.
- Expand and/or create a manual of responsible fishing specific to marine debris.
- Develop a method to locate and monitor fish aggregating devices.

The industry representatives will report their recommendations to the full conference tomorrow morning. Action planning teams will then work on the group recommendations in the afternoon. full conference tomorrow

morning. Action planning teams will then work on the group recommendations in the afternoon.

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## Participants in the Monitoring and Removal Working Group Express Their Views

**Thursday, August 10**

Dr. Mary Donohue, Marine Debris Coordinator with the National Marine Fisheries Service, chaired today's working group on derelict fishing gear monitoring and removal. Opening the session, Donohue reviewed previous conference reports whose recommendations included:

- Identify distribution, abundance, density and type of persistent marine debris
- Determine the fate of marine debris in the environment
- Recover marine debris from marine and coastal environments
- Conduct research on environmental impacts of marine debris



Dr. Mary Donohue being interviewed by Honolulu NBC affiliate, KHNL-TV.

Nina Young, Director of Marine Wildlife Conservation, Center for Marine Conservation in Washington, D.C., gave an overview of the 1999 International Coastal Cleanup:



- 774,215 volunteers



Nina Young, Director of Marine Wildlife Conservation, Center for Marine Conservation.

- 8,439,383 pounds of debris collected
- 11,361 miles covered
- 78 countries participated
- 284 fauna entanglements
- Greatest Threat: monofilament

"Every ecosystem the world has felt the impact of marine debris," Dr. Daniel N. Torres, Professor at the Instituto Antartico Chileno in Chile said. "Especially those composed of plastic and synthetic material coming from polluted rivers along cities, or those simply thrown overboard all kinds of ships. Since

these materials are non-biodegradable, their persistence in the environment may cause not only an aesthetic problem, but an impact on wild animals and a problem to human beings themselves."

Reinforcing this statement, Torres gave an inspired overview of the marine debris problem studied at Cape Shirreff, Livingston Island, Antarctica, where he studies derelict fishing gear on 36 beaches. He reports that during the 1998-1999 season the total amount of debris collected was 11,515 articles. Plastic or synthetic fibers associated with the fishing industry, including buoys, nets and packing bands, totaled 10,731 items&mdash;93 percent of all items collected.



Dr. Daniel Torres

His suggestions to help solve the marine debris problem worldwide include:

- All countries should ratify MARPOL 73/78 and its Annex V
- Naval architects and engineers should add storerooms to their ship designs to accommodate all debris produced onboard
- Elaborate educational programs for captains and crews to teach them how to protect the marine environment

Working with aboriginal landowners, scientists monitoring entanglements of turtles on the beaches of Northern Australia in the Arafura Sea region are sensitive to the totemic responsibility of indigenous peoples for the animals they see washing up on shore caught in derelict fishing gear. Dr.



Ilse Kiessling, Natural Resource Policy Manager, World Wide Fund for Nature, Tropical Wetlands of Oceania Program, Australia, monitors entanglements of the flatback turtle, green turtle, hawksbill turtle and olive ridley turtle. In the past four years, 400 turtles have been found entangled. Of these stranded turtles, 50 percent are dead before being rescued. Fifty percent of derelict fishing gear found in the area comes from Indonesia, 35 percent from Taiwan.

Dr. Ilse Kiessling

"There is more debris in the ocean gyres than there is on coasts," said Commander Rusty Brainard, Ph.D., Science Program Coordinator and Oceanographer with the National Marine Fisheries Service and NOAA Corps, Hawaii. "We hope to remove it at sea before it can damage the fragile coral reefs." Reviewing oceanographic tools used to remove marine debris, Brainard lauded the 14 agencies involved in the cleanup of the Northwestern Hawaiian Islands. Monitoring of coral reefs by ship survey, dive survey, helicopter will be expanded this summer to include monitoring with remote sensing and radar. Using a technique called "synthetic aperture radar," Brainard plans to map smaller areas by using radar images of the sea surface to locate debris and use this information to direct retrieval ships. As with the current multi-agency cleanup efforts, Brainard also hopes to use the multiple resources of other agencies, such as the U.S. Navy to remove debris at sea.

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## Working Groups Report Preliminary Recommendations

**Thursday, August 10**

Shortly before subdividing into small teams as part of the solution-seeking process at the International Marine Debris Conference, participants in the education and outreach group were cautioned that the devil would, as usual, be in the details.

The message was couched in an anecdote delivered by marine educator Seba Sheavly, who recounted her experience trying to solve a litter problem that seemed to plaguing a segment of New Jersey beaches.

Pizza boxes were piling up on the sandy expanses of the Jersey shore, despite the placement of trashcans, easily accessible to the public. "Did it mean pizza-eaters were notorious litterbugs?" Sheavly asked rhetorically. In fact, research by Sheavly's conservation group identified the culprit: round trashcans. Or perhaps, you could say it was the square shape of the pizza boxes. At any rate, the latter did not fit the former, with the result that mounds of garbage easily piled up, offering a feast for the seabirds, which would swoop down



and further disperse human leftovers. As solution, the trashcans were re-engineered with dome-shaped tops and the pizza eaters were asked to fold their boxes before discarding them.



Seba Sheavly, a director with the Center for Marine Conservation and marine educator, recounts her experiences trying to solve a litter problem plaguing the New Jersey beaches.

Isolated case? Yes, conceded Sheavley, but also another in a legion of isolated cases, which proves that when it comes to marine debris there are infinitesimal variations of problems. "So when it comes to solutions, just remember, one size does not fit all!" said Sheavley.

Mercifully, the conference has a structure intended to help participants plow through the minutiae of the marine debris problem with a particular focus on the complex and subtle harm caused by derelict fishing gear. To begin with, there are six working groups--each of which is examining a distinct dimension of the derelict fishing gear dilemma. These areas of focus include industry, monitoring and removal, education and outreach, prevention and legal issues, reduction of fishing gear impacts and source identification.

With the help of facilitators, working groups were asked on Tuesday and Wednesday to lay out concerns related to their respective themes. Once these were put on the table, group members had the opportunity to offer recommendations. These were listed and voted on and then further whittled down during a Thursday session to short-list, due to be presented in a Friday plenary session. The final recommendations are to be incorporated in a published document. "This is how we arrive at game plan. These will be proposals that (agency officials) can look at as priorities. All recommendations will be submitted with details on how and why a plan should be implemented," said Tim Goodspeed, a special projects staffer with the National Oceanic Atmospheric Administration, who has been facilitating the Education and Outreach working group. "

"Not enough education material"... "We need more outreach"..."Unless we get a stable source or funding, our work will always be piecemeal"....These were some of the concerns laid out by the education and outreach working group, which has drawn participants from Hawai`i, the Mainland, Taiwan and New Zealand.

As for the group's recommendations, the top vote-getter was a suggestion to "institutionalize funding" for public information related to marine debris prevention and awareness. According to Emily Morgan, a Center for Marine Conservation director, who chaired the education panel, a stream

of funding was mandated in 1988 by Congress' approval of Annex V of the international treaty known as MARPOL, but was then cut in 1996. While it lasted, Morgan said the appropriation enabled the creation of many effective materials such as posters, slide shows, videos and citizens guides to marine debris. "For instance, (CMC) developed something called 'The Citizen's Guide to Plastic'. It talked about the problems. It addressed each of the marine user groups...And then it gave solutions about what people could do. We had many requests from other countries, which ended up translating and adapting the guide to their own culture. The majority of this type of material went to teachers and students, but we also did a lot working with the cruise industry and the ship industry."

Admittedly, Morgan said, the recommendation to restore the Annex V funding addresses marine debris in a very general sense, while the working groups have been tasked with finding solutions to the specific problem of derelict fishing gear. "It is recognized that this needs attention at a very high level," said Morgan.

On the subject of funding, Wednesday's brainstorming session of the education and outreach also spawned the suggestions that new sources of education monies may be developing, one related to a United Nations program, another related to a piece of oil industry legislation currently making its way through Congress.

Another issue the education and outreach group is wrangling with is how to best target groups most responsible for the derelict gear problem. As Morgan explained "We don't want to go to fishers who are disposing of their gear in the right way. We'll be wasting our time preaching to the choir," she said. In order to zero in on the perpetrators, however, several of the educators pointed out the need for collaborating with the working group, which is tackling source identification.

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## Working Groups Report Preliminary Recommendations

**Thursday, August 10**

On the fourth day of the conference the six working groups report their preliminary recommendations for managing marine debris.

[Group A. Prevention & Legal Issues](#)

[Group B. Reducing Impacts of Gear](#)

[Group C. Source Identification](#)

[Group D. Industry](#)

[Group E. Monitoring and Removal Issues](#)

[Group F. Education & Outreach](#)

### Group A. Prevention & Legal Issues

- Encourage: (1) International Maritime Organization (IMO) to request that Member States, particularly from the Pacific Rim, conduct national "assessments" of their implementation of Annex V and the Guidelines and report the results to IMO Marine Environment Protection Committee (MEPC); (2) Member States, through the IMO MEPC or another appropriate subcommittee, to determine the level of implementation of Annex V and the Guidelines and identify the impediments to implementation; and (3) Member States to recommend solutions to IMO MEPC to address impediments, such as amending the Guidelines and making some aspects mandatory.

- Encourage States to include in their domestic and foreign fishing licensing arrangements evidence of compliance with the relevant aspects of Annex V and the Guidelines.
- Encourage IMO Member States to request that IMO be more active in addressing marine pollution from fishing vessels by attending international intergovernmental meetings to raise this issue as one of global concern; disseminating the relevant regulations and Guidelines more widely; and to engage FAO in cooperatively addressing this issue and its relationship to flag state and port state roles and responsibilities, like the ongoing FAO-IMO work to develop an International Plan of Action to Address Illegal, Unreported, and Unregulated Fishing Activities.
- Develop public-private partnerships or enlist the aid of international donor institutions (e.g., the World Bank or the International Monetary Fund) to increase capacity in States, particularly developing states, so they can comply with MARPOL regulations and/or will be in a position to ratify and effectively implement the Convention, Annex V, and the Guidelines.
- Provide funds to the FAO, in coordination with IMO, to provide an international forum for coordination and information exchange across international and national levels.
- Encourage all Parties to comply with Article 11 of MARPOL and establish an agenda item regarding this provision in the appropriate sub-committee (i.e., the IMO Marine and Environment Protection Committee).
- Encourage regional and sub regional fisheries organizations and arrangements to incorporate into their mandate and binding conservation measures a prohibition on discarding fishing gear and related fishing debris.



- Urge Member States, through national governments and regional fisheries management organizations, to be more vigilant in reporting involuntary net losses, in satisfaction of the IMO Guidelines and national laws, where appropriate.
- Establish international agreement on marine debris monitoring & removal; moved from Monitoring & Removal working group.

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### **Group B. Reducing Impacts of Gear**

- Identify and quantify, and when necessary, manage the impacts of ghost fishing gear to commercial and non-commercial species.
- Research on the movement and effects of plastic in ecosystems as they degrade.
- Research to estimate mortality rates and their impacts on affected species.
- Assess the fouling of vessels from fishing gear and marine debris.

### **Group C. Source Identification**

Hire person(s) to identify source of gear (utilize fishermen with expertise with most common gear)

- Establish a network of fishing gear specialists (comprehensive). (moved Monitoring & Removal working group)
  1. Establish net reference collection website guide
  2. Establish fishing gear catalogue
  3. Create something similar to a Marine Safety Data Sheet for fishing gear.
  4. Develop localized field guides (from website perhaps)

## 5. Request source info list from international groups such as FAO, SEAFDEC

- Develop GIS mapping of commercial fishing & aquaculture locations & seasons in North Pacific.
- International reference (targeted) database available by region or have regions set up their own.
- Create something similar to a Marine Safety Data Sheet for fishing gear.
- Build a constituency for the importance of source identification (fishers, NGOs, & government).
- Web site for identification of gear fragments as debris.

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### Group D. Industry

- Engage regional fisheries organizations, governments, and industry in dialogue about fisheries management regimes (property-rights based, limited entry, etc).
- Continue the concept of effort rationalization (ITQs/IQ) needed as a tool to reduce marine debris loss in the fishing industry. Government should take steps to encourage their use.
- Promote more recycling procedures and infrastructure where applicable.
- Identify and employ existing technology (agencies) for reducing and

recycling and for debris removal and disposal sites, i.e., Navy Compressed Plastics Disc.

- Establish a gear loss reporting and documentation procedure (reporting should be without fear of penalties).
- Promote expansion of port receiving stations for discarded fishing gear.
- Provide disposal facilities (include an international component targeted by country).

### **Group E. Monitoring and Removal Issues**

- Establish broad based funding to address removal.
- Establish groups (All stakeholders-net manufacturers, fishermen, insurance companies) to identify, secure & manage funds.
  1. Solicit DOD involvement
  2. Establish groups (All stakeholders-net manufacturers, fishermen, insurance companies) to identify, secure & manage funds
  3. User tariff managed by agency w/accountability and response capability.
  4. Annual Congressional appropriation
  5. International funding (IMO, UN, World Bank).
  6. Grass roots campaign.
  7. Funding Cleanups &endash; moved from Reducing Impacts of Gear working group
- Standardize survey & removal protocol for derelict fishing gear.
  1. Develop habitat specific guidelines.
  2. International Database (web-based)
  3. Create a "hotline"
  4. Regional criteria for prioritizing and identifying removal sites
- Develop standard operating procedures for data collection.

- Establish an international committee on marine debris monitoring (key is to have private/government/NGOs, etc).
- Establish Pacific Rim marine debris working group / commission / Pacific Environment Council.

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- Investigate economic incentives for recovery, return and recycling of derelict fishing gear.
- Continue northwest Hawaiian Islands derelict gear retrieval & monitoring & analysis & ID effort.
- The industry group strongly supports the Hawaiian Island program designed to collect derelict fishing gear from coral reefs as well as identifying the origin and source of the material involved. Studies should look at the historical and current marine debris involved in cluttering coral reefs.
- Enhance communication / information dissemination about marine debris monitoring activities (i.e website, media, existing groups).
- Engage advocacy groups in highlighting & promoting needs/funding requirements for marine debris monitoring.
- Attempt to engage all stakeholders in marine debris monitoring activities (especially developing countries); use existing marine debris related forums as a mechanism for engaging stakeholders.

## **Group F. Education & Outreach**

- Reestablish and institutionalize funding for MPPRCA mandate MDIO (CG, EPA, Commerce) in U.S. and similar institutions in other countries.
- Education of fishers about gear disposal (include an international component targeted by country).
- Hire and train peer group representatives to actively deliver derelict fishing gear message to priority groups.

- Produce training/informational video on MARPOL and gear disposal.
- Education of public, resource managers, administrators, legislators, fishing industry and conservation organizations of the true character and impacts of marine debris is important, especially in developing countries. Both the nature of the problem and mitigation actions taken by governments, NGOs and the fishing industry should be noted.
- Use source identification to target education.
- Engage industry in the development of programs to ensure effectiveness and buy-in.
- Tailor education programs to local situation and culture, use respected community leaders.

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August 11, 2000

Aloha,

We would like to thank you for your participation during the International Marine Debris Conference on Derelict Fishing Gear and the Ocean Environment (August 6-11, 2000) in Honolulu, Hawai`i. Over the course of this conference, you have shown impressive and continued energy as you've worked hard toward the common goal of finding a solution to this alarming problem.

Living in the Hawaiian Islands, we are especially sensitive to the direct impact of marine debris on our coral reefs, beaches, and coastal waters. Through greater public awareness, grassroots endeavors, multi-agency cooperative partnerships, advances in scientific research and fine-tuning in the management of our fisheries, we can achieve the goal of cleaning our oceans for our future generations and our marine life.

We thank everyone for their vision and their *mana'o* (Hawaiian for sharing of your thoughts and wisdom). We look forward to seeing the implementation of our action plan to prevent and reduce derelict fishing gear and its impact on our ocean environment.

Mahalo nui loa,



**Kitty M. Simonds**  
Executive Director,  
Western Pacific Regional  
Fishery  
Management Council



**Allen Tom**  
Manager,  
Hawaiian Islands Humpback  
Whale  
National Marine Sanctuary

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## Tongan Official Summons Up Reverence for the Sea in Closing Marine Debris Conference

### Friday, August 11

Invoking the time-honored authority of Polynesia—one of the world's oldest seafaring cultures—the Secretary of Fisheries from the Kingdom of Tonga delivered the closing address at the International Marine Debris Conference. `Akau`ola spoke of the conference proceedings with deep reverence, characterizing the work of solving marine debris as having spiritual significance: "In the creation it was preordained that our destiny would be linked to our oceans until the end of time. All life is dependent on this one great resource, which we neglect at our peril," he said in prepared remarks.



`Akau`ola, Secretary of Fisheries from the Kingdom of Tonga delivers the closing address at the International Marine Debris Conference.

The Tongan official made several references to the High School students from throughout the Pacific who had been selected by teachers on their home islands to participate in the conference. "Let them in turn carry our message and give heart to the youth of the Pacific and the wider international community and the generations that will follow that their inheritance will not be empty and void, a worthless



coin debased of all value by the guardians of today," said `Akau`ola. In what was probably one of the most emotional presentations of the five-day event at the Hawaii Convention Center, `Akau`ola implied that all adults present shared collective blame for the pollution caused by marine debris. Referring once again to the young people who had contributed reports to the conference, `Akau`ola advised, "Let them know that we are sorry for our neglect."

The need to carry through and back up recommendations with meaningful action--a theme reiterated by many conference speakers, was also underscored by `Akau`ola, who urged conferees to resolve to communicate regularly by email. In his final words, the Tongan official made a plea for unity and cooperation--another recurring theme that highlighted many conference presentations. Citing the metaphorical meaning of the Tongan national emblem--the sea eagle, `Akau`ola said the creature's endurance and resourcefulness inspires a Polynesian proverb which should be applied to the nascent marine debris movement as it continues to develop: "On the wings of the strong will be carried the burdens of the weak."

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## AN OCEAN ISSUE GOES GLOBAL

by *Liza Simon*  
*HIHWNMS, Public Outreach Coordinator*

It takes more than technology to solve a problem that is as big as the ocean itself, said celebrity diver Jean-Michel Cousteau in a closing address at the International Marine Debris Conference in Honolulu. "The problems are so complex that people tune out. They tend to think nothing will get so bad in their lifetime....Well, they are wrong," said Cousteau. The son of Jacques Cousteau, who currently heads up the California-based Ocean Futures Society, urged delegates to consider the human dimension of marine debris.

"We have built an entire civilization on waste, a process that undermines the health and biological system on which our survival depends....But what is waste? Waste is only a state of mind—a way of thinking," intoned the 53 year old Cousteau, adding that solutions-seekers would encounter this paradox: Even though change is always a challenge, the fact remains that the human mind is dynamic, still evolving and eminently capable of making great adaptations, Cousteau said.

Cousteau's focus on human nature no doubt struck a chord with 368 conference delegates, including a large share of marine scientists, resource managers, environmental educators and government officials. For a week, they huddled in working groups to sort out issues and craft recommendations for resolving the marine debris problem.

As veterans of previous marine debris workshops, many delegates expressed concern that a cohesive attack on the problem is long overdue. Seen as particularly culpable are fishing nets and lines made of non-biodegradable plastic. Whether abandoned intentionally or lost at sea by accident, the discarded or derelict fishing gear is known to entangle animals or is sometimes ingested by undersea creatures. In either case, the man-made junk can kill wildlife.

One study presented at the conference by Dr. Charles Fowler of the Alaska-based National Marine Mammal Laboratory attributes a recent decline in the northern fur seals population to the harmful effects of marine debris. Fowler's study is only part of a body of research which documents a link between marine debris and the loss of wildlife, an alarming development, especially for those who depend on the ocean for their livelihood. "If I can make a personal comment here, fishermen don't need another thousand page report. We've seen the reports but we don't have time to read them. They just sit on the shelf," said Brent Paine, Executive Director of United Catcher Boats. He added that fishermen do have consciousness. "If they hear that monk seals are endangered, they will take steps to keep from hurting them," Oliver said.

Cousteau urged delegates not to become frustrated by the many difficulties inherent in dealing with marine debris. In a light-hearted moment, he suggested delegates tear themselves away from the technical focus that had dominated the week in order to go on a deep-sea dive. Noting the refreshing charm of the ocean environment, he added that many would not want to return to the business of the conference, once they got beyond the confines of conference center. But he also said ocean-lovers would be dismayed by the fouled scenarios he's recently encountered. Relating the story of a recent visit to the Mediterranean Coast, he told conferees: "It had become a sewer as a result of marine debris."

One of the major problems in solving the marine debris problem involves trying to pin down the sources of the problem. "Much of the debris comes from land-based sources, such as material carried into the ocean from storm drains," noted Jim Coe a researcher with the Seattle office of the National Marine Fisheries Service. Coe added that all types of vessels also contribute to the glut of trash in the ocean. The range of sources means a

one-size-fits-all solution just won't work. Education must be targeted to specific groups and actual clean-up should be tailored to fit various types of debris in varying habitats.

John Henderson of the Marine Mammal Research Program in Honolulu raised concerns over the complexities of the problem in saying "Mitigation options must be specific to sources in order to be effective." Failure to accurately identify debris sources, he noted, could result in gear fragments being traced to a fishery, which accidentally lost its equipment due to a weather mishap, while the culpable fishery which is intentionally dumping the gear gets away without blame.

To best resolve the source this issue, several working groups called for government to play an enlarged role by establishing the office of a fishing gear expert who could identify sources of marine debris. A related recommendation urged the formation of a Pacific Rim Debris Commission to facilitate coordination between governments of different countries. The establishment of a website for gear identification also drew strong support from working groups. There was also general agreement that gear removal needed to be standardized and carried out in a way that will not cause any additional harm to the environment.

"We are not advocating continuing research at the expense of the problem," said Hannah Bernard of the Hawaii Wildlife Fund. If a piece of debris has coral encrusting on it, then we should leave it there. We want survey techniques to be quantifiable and systematic." Sounding a theme that many delegates echoed, Bernard added: "We want to engage all stakeholders in monitoring and removal and we need to use existing forums so that we are not just re-inventing the wheel."

Several representatives of the fishing industry emphasized how logistical barriers often hamper those who fish for a living from developing ecologically sound practices. "Adequate disposal facilities are lacking in the Pacific," said Brent Paine, Executive Director of the Alaska-based United Catcher Boats. The remedies reeled off by Paine included a central repository for recycled gear, acquisition of cranes to remove gear from boats, holding tanks at ports and improved transportation from dock to landfill. "To make the cost of all this realistic, we need the cooperation of all stakeholders. Government needs to look at facilitating these actions."

Reflecting Paine's concern, the group of delegates with an industry focus recommended that government document lost gear by setting up a centralized database for reports and waiving any penalties for those who have incurred the loss. Some from the industry group said fishermen could play a more direct role in remediation efforts if open access fisheries were curtailed in favor of a quota-based system. "When you switch to the quota-based system you're in the business of minimizing your cost, where as with open access you need to capitalize your investment. This means more nets, more gear, more horsepower," said Brent Paine. Citing quota-based systems implemented by the governments of New Zealand and Iceland, Paine said, "It's quite simple. Fewer vessels in the water means you are reducing the source of potential gear becoming derelict."

Throughout the week, much attention was focused on the international treaty known as MARPOL which makes provisions for the regulation of waste from ships. Congress established legislation to implement Annex V of MARPOL, but many delegates voiced concern that programs created to carry to comply with the treaty were subsequently cut due to lack of funding. Dr. Mary Donahue of National Marine Fisheries Laboratory in Honolulu reported that the conference working group focused on marine debris removal saw funding as key to its future activities: "Broad-based funding needs to be a priority or the effort to remove marine debris will simply grind to a halt," said Donahue, who has been involved in a multi-agency effort to remove derelict fishing from the remote and uninhabited Northwest Hawaiian Islands.

According to Donahue, cost of marine debris removal is driven by the complexity of the task. She said protocol and technologies must be established that is specific to the various marine habitats. "We have to have regional criteria. The different environments need to be addressed."

In order to both engage more stakeholders and spur funding, several recommendations supported crafting economic and social incentives. Emily Morgan, Director of the Citizen Outreach Center for Marine Conservation in Washington, D.C., said education programs need to take cultural factors into consideration. She urged the expansion of several programs, targeted to the community level. "We have been successful at training peer groups to deliver the message to other fishers. We have found that port captains who experience the problem first-hand are the most effective at institutionalizing effective solutions for their specific area."

Grass-roots efforts in both education and mitigation were recommended as a key tool for heightening the visibility of the marine debris problem. Seba Sheavley of the Center for Marine Conservation in Virginia Beach called for the expansion of an incentive program for local fishers in Hawaii. Known as the Marine Bounty Program, this allowed fishers to be rewarded points for reporting derelict gear. Points could then be redeemed for products and prizes donated by local retailers. According to Sheavley, the program epitomized the cooperation that results when various sectors of society understand that the adverse impacts of marine debris are universal.

The need for cooperation was summed up with a poetic cast by Jean-Michel Cousteau who quoted French writer Victor Hugo in saying: "The sewer is the conscience of the sea. I will go one step further in saying the sea is the conscience of the entire civilization. Never forget that we are always downstream of someone else."

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