



2016 Hawai'i **Marine Debris Action Plan**

September 2016

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For citation purposes, please use:

National Oceanic and Atmospheric Administration Marine Debris Program (2016). 2016 Hawai'i Marine Debris Action Plan. Silver Spring, MD: National Oceanic and Atmospheric Administration Marine Debris Program.

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Executive Summary

Marine debris is an increasingly global problem impacting Hawai'i. Numerous organizations in Hawai'i have worked hard to prevent and remove debris, yet marine debris continues to threaten marine ecosystems, human health, navigational safety, and the economy. The Hawai'i Marine Debris Action Plan (HI-MDAP) provides the marine debris community with a strategic approach to address marine debris issues in Hawai'i effectively and collaboratively.

On July 25-27, 2016, the National Oceanic Atmospheric Administration (NOAA) Marine Debris Program hosted the fourth HI-MDAP workshop at NOAA's Daniel Inouye Regional Center on O'ahu, Hawai'i. The three-day workshop included forty-two participants that represented various federal, state, county, non-governmental, academia, and private sectors across Hawai'i. Participants engaged in active discussions to evaluate and improve the existing action plan and modified the goals and strategies of the previous HI-MDAP to better address current conditions. The main objectives of the workshop included:

1. Review and reword goal and strategy language.
2. Propose actions for August 2016 – July 2018.
3. Share experiences and lessons learned.
4. Discuss challenges and solutions in current and proposed activities.
5. Explore mechanisms to improve collaboration and communication.

A notable outcome of the workshop was the establishment of four working groups or *huis* (Prevention, Removal, Abandoned and Derelict Vessels, and Research). These *huis* were established as a mechanism to increase collaboration and communication throughout the 2016-2018 plan. Each *hui* is led by a rotating coordinator that will facilitate meetings and update HI-MDAP participants of action progress.

During the 2014-2016 HI-MDAP performance period, forty-one actions were successfully completed. The completed actions and their descriptions can be found in a table following each goal titled "2014 HI-MDAP Accomplishments."

The following document details progress and proposed actions of the Hawai'i Marine Debris Action Plan. The current plan consists of 107 actions to be completed within two years (2016-2018).

Organization Acronym List

CCH	Conservation Council of Hawai'i
DLNR DOBOR	Department of Land and Natural Resources, Division of Boating and Ocean Recreation
DLNR DOCARE	Department of Land and Natural Resources, Division of Conservation and Resource Enforcement
DLNR DOFAW	Department of Land and Natural Resources, Division of Conservation and Resource Enforcement
DLNR DAR	Department of Land and Natural Resources, Division of Aquatic Resources
DLNR LD	Department of Land and Natural Resources, Land Division
DOH	Department of Health
DOT	Department of Transportation
DPR	Department of Parks and Recreation
HLA	Hawai'i Longline Association
HOST	Hawai'i Ocean Safety Team
HWF	Hawai'i Wildlife Fund
IUCN	International Union for Conservation of Nature
KHB	Keep Hawai'i Beautiful
KHF	Kōkua Hawai'i Foundation
KIRC	Kaho'olawe Island Reserve Commission
MLC	Mālama Learning Center
NKK	Nā Kama Kai
NOAA CREP	National Oceanic Atmospheric Administration, Coral Reef Ecosystem Program
NOAA DARRP	National Oceanic Atmospheric Administration, Damage, Assessment, Remediation, and Restoration Program
NOAA HIHWNMS	National Oceanic Atmospheric Administration, Hawaiian Islands Humpback Whale National Marine Sanctuary
NOAA HMSRP	National Oceanic Atmospheric Administration, Hawaiian Monk Seal Research Program
NOAA MDP	National Oceanic Atmospheric Administration, Marine Debris Program

NOAA OCM	National Oceanic Atmospheric Administration, Office for Coastal Management
NOAA PMNM	National Oceanic Atmospheric Administration, Papahānaumokuākea Marine National Monument
NOAA SRC	National Oceanic Atmospheric Administration, Southwest Restoration Center
OC	Ocean Conservancy
OP CZMP	Office of Planning, Coastal Zone Management Program
PICES	North Pacific Marine Science Organization
POP	POP Fishing and Marine
Surfrider (Island)	Surfrider Foundation, (Island) Chapter
SCH	Sustainable Coastlines Hawai'i
TNC	The Nature Conservancy
Transpac	Transpacific Yacht Club
UFA	United Fishing Agency
UH HCRI	University of Hawai'i, Hawai'i Coral Reef Initiative
UH IPRC	University of Hawai'i, International Pacific Research Center
UH Kewalo	University of Hawai'i, Kewalo Marine Laboratory
UH SG	University of Hawai'i, Sea Grant
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WPRFMC	Western Pacific Regional Fishery Management Council

Action Plan Status

The 2016 HI-MDAP is the fourth iteration of the plan developed by Hawai'i's marine debris stakeholders. The HI-MDAP was designed as a living document to be updated every two years to address Hawai'i's evolving marine debris issues. The focus of the 2016 HI-MDAP workshop was to ensure that the plan was effectively addressing the current issues of marine debris in Hawai'i. During the workshop, participants significantly revised the plan's goals and strategies, and prioritized goals in order of importance. Additionally, a new goal, research, was established and will be incorporated into the 2016 HI-MDAP.

Five Goals

- Goal 1:** Reduce Sources of Marine Debris through Prevention
- Goal 2:** Reduce the Amount and Impacts of Ocean-Based Marine Debris
- Goal 3:** Support and Sustain Marine Debris Removal
- Goal 4:** Increase Capacity to Address Abandoned and Derelict Vessels (ADVs)
- Goal 5:** Conduct High Quality Research to Understand Marine Debris

**48 Participating
Organizations**

**107 Total Actions:
69 New Actions
38 Ongoing Actions**

Goal 1: Reduce Sources of Marine Debris through Prevention



**Land-Based
Prevention**

**19 Total Actions:
14 New Actions
5 Ongoing Actions**

Goal 1: Reduce Sources of Marine Debris through Prevention

Strategy 1.1 - Change consumer behavior through outreach and education

Actions	Organizations	Status
Use social media as a platform for outreach to the general public. Utilize #HImarinedebris to capture work being done by partners.	NOAA MDP, KHF, SCH, Surfrider O'ahu, Surfrider Kaua'i, 808 Cleanups, Sharkastics, HWF	New Action
Increase invited speaking engagements (panels, speakers at events, etc).	NOAA MDP	New Action
Create 5 plastic-free schools (no single-use plastics in cafeteria).	KHF, SCH, Surfrider O'ahu	New Action
Create a pre and post survey or other test (choice of single-use plastic vs. reusable item) to track behavior change before and after beach cleanups.	SCH, KHF, Surfrider O'ahu, HWF, NKK, 808 Cleanups	New Action
Conduct outreach symposium to inform governments.	Surfrider O'ahu	New Action

Continue general outreach at schools and universities (includes outreach on specific items, such as single-use plastics, cigarette butts, and water bottles).	HWF, Surfrider O’ahu, Surfrider Kaua’i, SCH, NOAA MDP, NOAA CREP, KHF, UH Kewalo, NKK, 808 Cleanups	Ongoing
Conduct outreach to the general public through presentations, events, and booths. Includes making alternative products accessible and promoting reusable take-out containers.	UH IPRC, HWF, Surfrider O’ahu, Surfrider Kaua’i, SCH, NOAA MDP, KHF, Transpac, DOH, OP CZMP, MLC, Sharkastics, NKK	Ongoing
Relay scientific information to the community.	UH IPRC, NOAA MDP, UH Kewalo, 808 Cleanups, UH HCRI, DLNR DAR	Ongoing

Strategy 1.2 - Promote and encourage extended producer responsibility

Actions	Organizations	Status
Certify 300 restaurants to be Ocean-Friendly.	Surfrider O’ahu, KHF, SCH, Sierra Club HI, CCH, Surfrider Maui, Sharkastics, Surfrider Kaua’i	New Action
Work with Pūlama Lāna’i to investigate the feasibility of plastic free take-out containers.	Surfrider O’ahu, KHF, SCH, Sierra Club HI, CCH, Pūlama Lāna’i	New Action
Institute more expanded polystyrene bans at higher learning institutions.	KHF	New Action

Strategy 1.3 - Enhance efforts to create and enforce laws reducing solid waste

Actions	Organizations	Status
Close plastic bag ban loophole.	Surfrider O’ahu, SCH, KHF, 808 Cleanups	New Action
Track implementation of City and County of Honolulu National Pollutant Discharge Elimination System. Continue to implement Municipal Separate Storm Sewer System (MS4) water permit trash reduction plan requirements.	USEPA, DOH	Ongoing
Complete expanded polystyrene ban.	Surfrider O’ahu, SCH, KHF, Surfrider Kaua’i, 808 Cleanups, Surfrider Maui, Sharkastics, HWF	Ongoing

Strategy 1.4 - Deploy physical mechanisms to prevent debris

Actions	Organizations	Status
Implement coastal non-point source pollution control systems (for agriculture, forestry, marinas, and wetlands) to be appropriated correctly.	OP CZMP, Surfrider O’ahu	New Action

Install and evaluate the effectiveness of a “trash wheel” to remove land-based debris in the Ala Wai.	SCH, 808 Cleanups, Surfrider O’ahu, KHF	New Action
Bring and implement ByFusion technology (http://www.byfusion.com) to O’ahu.	SCH	New Action
Build 12-15 Ocean Friendly gardens.	Surfrider O’ahu	New Action
Advocate storm drain retrofit to capture land-based trash before it reaches streams or coastal waters.	DOT	New Action

2014 HI-MDAP Accomplishments

Strategy	Organizations	Accomplishments
1.1	HWF, Surfrider O’ahu, Surfrider Kaua’i, SCH, NOAA MDP, NOAA CREP	Collectively, these organizations reached over 17,500 students!
1.1	UH IPRC, NOAA MDP	The University of Hawai’i School of Ocean and Earth Science and Technology biennial open house was held in the Fall of 2015. Approximately 3,000 students attended the open house over a weekend. Jan Hafner with UH IPRC gave presentations about marine debris and the NOAA MDP sponsored a booth at the event.
1.1	Transpac	Transpac presented at a Kaneohe Yacht Club general meeting on Japan Tsunami Marine Debris.
1.1	NOAA MDP	NOAA MDP posted a “Trash Talk” series on their website, which includes educational videos and a teacher workshop webinar.
1.1	SCH	SCH created a mobile Education Station.
1.1	Surfrider Kaua’i	A Hanalei Board Swap booth was held monthly for an educational presentation with marine debris from the 5 Gyres Kit.
1.1	NOAA HIHWNMS	A marine debris display was incorporated into the Maui Visitors Center by the Hawaiian Islands Humpback Whale National Marine Sanctuary.
1.1	UH IPRC, NOAA MDP	UH web page is maintained, containing JTMD reports and model simulations (http://iprc.soest.Hawaii.edu/news/marine_and_tsunami_debris/IPRC_tsunami_debris_models.php). NOAA MDP published “Laboratory Methods for the Analysis of Microplastics in the Marine Environment” and “Marine Debris Impacts on Coastal and Benthic Habitats.”

1.1	MLC	Since December 2015, MLC has conducted monthly marine debris prevention outreach activities at Makeke Kapolei Farmers Market at Kapolei High School. MLC also hosted an educational booth at the 2015 Grow Hawaiian Festival and conducted a professional development marine debris course for 25 teachers.
1.1	UH HCRI, DLNR DAR	DLNR's communication office hosted a press conference on May 31, 2016 and issued a press release announcing the publication of the DAR/UH HCRI report "Japanese Tsunami Marine Debris aerial imagery analysis and Geographic Information System support in the Main Hawaiian Islands."
1.1	HWF, Surfrider	A "hold the foam" logo was created to be used for expanded polystyrene reduction awareness and legislative campaigns.
1.1	KHF	Le Jardin Academy went plastic-free in the Spring of 2016, and the cafeteria now uses metal forks and reusable lunch trays. An industrial dishwasher is now used to wash all of these items.
1.3	DOH, USEPA	DOH has implemented e-permitting for National Pollutant Discharge Elimination System permits (http://health.Hawaii.gov/cwb). The USEPA and DOH continue to track the implementation of the County of Honolulu National Pollutant Discharge Elimination System MS4 water permit (http://www.honolulu.gov/dfmswg/aboutus/875-site-dfm-swq-cat/20922-storm-water-management-plan.html ; http://www.honolulu.gov/rep/site/dfmswg/dfmswg_docs/swq_swmpp_F5.pdf).
1.3	SCH, Surfrider O'ahu, Surfrider Kaua'i, HWF	Expanded polystyrene ban bills have been introduced to county and city councils, and a plastic bag ban was passed within Hawai'i, Kaua'i, Maui and Honolulu Counties.

Goal 2: Reduce the Amount and Impacts of Ocean-Based Marine Debris



**At-Sea
Prevention**

**26 Total Actions:
16 New Actions
10 Ongoing Actions**

Goal 2: Reduce the Amount and Impacts of Ocean-Based Marine Debris

Strategy 2.1 - Conduct education and outreach to ocean users on proper and legal waste management at sea

Actions	Organizations	Status
Greater best management practices (BMPs) or proper waste management.	TBD	New Action
Identify target “ocean user” audiences.	TBD	New Action
Gather information on proper and legal waste management at sea.	TBD	New Action
Inventory existing educational materials at sea.	TBD	New Action
Develop new educational materials as needed at sea.	TBD	New Action
Amend DPR and DOBOR event permit language to require event “greening.”	Maui County, DLNR DOBOR	New Action
Continue outreach to yacht sailors sailing from O’ahu to West Coast.	Transpac	Ongoing

Integrate waste management into existing outreach efforts.	SCH	Ongoing
Conduct general education and outreach with local fishermen.	SCH, 808 Cleanups	Ongoing
Expand Ocean Awareness Training to other islands and partnerships.	NOAA HIHWNMS	Ongoing
Continue to support mandatory boater education and promote boater hurricane and tsunami preparedness.	DLNR DOBOR, HWF	Ongoing
Continue education and outreach to fisherman related to derelict fishing gear, marine debris, and port reception facilities. Print instruction brochure in Vietnamese, Korean, and English.	WPRFMC	Ongoing

Strategy 2.2 - Identify funding for and provide low-cost and convenient disposal options for fishing gear and solid waste

Actions	Organizations	Status
Report adequacy of port reception facilities and general user compliance with MARPOL V regulations.	USCG	New Action
Coordinate placement and transport of reception bin in Kihei for hard plastics.	SCH, DLNR DOBOR	New Action
Continue to support and partner in the Hawai'i Nets-to-Energy program. Includes supporting Pier 38 port reception bin and program.	NOAA MDP, Schnitzer Steel, Covanta Energy, POP, WPRFMC, NOAA CREP, HLA, UFA, Matson, DOT, UH SG, Surfrider Kaua'i, HWF	Ongoing
Support tour and fishing boats bringing nets ashore by picking up gear at the dock soon after arrival.	Surfrider Kaua'i	Ongoing
Research potential locations for marine debris storage at ports/harbors on Maui (Kahului), Hawai'i Island (Honokōhau), and Lāna'i.	DLNR DOBOR, Maui County, NOAA MDP, HWF, Surfrider Kaua'i, Pūlama Lāna'i	Ongoing

Strategy 2.3 - Increase use of fishing materials and practices designed to reduce marine debris

Actions	Organizations	Status
Learn more about smart fish aggregating devices; analyze impacts.	TBD	New Action
Establish formal partners for at-sea monitoring program.	TBD	New Action
Determining BMPs in regards to fishing gear and practices.	TBD	New Action

Strategy 2.4 - Create public-private partnerships to develop industry standards for reducing marine debris

Actions	Organizations	Status
Refresh communication with cruise ship industry.	Maui County, HOST	New Action
Identify industry partners.	TBD	New Action
Participate and engage with IUCN Oceania and Pacific Island regional marine debris partners; develop Pacific-wide partnerships.	Maui County, HWF	New Action

Strategy 2.5 - Build capacity to monitor and enforce against illegal discharge of solid waste at sea

Actions	Organizations	Status
Continue enforcement against illegal gill nets.	DLNR DOCARE	New Action
Coordinate meeting on monitoring/training against illegal discharge at sea.	USCG, DLNR	New Action
Continue to support legislation on reducing ocean dumping.	SCH	Ongoing

2014 HI-MDAP Accomplishments

Strategy	Organizations	Accomplishments
2.1	WPRFMC, NOAA MDP	The WPRFMC updated its speakers bureau to include the NOAA MDP as a marine debris speaker.
2.1	SCH	Outreach has been completed regarding waste management, as well as activities with fishermen using the SCH education station. New materials were developed and existing materials were inventoried.
2.1	NOAA HIHWNMS	Seven ocean awareness trainings on islands of Kaua'i, Hawai'i (Kona Office) and O'ahu were conducted.

2.1	DLNR DOBOR	DOBOR's Mandatory Education rule has been in place for three years. In 2015, about 11,500 boaters took a basic boating safety course. The number of new course completions is now in a decline indicating we are approaching the saturation point for existing boaters. The department has been enforcing the rule for a full year and has issued citations for non-compliance. DOBOR's Tsunami and Hurricane preparedness documents are available online. The Hurricane and Tsunami manual for Hawai'i boaters is always available at DOBOR counters.
2.1	HWF	HWF started to promote tsunami awareness and distributed DOBOR disaster preparedness brochures.
2.1	WPRFMC	WPRFMC continued support of the port reception facility through opportunistic outreach with the Hawai'i longline fleet. Students that attended a high school summer course (funded by the Council and run by Moanalua High School) on fisheries management and resources were taken on a field trip to the facility.
2.4	HWF	In December 2015, HWF hosted an international marine debris symposium in Hilo with 50 attendees representing 3 different countries (Japan, USA, Canada) and 3 different states (Washington, Oregon, Hawai'i).
2.5	SCH	SCH researched the possibility of using public service announcements to target fisheries and boaters regarding Japan Tsunami Marine Debris. Funding is needed to pay for the production, although there is no fee to air a 30 second advertisement through radio or television.
2.5	WPRFMC	WPRFMC expanded the distribution of the Fisherman Code of Conduct through signs and posters at more harbors throughout Hawai'i. Twenty aluminum signs (18 x 24 inches) were provided to Honolulu lifeguards for placement near lifeguard stations. Paper and waterproof posters were created in English, Hawaiian, and Chuukese and were distributed to schools, the Hawaiian Canoe Racing Association, lifeguards, neighborhood boards, etc. Public service announcements (PSAs) were also created in the three languages in 30 and 60 second installments and were widely distributed to the community.

Goal 3: Support and Sustain Marine Debris Removal



Removal

29 Total Actions:
10 New Actions
19 Ongoing Actions

Goal 3: Support and Sustain Marine Debris Removal

Strategy 3.1 - Utilize effective methods to locate marine debris accumulations

Actions	Organizations	Status
Continue to support opportunistically the advancement of at-sea detection for marine debris through remote sensing.	NOAA MDP, NOAA CREP	Ongoing
Work with partners to assist in marine debris detection across the state of Hawai'i.	NOAA MDP, NOAA PMNM, UH HCRI, DLNR	Ongoing
Continue monitoring efforts in the Northwestern Hawaiian Islands.	USFWS, NOAA HMSRP	Ongoing
Provide assistance in marine debris source identification for monitoring efforts by DLNR DOFAW in Northwestern Hawaiian Islands, Kure Atoll.	NOAA PMNM, NOAA CREP	Ongoing
Partner with NOAA-UAS (Unmanned Aircraft Systems) Program for continued development of UAS platforms for at-sea detection.	NOAA MDP	Ongoing

Continue to work with yacht sailors on at-sea visual surveys for floating marine debris in the North Pacific (PRA-approved data collection form).	Transpac	Ongoing
Design marine debris observing systems.	UH IPRC	Ongoing

Strategy 3.2 - Coordinate effective systems for reporting marine debris

Actions	Organizations	Status
Maintain and promote a marine debris "hotline."	HWF, Surfrider O'ahu, Surfrider Kaua'i, 808 Cleanups	Ongoing
Use the O'ahu Marine Debris Response and Removal reporting form.	DLNR DOBOR	Ongoing
Partner with organizations to implement standardized shoreline monitoring and data collection in order to build a baseline for various locations throughout the state.	NOAA MDP	Ongoing
Continue to coordinate with partners to report marine debris to disasterdebris@noaa.gov , dlnr.marine.debris@hawaii.gov , and 808-587-0405.	NOAA MDP, NOAA HIHWNMS, DLNR	Ongoing

Strategy 3.3 - Use available information to prioritize cleanup sites

Actions	Organizations	Status
Removal and research huis prioritize cleanup sites.	Pūlama Lāna'i, KIRC, Surfrider Kaua'i, HWF, Sharkastics, SCH, Surfrider O'ahu, 808 Cleanups	New Action
Contact appropriate NOAA/USFWS marine wildlife representatives regarding their high-priority regions/seasons by island.	HWF, NOAA MDP, UH HCRI, Sharkastics	New Action

Strategy 3.4 - Develop capacity for marine debris removal and disposal

Actions	Organizations	Status
Build a flow chart about methods of marine debris disposal.	NOAA MDP, DLNR, SCH, UH HCRI	New Action
Conduct meetings with Hawai'i County Civil Defense and Department of Defense to investigate opportunities to build removal capacity.	TBD	New Action
Support recycling efforts of Northwestern Hawaiian Islands debris.	NOAA HMSRP, SCH, NOAA CREP, USFWS, DLNR	Ongoing
Design/build net collection bins and place them at harbors in Hawai'i and Lāna'i.	HWF, Pūlama Lāna'i, WPRFMC, 808 Cleanups	Ongoing

Encourage use of sustainable/reusable options during cleanups through partnerships with stables, breweries, coffee companies.	SCH, Surfrider Kaua'i, 808 Cleanups, HWF	Ongoing
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Strategy 3.5 - Increase communication and collaboration to efficiently remove marine debris

Actions	Organizations	Status
Hold and participate in hui quarterly calls, coordination calls, and webinars to share innovative marine debris removal technology, tools, general supplies, and recommendations.	NOAA MDP to host	New Action
Develop new collaborations with partners in the Main Hawaiian Islands for recycling and disposal options.	TBD	New Action
Create marine debris listserv.	TBD	New Action
Create data portal.	NOAA MDP	New Action
Lead communication between O'ahu marine debris stakeholders doing cleanups.	808 Cleanups	New Action
Reach out to residents in Ni'ihau regarding helping with marine debris removals.	TBD	New Action
Continue to reach out to partners and entities around the North Pacific for communication and collaboration.	HWF, KHIB, OC	Ongoing
International Coastal Cleanup event, "Get the Drift and Bag It."	KHIB	Ongoing
Continue improved partner communication through HI-MDAP quarterlies, leading biannual calls, and creating hui's to have more focused discussions.	NOAA MDP	Ongoing
Provide financial and logistical support for large-scale marine debris removal in the Northwestern Hawaiian Islands.	NOAA MDP, NOAA PMNM, NOAA CREP, NOAA DARRP, USFWS, NOAA HMSRP	Ongoing
Continue to facilitate, coordinate, and conduct regularly scheduled coastal and stream cleanups, net patrols and AIS reporting.	HWF, Surfrider Kaua'i, Surfrider O'ahu, Surfrider Maui, SCH, KHF, 808 Cleanups, Sharkastics, Maui County, DLNR DAR, DLNR DOBOR, KIRC, MLC	Ongoing

2014 HI-MDAP Accomplishments

Strategy	Organizations	Accomplishments
3.1	PICES, DLNR,UH HCRI, NOAA MDP	DLNR PICES conducted marine debris detection using aerial surveys at a 2 cm resolution on all of the Main Hawaiian Islands. The results were analyzed by UH undergraduate analysts. All high-resolution imagery will be hosted on the free platform at ArcGIS online. Spatial mapping tools identified coastal segments of the highest marine debris densities (http://dlnr.hawaii.gov/dar/files/2016/05/Tsunami_Debris_MHI_Report.pdf).
3.1	NOAA MDP, NOAA CREP	In 2014 and 2015, ground-truthing of potential debris sightings from satellite imagery of shallow coral reef environments was completed at Pearl and Hermes Atoll and Midway Atoll. NOAA looked at the use of spectral signatures to differentiate derelict nets from coral reef environments.
3.1	Transpac	In 2014, Transpac recruited 12 boats to participate in at-sea visual surveys during the Pacific Cup at Kaneohe Yacht Club. The Ocean Cleanup partnered with Transpac Yacht Club during the 2015 Pacific Cup, offering up to \$10,000 to owners who participated in Ocean Cleanup's visual and trawl surveys. Ocean Cleanup will share survey data with the TransPacific Marine Debris Survey.
3.1	UH IPRC	NASA-sponsored workshop on marine debris remote sensing was organized at UH on Jan 19-21, 2016 (http://iprc.soest.Hawaii.edu/NASA_WS_MD2016).
3.2	SCH, HWF, Surfrider O'ahu, Surfrider Kaua'i, 808 Cleanups	Several response and reporting mechanisms have been created. SCH added a reporting mechanism to their website for the public to identify areas with specific marine debris issues (http://www.sustainablecoastlineshawaii.org/report-marine-debris/). Marine debris hotlines were created by HWF for the County of Hawai'i promoted through outreach efforts (808-769-7629), by Surfrider O'ahu for the City and County of Honolulu, and by 808 Cleanups through a social media/Facebook group. Net patrols were continued by Surfrider Kaua'i and HWF for Hawai'i.
3.2	DLNR DOBOR	The O'ahu Marine Debris Response and Removal reporting form is posted on DLNR's website. Other methods for collecting reports/sightings have been effectively employed to date; most notable are a marine debris-specific email (dlnr.marinedebris@Hawaii.gov), which automatically addresses multiple divisions within DLNR, as well as an established hotline (808-587-0405).

3.2	DLNR	DLNR has received and logged over 500 distinct reports of marine debris since 2012. 300 reports were submitted for suspected Japanese Tsunami Marine Debris.
3.2	NOAA MDP	NOAA MDP Monitoring and Assessment Project: Get Started Toolbox (https://marinedebris.noaa.gov/research/monitoring-toolbox).
3.2	NOAA MDP, NOAA HIHWNMS, DLNR	DLNR's Marine Debris page continues to direct the public to report sightings to dlnr.marine.debris@hawaii.gov and disasterdebris@noaa.gov . DOBOR also distributes information on marine debris reporting (to the above email addresses) through its Hawai'i Boating Law Basics Manual. NOAA MDP responds to reports sent to diasterdebris@noaa.gov . During this action plan time frame, more than 45 items were submitted.
3.4	Surfrider O'ahu and Surfrider Kaua'i	Surfrider O'ahu and Surfrider Kaua'i worked to complete a feasibility research for a waste to energy facility on Maui. Currently, building this facility on Maui is not feasible.
3.4	SCH, 808 Cleanups, HWF, Surfrider Kaua'i	SCH incorporated the use of feed bags during cleanups instead of trash bags. 808 Cleanups incorporated the use of reusable gloves, buckets, and tools during cleanups. HWF incorporated the use of burlap, feed, and coffee roasting bags, as well as reusable cloth gloves used during all cleanups. Surfrider Kaua'i incorporated the use of large burlap coffee bags and buckets.
3.5	NOAA MDP	HI-MDAP quarterlies started and 4 have been created and distributed. One coordination call occurred.
3.5	NOAA MDP, NOAA PMNM, NOAA CREP, NOAA DARRP, USFWS, NOAA HMSRP	NOAA MDP, NOAA PMNM, and NOAA DARRP provided financial and logistical support for NOAA CREP's ship and shore-based missions. Additionally, USFWS and NOAA HMSRP provided operational and logistical support to the NOAA CREP. 28 tons of derelict fishing gear and plastics from the coral reefs and shorelines of Lisianski Island, Pearl and Hermes Atoll, Midway Atoll and Kure Atoll were removed.

3.5	HWF, Surfrider Kaua'i, SCH, DLNR DOBOR	HWF and Surfrider Kaua'i continued their net patrols. In 2015, SCH hosted 13 cleanups and removed almost 50,000 pounds of debris with the help of 2,800 volunteers. Of the debris that was removed, 15,000 pounds was recycled. DLNR DOBOR continued to conduct cleanups of the Ala Wai Canal debris trap when warranted, especially after heavy rainfall. Several volunteer groups conduct regular cleanups in the Ala Wai Small Boat Harbor, gathering debris that eludes the trap by hand and with scoop nets. HWF team members and volunteers have removed more than 35,250 pounds of marine debris during the period of the last action plan.
3.5	MLC	Starting in January 2016, MLC hosted a total of six coastal cleanup workdays at Piliokahe Beach Park in West O'ahu, utilizing the NOAA Marine Debris Monitoring & Assessment Guide to conduct shoreline monitoring of marine debris at this location.

Goal 4: Increase Capacity to Address Abandoned and Derelict Vessels (ADVs)



ADVs

12 Total Actions:
 9 New Actions
 3 Ongoing Actions

Goal 4: Increase capacity to address abandoned and derelict vessels (ADVs)		
Strategy 4.1 - Prevention of ADVs		
Actions	Organizations	Status
Suggest draft legislation to apply mandatory insurance to all recreational watercraft.	DLNR DOBOR	New Action
Strategy 4.2 - Effectively respond to ADVs		
Actions	Organizations	Status
Appoint or designate DLNR marine debris coordinator.	DLNR DOBOR	New Action
Create and maintain ADV inventory for coastline and nearshore waters.	DLNR DOBOR, DLNR LD, NOAA MDP, DOT, UH HCRI, HOST	New Action
Begin discussions to establish a Memorandum of Understanding (MOU) with USCG for a more collaborative approach to address ADVs at sea.	DLNR DOBOR, NOAA SRC	New Action
Investigate disposal options for ADVs and disseminate info upon request.	DLNR DOBOR	Ongoing

Continue interagency coordination for addressing ADVs.	DLNR DOBOR, DLNR LD, NOAA SRC, NOAA MDP	Ongoing
Create, identify, and maintain an ADV situational response contact list.	DLNR DOBOR, NOAA MDP	Ongoing

Strategy 4.3 - Develop sustainable funding mechanisms and resources for vessel removal and disposal

Actions	Organizations	Status
Establish abatement fund.	DLNR DOBOR	New Action
Propose rule/amendment to charge a disposal fee at time of vessel transfer or first time registration.	DLNR DOBOR	New Action
Identify ADV projects or needs viable for USEPA Supplemental Environmental Projects.	NOAA SRC, USEPA	New Action
Outline future collaboration with DLNR to use the Oil Pollution Act settlement funds to address ADVs.	NOAA SRC, DLNR DOBOR	New Action

Strategy 4.4 - Pursue mechanisms to clearly identify vessel

Actions	Organizations	Status
Require registration for recreational watercrafts within the State of Hawai'i.	DLNR DOBOR, State Counties	New Action

2014 HI-MDAP Accomplishments

Strategy	Organizations	Accomplishments
4.4	DLNR DOBOR	<p>DLNR DOBOR investigated mitigation for ADVs with the National Association of State Boating Law Administrators (NASBLA) to establish an ADV abatement fund through the Hawai'i State Legislature. NASBLA provided information about California's Abandoned Vessel Abatement Fund, which could be useful in establishing one for the state of Hawai'i. Additionally, as of July 1, 2016, DLNR DOBOR required all signatures of sellers of a vessel to be notarized on any type of bill of sale. This change was made to facilitate transfers of registration and accurately track ownership of vessels. This will help DOBOR identify the date that responsibility for a vessel changed hands and aids in contacting the legal owner quicker and more reliably if an emergency situation exists.</p> <p>DOBOR has agreed to allow drifting ADVs that can be accommodated to be brought into its harbors and secured to temporary moorings.</p> <p>Since 2012, DLNR received and processed 74 ADVs suspected as potential JTMD.</p>

Goal 5: Conduct High Quality Research to Understand Marine Debris



Research

21 Total Actions:
20 New Actions
1 Ongoing Action

Goal 5: Conduct High Quality Research to Understand Marine Debris		
<i>Strategy 5.1 – Develop understanding of marine debris physical and chemical traits, life cycle, transport, quantity, impacts, and accumulation rate of marine debris</i>		
Actions	Organizations	Status
Identify marine debris research priorities through a consultative workshop.	NOAA MDP	New Action
Assess research capacity for state-based organizations and identify gaps.	UH HCRI	New Action
Seek multi-stakeholder/interdisciplinary consultation for research topics.	TBD	New Action
Support new and existing research priorities.	TBD	New Action
Complete literature review on research priorities.	TBD	New Action
Establish new lines of funding.	NOAA MDP	New Action
Conduct monthly NOAA accumulation and/or standing stock shoreline surveys.	Pūlama Lāna’i, KIRC	New Action
Continue to model and forecast marine debris from the 2011 Tsunami in Japan and other sources (Pacific Ocean).	UH IPRC	Ongoing

Strategy 5.2 – Develop or identify standardized methods or BMPs for applicable aspects of research to ensure data/projects can be meaningfully analyzed.

Actions	Organizations	Status
Continue to support and promote NOAA MDP standardized shoreline monitoring protocols.	NOAA MDP	New Action

Strategy 5.3 – Improve research on ecological impacts of marine debris.

Actions	Organizations	Status
Identify invasive species on marine debris.	DLNR DAR	New Action
Continue bioplastic accumulation research in seabirds.	TBD	New Action

Strategy 5.4 – Improve research on economic impacts of marine debris.

Actions	Organizations	Status
Identify economic impacts of expanded polystyrene ban or other policies.	TBD	New Action

Strategy 5.5 – Evaluate the effectiveness of mitigation, outreach, and removal efforts of marine debris.

Actions	Organizations	Status
Utilize spatial mapping to compare areas of high removal effort to standing debris accumulations in order to evaluate the impact of cleanups and site monitoring.	UH HCRI	New Action

Strategy 5.6 – Support communication and collaboration of research to all stakeholders.

Actions	Organizations	Status
Improve collaboration and data sharing through the publishing, compiling, and sharing of high quality peer reviewed papers.	UH HCRI, DLNR DAR	New Action
Create forum for NGOs and researchers.	TBD	New Action
Establish research listserv and share capabilities.	TBD	New Action
Leverage, implement, and transfer knowledge of marine debris strategy from the Lānaʻi Natural Resources Management Plan.	Pūlama Lānaʻi	New Action

Initiate island-specific workshop groups.	TBD	New Action
Investigate feasibility of establishing a marine debris foundation for Hawai'i.	NKK, Research Hui	New Action
Compile data from various cleanup organizations.	UH HCRI, 808 Cleanups	New Action
Reach out to international marine debris partners.	KHF, SCH, KHIB, HWF	New Action

2014 HI-MDAP Accomplishments

Strategy	Organizations	Accomplishments
5.1	UH IPRC	Worked in collaboration with NOAA and the Japan Meteorological Agency/Meteorological Research Institute on ADRIFT project, sponsored by Japan Ministry of Environment and managed by PICES. Preliminary results are published in PICES Press (http://pices.int/publications/pices_press/volume23/PPJuly2015.pdf).
5.6	UH	After a series of workshops, the Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) Working Group 40 report has been completed. It has just returned from a series of external reviews and should be released in 2016. The report will be cited as: 2016 GESAMP. Sources, fate and effects of microplastics in the marine environment – part two of a global assessment. Kershaw, P.J. and Rochman, C. eds. IMO/FAO/UNESCO-IOC/UNIDO/WO/IAEA/UN/UNEP/UNDP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection. Rep. Stud. GESAMP No. 9n, nn pp.

Appendix

2016 HI-MDAP Workshop Agenda: Honolulu, HI July 25-27, 2016

Workshop Goal: Develop and update actions for the 2016 HI-MDAP (August 2016 – July 2018).

Monday, July 25

8:30-9:00	Check-in and Breakfast Refreshments
9:00-9:30	Recap from Day 1
9:30-11:00	Session 2 (Small Group Exercise) <ul style="list-style-type: none"> Identify gap, challenges, solutions and key metrics
11:00-12:00	Session 2 Report Out
12:00-1:00	Lunch and Poster Session
1:00-2:30	Session 3 (Small Group Exercise) <ul style="list-style-type: none"> Develop actions, commitments and plans
2:30-4:00	Session 3 Report Out
4:00	Adjourn
5:00-7:00	Pau Hana (optional)

Wednesday, July 27

8:30-9:00	Check-in and Breakfast Refreshments
9:00-9:30	Recap from Day 2
9:30-10:30	NOAA MDP Proposed Timeline <ul style="list-style-type: none"> Working groups members and rotating leads
10:30-11:00	NOAA MDP Grants Overview
11:00-11:30	Other NOAA Funding Opportunities
11:30-1:00	Lunch and Facility Tour
1:00-2:30	Presentation of Proposed 2016-2018 HI-MDAP
2:30-2:45	Workshop Evaluation
2:45-3:30	Closing Remarks
3:30	Adjourn

Tuesday, July 26

8:30-9:00	Check-in and Breakfast Refreshments <ul style="list-style-type: none"> Participant sign-in Coffee, pastries and fruit provided
9:00-10:00	Welcoming and Introduction <ul style="list-style-type: none"> Opening remarks History of HI-MDAP Participant introductions Overview of workshop goal, objectives and agenda
10:00-10:30	Review of Current HI-MDAP <ul style="list-style-type: none"> Overview of goals and strategies
10:30-10:45	Break
10:45-11:30	Propose Revised Goal and Strategy Wording <ul style="list-style-type: none"> Development of new goal
11:30-1:00	Session 3 (Small Group Exercise) <ul style="list-style-type: none"> Develop actions, commitments and plans
1:00-2:30	Session 1 (Small Group Exercise) <ul style="list-style-type: none"> Review and reword previous goals and strategies
2:30-3:30	Session 1 Report Out
3:30-4:00	Daily Wrap-up
4:00	Adjourn

2016 HI-MDAP Workshop Participant List

Name	Organization
Cindy Among-Serrao	NOAA HIHWNMS
Bud Antonelis	NKK
Nir Barnea	NOAA MDP
Jason Bayang	PIPES Intern
Stephanie Bennett	NOAA OCM
Rafael Bergstrom	Surfrider O'ahu
Lauren Blickley	Swell Consulting
Grace Chon	NOAA MDP
Jim Foley	NOAA OCM
Nick Garofalo	Schnitzer Steel
Scott Godwin	NOAA PMNM
Nakoa Goo	TNC Marine Fellow
Jan Hafner	UH IPRC
Carly Haeussler	Stony Brook University
Clifford Inn	DLNR DOBOR
Neil Kanemoto	POP
Cheryl King	Sharkastics
Megan Lamson	HWF
Barbara Lee	DLNR LD
Fawn Liebengood	808 Cleanups
Mark Manuel	NOAA MDP
Nikolai Maximenko	UH IPRC
Scott McCubbins	Surfrider Kua'i
Laura McIntyre	DOH
James Morioka	NOAA CREP
Kirsten Moy	UH HCRI
Barry Nakamoto	Covanta Energy

Name	Organization
Justine Nihipali	OP CZMP
Kahi Pacarro	SCH
John Parks	Marine Management Solutions LLC
Matt Parry	NOAA SRC
Rob Parsons	Maui County
Ben Reder	NOAA OCM
Doorae Shin	KHF
Rachel Sprague	Pūlama Lānaʻi
Kanoelani Steward	TNC Marine Fellow
John Titchen	USCG
Dean Tokishi	KIRC
Nancy Wallace	NOAA MDP
Bert Weeks	TNC Marine Fellow
Lee Ann Woodward	USFWS
Chris Woolaway	KHIB

2016 HI-MDAP Working Groups (Huis)

Prevention	
Rafael Bergstrom (Coordinator)	Surfrider Oʻahu
Doorae Shin	KHF
Barbara Lee	DLNR LD
Justine Nihipali	OP CZMP
Kahi Pacarro	SCH
Grace Chon	NOAA MDP
Rob Parsons	Maui County
Chelsey Jay	MLC
Pauline Sato	MLC

Removal	
Megan Lamson (Co-Coordinator)	HWF
James Morioka	NOAA CREP
Dean Tokishi	KIRC
Fawn Liebengood (Co-Coordinator)	808 Cleanups
Cheryl King	Sharkastics
Scott McCubbins	Surfrider Kaua'i
Rachel Sprague	Pūlama Lāna'i
Nick Garofalo	Schnitzer Steel
Barry Nakamoto	Covanta Energy
Neil Kanemoto	POP
Chelsey Jay	MLC
Pauline Sato	MLC

ADV	
Mark Manuel (Coordinator)	NOAA MDP
Clifford Inn	DLNR DOBOR
Scott Godwin	NOAA PMNM
Chris Woolaway	KHIB
John Titchen	USCG

Research	
Kirsten Moy (Coordinator)	UH HCRI
Nikolai Maximenko	UH IPRC
Jan Hafner	UH IPRC
Lauren Blickley	Swell Consulting
Carly Haeussler	Stony Brook University
Bud Antonelis	NKK





Penny Pritzker
United States Secretary of Commerce

Dr. Kathryn D. Sullivan
Under Secretary of Commerce for Oceans and Atmosphere

Dr. Russell Callendar
Assistant Administrator, National Ocean Service