NORTHWESTERN HAWAIIAN ISLANDS
CORAL REEF ECOSYSTEM RESERVE ADVISORY COUNCIL MEETING
5-6, January 2010, 9:00 am- 4:00 pm
ONMS Pacific Islands Region Conference Room
Hawaii Kai, Hawaii

Meeting Minutes

DAY 1, 1/5/2010

ATTENDEES
Advisory Council Members:
Louis "Buzzy" Agard (Native Hawaiian); William Aila (Native Hawaiian); Margaret Akamine (NMFS for Mike Tosatto); Dani Carter (State of Hawaii); Rick Gaffney (Recreational Fishing); Bill Gilmartin (Research); Gail Grabowsky (Education); Becky Hommon (U.S. Navy); Cindy Hunter (Research); Tim Johns (State of Hawaii);Lloyd Lowry (Marine Mammal Commission for David Laist); Kem Lowry (Citizen-At-Large); Naomi McIntosh (Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS)); Linda Paul (Conservation); Eric Roberts (US Coast Guard); Don Schug (Research); Robert Skillman (WESPAC for Kitty Simonds);Laura Thompson (Conservation); Susan White (US, Fish and Wildlife Service); ʻAulani Wilhelm (Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (NWHI CRER)).

Absent: Isabella Abbott (Native Hawaiian for Buzzy Agard); Carlos Andrade (Native Hawaiian); Alexandra Curtis (U.S. Department of State); Bobby Gomes (Commercial Fishing); David Laist (Marine Mammal Commission); Kitty Simonds (Western Pacific Fishery Management Council (WPFMC); Philip Taylor (National Science Foundation); Mike Tosatto (National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries (NMFS)); Jessica Wooley (Conservation); Matthew Zimmerman (Ocean-Related Tourism).

Alternate Council Members (not representing voting members): Tammy Harp (Native Hawaiian for William Aila) via teleconference.

[NWHI CRER Staff]: Andy Collins; Hoku Johnson; Randy Kosaki; Dan Dennison; Naiʻa Watson.
[Monument Staff]: Cori Kane

[Members of the Public]: Jay Silberman (USCG); Matt Brown (USFWS); Jeff Pollack; Barb Mayer; Lydia Munger-Little (NMFS)

MEETING OBJECTIVES:

1) Receive updates on Monument efforts
2) Provide time for RAC sub-committees to meet
3) Receive a briefing on Hawaii Institute of Marine Biology research to benefit management

Opening – Naiʻa Watson – ʻE Ho Mai

I. CALL TO ORDER (JOHNS)
Council Chair Tim Johns called the meeting to order and Andy Collins took roll and the participants introduced themselves.

II. REVIEW AND APPROVAL OF AGENDA (JOHNS)
Mr. Johns reviewed the agenda for the day.

III. APPROVAL OF PREVIOUS RAC MEETING MINUTES (JOHNS)

IV. TOPIC A: MONUMENT CO-TRUSTEE AGENCY UPDATES (WHITE, CARTER, WILHELM)

Susan White, USFWS Superintendent: Hurricane Neki consumed a lot of the time and effort over the last few months. The hurricane was projected to potentially reach Cat 5, but was rated Cat 3 – Cat 5. NOAA Ship *Oscar Elton Sette* helped to evacuate USFWS personnel from Tern Island. USCG also assisted. This is the first time that Tern Island was completely evacuated. A USCG C-130 landed on Tern with great difficulty. Capt. Swatland said that there were few pilots that could make the landing, and were fortunate that this pilot decided he could do it. Take off was also difficult. Following Hurricane Neki, NOAA Ship *Oscar Elton Sette* had a challenging time to get out in time to secure safety of ship and crew. *Sette* finished marine debris work, then went to Midway. A USCG C-130 over flight of Tern Island was completed. The over flight revealed that there was no extensive damage, and people were redeployed, but shutting all the electrical systems down caused issues, and restoring connectivity and power was a challenge. USFWS has a new cultural liaison, who also acts as biological liaison. Fieldwork and surveys continue on Laysan Island. Plans continue for translocation of Nihoa Millerbird, possibly this year. Tracking of albatross; still transmitting. Loulou Palm (*Prichardia remota*) on Laysan – is flowering, though not reproducing. Tern Island is experiencing a problem with the graybird locust. Had a prescribed burn on Midway of old Ironwoods that are not native to the island. Midway also had a spill of PCBs and transformers. Thought it was not, it was treated as a hazmat spill, and everything was contained. Artist – Chris Jordon went up in September. www.midwayjourney.com. Permitted to do education/artist work on Midway about threats and concerns to albatross. Excellent videos on YouTube. Hired first biotech for Laysan and hiring an additional person soon. Two M/V Kahana trips to supply the islands since last RAC meeting. Went to Laysan and Nihoa as well. Susan turned the presentation over to Matt Brown, USFWS Midway manager. Matt wanted to thank everyone for their hard work back here in the freezing offices of Honolulu. Albatross are back now. Like the migrating albatross the bird counters are back as well and they counted three short-tailed albatross. This year a pair nested up but did not produce an egg. Looking at Laysan Albatross reproductive success there was a slight downward trend in reproductive success. Matt showed a graph demonstrating that the invasive weed *Verbescina* has significantly impacted nesting ability. Midway Atoll seaplane hanger is dilapidated. Had several engineering firms look at the building and conduct an assessment. 10 million just to keep the building standing. 18-19 million to save the building, Midway got 4 million in recovery act funding. Work underway to restore the 1941 historic officer's homes. Bill Gilmartin – question about post hurricane planning activities. Susan said yes, there have been two meetings after the event, emergency response planning, evacuation procedures, etc. At

Laysan they have a hurricane structure to protect staff on island and are coordinating with NMFS. Bill – question about Tsunami warning and readiness. Tern – the approach is to go offshore in a boat. At Laysan they also have a small inflatable boat. Staff also have emergency and survival suits. NMFS is also looking at emergency evacuation using a boat from Honolulu via a contract that Chad Yoshinaga (NMFS) is working on. Bill Gilmartin also had a question about habitat restoration from non-native species. Susan – there is significant habitat restoration going on at Midway. Bill – not enough attention being paid to invasive species issues. Why is *Verbescina* still such a major issue? It has been years. Matt Brown stated that when 3 to 4 acres of cleared space is added it is huge improvement. State and USFWS are working together on removal and are controlling more acres now than ever before, but it is a huge problem and takes continuous work. Cindy Hunter asked – can you expand on how much of suitable nesting habitat is dominated by *Verbescina*? Upwards of 300-350+ acres currently controlled. Sand Island – roughly 25 % previously dominated by *Verbescina* is now controlled. They have a volunteer who has been working on this issue for 6 years, but still has to go back every year. Need a big multi-year push in order to really reduce it, and then still would need maintenance every year. Cindy – can you burn it? Susan said yes they have looked at the issue, but it did not seem appropriate. Margaret Akamine – how are you rating the *Verbescina* threat vs. the lead threat? Matt - Lead remediation is being dealt with, and has helped the Petrels, but the birds are digging down and stirring up old contaminants. Rick Gaffney – Looking at the strike force approach, is there enough capacity to be able to implement this? Matt – right now no.

Dani Carter, Acting State of Hawaii Superintendent Kure Atoll: 2009 activities. Habitat Restoration is the primary activity occurring on Kure. Half of the effort on Kure this year was to create a new seep for Laysan duck introduction to Midway. Admin occupied an additional effort,(??) as did sea bird monitoring. 10,632 lbs of marine debris collected. First ever green sea turtle nest recorded on Kure, however the nest did not hatch. Other noteworthy events: Samoa earthquake – potential tsunami (Sept 29th.), Hawaiian cultural practitioners visit (Oct. 4th), Personnel depart for Midway (Oct 5th) Several publications and media and outreach for Kure. Cynthia Vanderlip worked on a paper with Dr. Lindsay Young. Another study has been conducted on Spinner dolphin genetics. Kure atoll conservancy web site is up and running. www.kureatollconservancy.org Other State activities Sept – Dec.: Permits – two applications went to Land Board since last meeting. Research – prep and planning support for RAMP cruise, but participated in HURL cruise. Question from Bill Gilmartin to Laura Thielen – State Employees unable to go anywhere on a furlough day, this prevented Cori from going on RAMP cruise. PMNM Interagency Coordinating Committee – Met in September – Navy; USGS; WPRFMC; EPA; USCG; NOAA-OLE; State – Dept. of Agriculture; Dept. of Health, State Historic Preservation Division. Steve Spangler – Pacific Hydrogeologic, working with USCG. Looking to use native fungi to mitigate PCBs. Old Loran station, and investigations in the 1990s showed that there were still some residual PCBs. 2007/2008 site was extensively characterized for PCBs – samples. Found 3D distribution of PCB contamination. Took (110) 5 gallon buckets back to Oahu for remediation. Looked at fungi for toxic remediation. Developed a hydro gel used for degrading materials. Has a whole process for how to treat the sand with a degrading fungus; for PCBs 50% degradation in about 2 weeks. Gail Grabowsky (question) – what is the process now for materials collected from Kure. Jay - Will be treating buckets of various concentrations of PCBs. Depending upon outcome of experiment here on Oahu, may use this technology on Kure. Question on how this will be executed. Jay Silberman says that

experiments may be carried out on Kure once it is determined that there will be no impact to Kure ecosystem. Laura – question about feeding fungi in sand to allow fungi to grow and break down the PCBs. Steve Spangler says that sands at Kure are relatively sterile. Jay made it clear that if the fungi work, they would be applied in a greenhouse/controlled environment. Gail – what are the alternatives to treating in place? Jay said that treating in place is the best option, and it is called mycoremediation.

`Aulani Wilhelm, NOAA/ONMS PMNM Superintendent: Presentation will be short since other presentations will be taking place. 2009 Priority Projects: Natural Resources Science Plan, Threat Assessment, Monument Alliance, Evaluation Strategy, World Heritage, Pacific Exchange World Heritage Nomination – will be up for nomination in June. Application submitted (January 2009) UNESCO evaluators are working on final recommendations. We will not know anything until June. Meeting where this will be decided is Brasilia, Brazil July 25-Aug 3, 2010. Conservation Measures Partnership – NGO consortium (list of NGOs) One example of evaluation using Marine Debris. Looking at evaluation as to whether management actions have an effect. Our site is a bit different since we are primarily trying to stave off degradation rather than restoration. Dan Dennison will be giving a presentation later on web development. Many new videos online. Mentioned ʻAhahui Alakaʻi education program on Midway and that it will be held again this year. There is also much work being done in Monument Archaeology – longest archaeology research project ever conducted in the NWHI was conducted this past year on Mokumanamana. Kekuewa will need to give this presentation later. Solstice research Dr. Pua Kanahele, visit to Mokumanamana to understand movement of sun in relation to the sites on Mokumanamana. Sister Site agreement – relationship with Pheonix Islands Protected Area (PIPA). We now have a formalized sister site agreement with PIPA. If the RAC is interested in looking at sister site agreement, Aulani can provide copies. UNESCO World Heritage Pacific Islands Workshop – Maupiti, French Polynesia. Although the Monument is politically tied to the U.S. we are geo-politically tied to Pacific. Want to strengthen Pacific relationships. Purpose of meetings in Brazil is to strengthen Pacific presence on World Heritage. US – French MOA on MPAs – an MOA was signed last month in Moorea, French Polynesia. ONMS signed a broad MOA with the French agency. Pacific Exchange – June 2009 visits from Marquesan and French Polynesia officials. December 2009 Reciprocal visit by PMNM to Marquesas and Tahiti. Note that islands in Marquesas and PIPA have similar archaeological sites to MMM. Potentially interesting connection with equator and Tropic of Capricorn. ʻAulani showed slideshow of Tahiti workshop. Maupiti and Moorea meeting.

V. TOPIC B: ENFORCEMENT UPDATE (ERIC ROBERTS (USCG))

Enforcement over flights in the Monument continue but no illegal activities have been detected over the last few months. The USCG District Commander hosted the Ocean Policy people while they were here in Hawaii, and the Monument continued to come up as a topic. Eric attended several Monument related meetings over the last few months, such as work with contractors on the Monument threat assessment where he provided case histories. There was also another meeting of the law enforcement working group in the last quarter. Eric also mentioned USCG efforts to help recover Hawaiian Monk Seals and presented this info at the MMC. Rick Gaffney (question). When will Bottomfishing in NWHI end? Margaret Akamine (NMFS) noted that NMFS buyout of existing NWHI Bottomfish and Crustacean permits occurred and checks have been issued. Once the checks are cashed the permits become invalid. Not all fishers have

cashed their checks. Margaret will provide a full report on number of permits by next meeting.
Becky Hommon (US Navy) – distributed three pieces of paper about Navy activities.
She also noted that the NAVY works with PIFSC to tag monk seals during RIMPAC exercises.

VI. TOPIC C: PERMITS (HOKU JOHNSON)
2009 Permit Year-End Summary - 59 permit applications received in 2009: 33 Research,13 Special ocean use, 5 Conservation/mgmt, 4 native Hawaiian, 3 Education, 1 Recreation
49 were issued. Of the 10 that withdrew, one withdrew due to remoteness and logistics. Another, Plastiki withdrew due to planning/not being ready. The recreation permit was issued for the FWS Visitor Services Program at Midway Atoll. Issued to Matt Brown for Midway recreation activities. To date 16 permit applications for 2010 have been received. Laura Thompson– have we denied any permits? Hoku – yes- but not in 2009. Bill Gilmartin – how much is the recreation permit being used? Matt Brown – extensively- it is booked every week through June. Only two private planes visited Midway in this last year. Bill G. – what is the latest information on Nihoa and visitation, there used to be some concern with camping sites. Susan White – everyone who visits Nihoa now does a Section 106 consultation for impact to historic resources. Have not resolved logistical issues related to camping on island. Once FWS engineers have looked at the issue will need to consult with cultural practitioners. Laura T. to Matt. Do visitors pay USFWS for their time on Midway? Matt – yes, but it is not a self sustaining program. Roughly $230/day/person. Laura T. asked if people do restoration work while up there, and Matt said that most folks do help out with some conservation work.

VII. TOPIC D: SCIENCE AND RESEARCH
Presentation by Kelly Gleason, – PMNM Maritime Archaeologist. Maritime Heritage Research Plan Workshop will be held on Feb. 2nd and 3rd. Please attend if you have an interest. The Monument Management Plan states that this needs to be completed in the first 2 years. The meeting is a full two days in our office. Development of the MH research plan will be a primary product. February 5th – Maritime Heritage exhibit opening at Mokupäpapa. The exhibit is an opportunity for people to interact with maritime heritage resources in the Monument. Feb. 5th is a day long event to celebrate maritime heritage, with talks, a film, and an evening reception. Update from the 2009 Maritime Heritage Research Expedition: How are shipwreck sites changing over time? Derek Smith of HIMB is conducting research to evaluate the difference between shipwreck sites and other sites. Survey of an unknown shipwreck site at French Frigate Shoals. Could be one of a number of sites of historic interest – Daniel Wood, Two Brothers. Interesting note is that old maps had a Two Brothers Reef on them, but is in a different area and not included on subsequent maps. 2010 will be a dedicated Maritime Heritage cruise and remote sensing surveys will be conducted. Don Schug – are there other institutions interested in coming along on these expeditions. Kelly – yes, we get help from graduate students from other institutions. Bill – how many wrecks are there? Kelly – There are 60 shipwrecks known lost in the NWHI, and so far 25 have been documented. Cori Kane – Hawaii Undersea Research Laboratory (HURL) Expedition. The expedition was in the monument a little under a week. Goals of the cruise were to: Determine abundance and distribution of fauna on deepwater ridges, Collect unusual specimens. Twin Banks – 2 dives conducted. Collected 12 potentially new species. Conducted deepwater mapping. Several of the new species were rather large, 5 – 7 meters high, and 1 meter across. Middle Bank - Conducted 2 dives, collected 15 potentially new species. Enhanced deepwater maps of bank features. Observed and sampled a deepwater

barnacle species. Laura – how far are twin banks and middle banks from each other? Cori - About 400 miles from each other. Becky Homman asked if sponges are in a similar state to corals in terms of being threatened? Cori – we don't really know enough. Only one main expert, in Canada, and he could not even identify the new specimens. Cindy asked how they got a sample of the barnacle. Cori said it was rather difficult. Elizabeth Kehn – RAMP cruise – 35 day cruise. Research topics: Crustose Coralline Algae Assessment; Traditional Ecological Knowledge; Collection of Coral Fragments; and Oceanography Islands/atolls surveyed – surveys at 6 islands and atolls. RAMP Survey Method: Corals: Corals along transect were identified to species, and measured. Fish: Both SPC (count and size all fish in 15m diameter circle) and Belt transect survey methods were used on this RAMP cruise. Benthic Habitat: LPI. Characterize the benthic habitat, determine trends in % cover over time. Random Stratified Sampling Design is being used for choosing sites. Future RAMP Activities – 2010 RAMP will be led by PIFSC/CRED. Initiate collaboration with UH Hilo Marine Option Program, assists with student training, implement RAMP methodologies. Bill G. asked about RAMP approach, and are they still going back to the same places year after year? Elizabeth said that the issue with this is that it doesn't allow them to answer questions about abundance, and change over time, thus the shift to random stratified sampling. Bill mentioned that it could still be useful to re-visit the same sites. Randy Kosaki (ONMS/PMNM Deputy and Research Coordinator) – noted that the old sites were biased toward nicer sites with more abundance of fish, so the random sampling provides a more accurate picture of what is really out there. Bill still questioned whether there was an advantage to still go back to the same sites. Randy noted that there is still a mix of the two going on and that the sampling design is being created by Jerry Ault who is a leader in this field. Randy called attention to the new maritime heritage exhibit going in at Mokupäpapa, and that it is the first major new exhibit going in to the facility in the 6 years it has been open. The Monument is now working on Mesophotic sampling to increase understanding of all habitats in the Monument. We have only been sampling the top 1/3 of the depths covered by coral reefs. Increased sampling between 25 – 200 m will be used to detect the presence of alien and invasive species such as *Hypnea musciformis*, and invasive octocorals, *Cariajoa*, and also to find new records, and possibly new species. In 2009 undescribed species were found at Pearl and Hermes atoll, as well as extensive and unusual macro algal meadows, representing potentially new nursery habitats for juvenile reef fishes. Sites were selected using the NOAA Ship *Hi'ialakai* multibeam equipment. Features such as old shorelines, ledges and other underwater features were sought. Decompression stops in NWHI are challenging since there are a lot of sharks around. Decompression stops had 80-100 sharks. Natural Resources Science Plan Received a fair number of comments from RAC, public, and partners. Need to get back on track to incorporate comments and re-prioritize activities. Rick Gaffney (question)– have you found any spawning aggregations during the mesophotic dives? Randy – no. Rick noted that spawning aggregations have been noticed off the Big Island in deep water. Gail (question) asked if the deep water surveys will start to become random stratified like the shallow water surveys. Randy - yes, eventually.

Public comment – no one signed up, and no one wanted to speak when asked.

VIII. TOPIC E: MONUMENT ALLIANCE (COLLINS)

Monument Education & Technology Coordinator Andy Collins presented the work completed so far by the MMB Monument Alliance Working Group. Explaining that this is all only in draft form, it's suggested the Alliance have 17 seats with none of them being government representatives. Collins displayed PowerPoint slides which lay out the time-line for the formation of the Alliance; tracing RAC input for a draft charter, finalizing the charter, soliciting applications and finally selection of Alliance members. He reviewed the composition of the Alliance and showed the qualifications matrix. RAC Chair Tim Johns inquired as to whether Monument managers are looking for RAC endorsement at this point. NOAA Monument Superintendent 'Aulani Wilhelm explained that everything is preliminary at this point and open to discussion and revision. Collins then reviewed proposed Monument Alliance responsibilities to include: conveying to the MMB news of their constituent communities, representing issues back to their constituents and determining what follow-up is necessary. Collins also displayed 10 common general responsibilities and 9 requirements dealing with preparation, meeting attendance, communications, etc. Currently the Alliance Working Group has developed seven general application questions, in addition to specific questions for individual seats. Collins indicated that the hope is to have an Alliance seated in 2010. RAC Vice-Chair Linda Paul expressed her frustration that over the years RAC members have been filled in on Monument issues after the fact and asked for better transparency and more engagement from co-trustees. Paul asked why Monument Management Board meetings are not open, to RAC members, at least as observers. This prompted a great deal of discussion between RAC members and Monument managers about the functions of the MMB. Chair Johns agreed that the new MMB decision making process is a little vague and feels like a black box. Wilhelm explained that the MMB is somewhat in limbo and one of its goals is to have as much transparency as possible. Becky Hommon said the current Alliance proposal feels "home-made" and wondered if there is another or an existing paradigm or structure, whether it be legislative, statutory or regulatory that would provide direction for guidance. Wilhelm explained that the MMB was formed by a Memorandum of Agreement between Monument co-trustees and that Sanctuary Advisory Councils are part of the culture of the Office of National Marine Sanctuaries, but not of the other trustee or co-management agencies. Wilhelm took exception to the supposition that Monument managers have not been transparent in their interactions with the RAC and said she personally has been a strong advocate for having a RAC and has steadfastly pushed other agencies to adopt the same philosophy. A RAC member asked what kind of authority the Alliance will have? Paul said the current structure has a two-way transparency problem. She says RAC member opinions are derived from multiple interactions with their communities, and that most RAC members serve on multiple non-profit boards and most government workers don't have the time for that kind of work and lack the same kind of perspective. RAC members had discussion about whether the Alliance will fairly represent the public, will it be transparent, what is the Alliance going to do specifically and will there be sunshine in the process. Susan White of the U.S. Fish and Wildlife Service reminded the group that the Alliance Working Group has not gotten to the charter and what the overall function of the Alliance will be. Margaret Akamine reminded the group that the Alliance represents a change in the overall relationship between Monument managers and constituent advisors and said permission has not even been granted or sought from the government to excuse ourselves from FACA (Federal Advisory and Committees Act). Rick Gaffney observed that as it stands now he feels that the Alliance will receive two types of input and only one type of output. He feels to balance this disparity he'd recommend adding a second

level of output. The RAC members agreed to continue their discussions about the Monument Alliance during the second day of their meeting.

IX. TOPIC F: MEDIA AND OUTREACH (DENNISON)
Dan Dennison – recently hired media and outreach person for ONMS/PMNM. Dan Dennison, Monument Media and Outreach Coordinator, introduced himself to the RAC, and mentioned that he is developing stories about the Monument, and making videos to be posted on the web site in order to improve its interactivity. Dan showed a few of the video's he has been working on. ʻAulani and Dan brought up the 10 year anniversary of the Reserve and how we can use this to highlight all the great work we have been doing, as well as Laura thinks that RAC members who have been around for 10 years should get a sail on the NOAA Ship *Hiʻialakai*. The RAC Education and Outreach Committee Chair (Gail) volunteered to help provide input to the Monument on the Reserve 10 year celebration.

DAY 2, 1/6/2010

ATTENDEES
Advisory Council Members:
Louis "Buzzy" Agard (Native Hawaiian); William Aila (Native Hawaiian); Margaret Akamine (NMFS for Mike Tosatto); Dani Carter (State of Hawaii); Rick Gaffney (Recreational Fishing); Bill Gilmartin (Research); Gail Grabowsky (Education); Becky Hommon (U.S. Navy); Cindy Hunter (Research); Tim Johns (State of Hawaii);Lloyd Lowry (Marine Mammal Commission for David Laist); Kem Lowry (Citizen-At-Large); Naomi McIntosh (Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS)); Linda Paul (Conservation); Eric Roberts (US Coast Guard); Don Schug (Research); Robert Skillman (WESPAC for Kitty Simonds);Laura Thompson (Conservation); Susan White (US, Fish and Wildlife Service); ʻAulani Wilhelm (Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (NWHI CRER)).

Absent: Isabella Abbott (Native Hawaiian for Buzzy Agard); Carlos Andrade (Native Hawaiian); Alexandra Curtis (U.S. Department of State); Bobby Gomes (Commercial Fishing); David Laist (Marine Mammal Commission); Kitty Simonds (Western Pacific Fishery Management Council (WPFMC); Philip Taylor (National Science Foundation); Mike Tosatto (National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries (NMFS)); Jessica Wooley (Conservation); Matthew Zimmerman (Ocean-Related Tourism).

Alternate Council Members (not representing voting members): Tammy Harp (Native Hawaiian for William Aila) via teleconference.

[NWHI CRER Staff]: Andy Collins; Hoku Johnson; Randy Kosaki; Scott Godwin; Naiʻa Watson.
[Monument Staff]: Cori Kane

[Members of the Public]: Frank Parrish (NMFS); Charles Littnan (NMFS); Jeff Walters (NMFS); Barb Mayer; Lydia Munger-Little (NMFS); Brian Bowen (HIMB); Stephanie Fried; Marty Townsend; Carl Meyer (HIMB); Cynthia Vanderlip (State of Hawaii); Malia Chow

The majority of Day 2 was taken up by presentations from Hawaiian monk seal researchers, and a mini-Symposium by Hawaii Institute of Marine Biology researchers working in the Northwestern Hawaiian Islands.

I. TOPIC G: HAWAIIAN MONK SEAL RECOVERY – SHARK PREDATION MITIGATION
Dr. Frank Parrish (NOAA/NMFS/PIFSC) – Monk seal survival (Presentation)
Dr. Parrish is conducting research to review of ecosystem changes in the Hawaiian Archipelago, particularly in relation to the French Frigate Shoals region, and look at monk seal survival scenarios. Identified changes in the ecosystem focus on fisheries (Jacks, Bottomfish, Lobster, Armoread, Longline fleet exclusion). He is also looking at impacts from introduced species, like ta'ape. In order to know what the seals are eating Dr. Parrish is looking at fatty acid analysis. Dr. Parrish looked at all the potential prey items for seals and whether they are increasing or decreasing. He also looked at competition for prey items with Jacks. One hypothesis is that shark and jack populations were artificially supported by discards and bait dumps in the ocean from fisheries active in the NWHI, once the fishery stopped fishing the dumps of bait and by-catch went down and the sharks and jacks went looking for other food sources, thus increasing competition with monk seals for prey items, and also predating on the monk seal pups themselves. Questions: Becky: Is it better to keep feeding the sharks? Frank: Maybe, but would be cheaper and easier to feed the seals. Best to find methods to weather the storm. Gail: What is the problem with survival? Frank: Leave question to Charles. Don: What is the shark predation on seals in the MHI? Charles: Looking at predation on pups, not so much on adults. But animals in MHI and NWHI.

Dr. Charles Littnan (NOAA/NMFS/PIRO) – Shark Removal Permit: 2009 Presentation (Presentation) This is an uncomfortable position to be in, proposing modifying an ecosystem, but the monk seal population is declining at 4.5 % /year and cut to less than ½ of what it was in 1996/97. Generally pup numbers are going down each year, but French Frigate Shoals (FFS) is the worst. Age class distribution is skewed so that breeding individuals are not present. 244 pups born at FFS in 1999, 118 pups born in 2009. Projected - 32 pups born in 2029. Removal of problem sharks is only one of a number of solutions – others include translocations, captive care, and deworming. 1997 – shark predation on monk seal pups markedly increased at FSince 2000, 15-28 % of the incoming FFS cohort is lost to sharks. Charles showed videos of sharks at French Frigate Shoals attempting to predate upon monk seal pups in very shallow water. Proposed predator removal methods a balance of maintaining selectivity and maximizing success. Focus around Trig., Round and Gin islands, within 400 m of target islands. Current proposed removal methods: Near shore shallow: handline, harpoon, "net-surprise" (inflatable net) Deeper: Bottom set lines, drumlins. Would be open to other techniques, recommendations. Also looking at sharp shooters with Navy. The project would like to include experienced professional fishers; cultural practitioners; and other NMSF Field staff. What is different in the approach proposed now compared to prior attempts at reducing predation (from 2000 – 2007 and now)? The intensity and suite of techniques being utilized is expanded. Objectives – measures of success: Not necessarily cessation of behavior, but reducing it to a level that can be absorbed by the population. Decrease in monk seal pup mortality/disappearances Proposed removal will be an iterative process with evaluation. Question: Rick: What consideration was given to relocation of renegade sharks? Charles: Not much. No way to have a ship on call? No easy way to do it. Cindy: Why is removal a better solution than enclosure for mom and pup? Charles:

Determined that removal of sharks will not significantly impact population. Also mom/pup pairs move around a lot, and fences are very hard to maintain. Susan: fencing can also impact sea turtles. Charles: Additionally, a lot of sand moves around the atolls, and would be hard to maintain. Bill G.: What about deterrent trials. Charles: Nothing worked – sound, magnetic, smell, acoustic deterrents, visual deterrents. Very difficult to maintain. Gail: Don't want to sound negative but what about the ethical decisions? What is the perspective on when does it become critical? Charles: The process has taken too long, and it is very frustrating how long it has taken. Feel that the solution has a high chance of success.

Lloyd Lowry - Marine Mammal Commission (MMC) Opinion (Presentation) Hawaiian monk seals can be down listed when they reach a population of 2900 in NWHI; current population is 1001. MMC position and recommendation on shark removals-MMC recommends for removal. Shark removals should be allowed as requested by PIFSC in their 2010 permit application to the PMNM.

Public Comment
Marti Townsend – Kahea, Culling of sharks - Kahea thinks other methods need to be used outside of killing sharks. For example: re-start the head start program; deter monk seals from breeding on these particular islands; de-train sharks; need to fully fund recovery efforts. Public comment should follow. Position on Alliance – need to be pointed, and specific constituencies need to be represented. Should have more general categories of representation. Should be more specific to have more geographic position local to Hawaii. Monument Alliance should provide advice to co-trustees since the co-trustees are named in law, and not just in an MOU since the MOU can go away. How will quorum be established on the Alliance? Alliance should be able to comment on permits. Permits are central to Monument operations.

Stephanie Fried, Executive Director of 'Ulu Foundation. Thank you to Charles for a compelling presentation. Liked Frank Parrish's presentation and would like the RAC to provide information on the bottomfish closures. Something needs to be done. Agenda not organized. Public comment should be more than once during agenda. Alliance should provide comment to Co-trustees. Good idea that MMB can charge Alliance to provide comment, but not only that. Alliance meetings must be public. In the Alliance matrix, do not have three separate columns. Quorum need simple majority of total membership, not just those who show up. Use your decade of experience to help design the bylaws, do not just leave it to the Alliance. Alliance constituency – ask the applicant how they would expand the national/international committee of Monument. Concern about bringing the place to the people, not the people to the place aspect. No promotion of visitation. Did not see a description of what outreach to one's constituency would look like. Need better requirements for this. Someone made a comment about how much of a mess this Monument is. At CEQ there was a discussion of FACA exemption. Stephanie had question about what the ecosystem was like before the fisheries and the feeding. Want an opportunity for public comment.

Hawaii Institute of Marine Biology (HIMB) Mini-Symposium: Dr. Rob Toonen; Partnership History – HIMB/ONMS research partnership started well before creation of Monument with the purpose of Informing Ecosystem management.

Dr. Carl Meyer – Spatial Dynamics of Top Predators in Papahānaumokuākea (Presentation). There are large numbers of ulua and elasmobranchs in the Monument and it is one of the last places on Earth with these populations. Studies of these species had very little available data across the Pacific. Blank slate of information on movement. Tracking technology utilizes acoustic data and an acoustic array that stretches across the archipelago. Tiger sharks travel the entire archipelago, and out to sea for 1000 miles, however other large predators, like ulua and other sharks, have high attachment to sites and do not range too widely. At FFS the project tagged 68 galapagos and 33 tiger sharks. Established an acoustic fence around Trig, Little Gin, and East Island to pick up shark movements and study potential shark predation upon monk seal pups. The data show that a small number of Galapagos sharks frequented the islands above, but in high frequency. Also found that tiger sharks visited the islands in high frequency. Several publications have resulted from this research. Ongoing and future research. Why are we seeing the shark predation behavior at FFS and not at other sites? Is it due to loss of pupping habitat from sea level rise? We do not know how deep ulua are ranging? Is there competitive foraging with monk seals at depth? Predator population size estimates. We do not know how many ulua are at FFS. Questions: Becky: Is your research shared with NMFS? Carl: Yes, they are the first to know.

Dr. Brian Bowen - Reef fish connectivity in the Monument (Presentation) For projects funded in the Monument they have parallel studies going on across the Pacific, funded by the National Science Foundation (NSF). Larval subsidy and larval dispersal is important for maintenance of almost all species. Why does connectivity and larval dispersal matter? Need to know if one impacted habitat will be replenished by another. This is important to know in order to determine resilience. Techniques used: Mitochondrial DNA (mtDNA) – micro loci. Haplotype maps show connectivity mtDNA coalescence show Hawaii can produce biodiversity and spread it to the West Pacific. There is evidence in the phylogeography of the Yellow Tang (*Zebrasoma flavescens*). Spinner dolphin data show interesting connections between populations across archipelago, FFS connected to populations in Oahu, Kure/Midway related to Big Island, Maui Nui complex is isolated. Next: Deep Reef Discovery. Deep reef might be refugia for shallow reefs for replenishment. Deep reefs operate on 1% of ambient light found on the surface. Dr.

Dr. Rob Toonen – Coral Reef Connectivity: Why Does it Matter (Presentation) What are the barriers for organisms moving across the reef? Corals, barnacles, and so on produce larvae and go through a planktonic dispersal stage. Roughly 80% of all marine organisms have a biphasic life and direct tracking is virtually impossible. Looking at ʻopihi, the three species in Hawaii are managed as one species. This does not work very well since dispersal is very different, and some species are isolated. Some species may have apparent shared dispersal barriers. Direction of limited exchange primarily to the NW rather than the SE. The majority of spillover is from MHI to NWHI, rather than the reverse. Johnston more closely related to NWHI than the NWHI are to the MHI. Hawaii is not a dead end as demonstrated by gene flow in sea cucumbers. Hawaii is an important distributor to the S. Pacific. Question: Tammy questioned whether ballast water could have transported species between Johnston and FFS via military ships. Answer: It is possible, though unlikely for many species since screens in ballast intakes would prevent this. Also, much of the data is from species arrival over 300,000 years ago, so it would point to another reason for influx. Question: Tammy asked about dispersal from MHI to NWHI for snowflake coral. Rob: It is possible though there is very limited dispersal from MHI to NWHI.

Dr. Stephen Karl - Reefs Under a Microscope: Microspatial Connections (Presentation) Genetic diversity is very important to the health of organisms or populations. Goals of research: to understand and map all coral colonies on a reef and genetically fingerprint all individuals. There is a high frequency of clones of corals. Eight different clones can account for a whole large reef colony. Latest research shows that reefs are not as genetically diverse as was thought. A few genotypes make up more than half of all the individual colonies on both reefs shown in the slide. Clones are not clumped. There is extensive microspatial environmental variation across reefs. Temperature data – considerable microspatial variation in temperature across the reef. Not all cold spots are deep and not all hot spots are shallow. What are the implications for conservation and management? Are unique genetic resources lost when a reef or part of a reef is lost? Limited genetic variability. We see a few clones that are genetically different from each other. What is happening locally is not necessarily predictable by regional trends. Considerable micro-spatial differences can help with adaptability.Question: Linda – on microspatial analysis sites did you also test for salinity? Steve: no, but we are looking to do it in the future.Question: Cindy: Are people collecting the Zooxanthellae from the corals in the areas being sampled. Steve: No, not yet.

Dr. Greta Abey - Coral Reef Health in the NWHI (Presentation)
Management of threats: looking at marine diseases. Steps are to: identify, understand, and come up with management techniques. Focused on coral disease since they can extensively damage reefs. Two species of coral in Florida are on endangered species list. Coral disease in Hawaii. 17 disease states have widespread prevalence. FFS – focused on *Acropora* white syndrome, and *Acropora* growth anomalies.Identified as diseases of concern because of impacts to table corals at FFS. *Acropora* white syndrome first identified at FFS in 2003. Is AWS spreading across FFS? Yes, according to Greta's data. Affect of growth anomalies on coral reproduction. Accelerated growth anomolies are reducing the pool of larvae available for recruitment.What can we do about diseases in wildlife populations? Remove/reduce source of infection/reduce rate of spread. Reduce disease processes - but this requires understanding. *Acropora* white syndrome and accelerated growth anomalies – need to focus on etiology, and disease transmission in order to develop adaptive strategies. Studying transmission of diseases and parasites via introduced Ta'ape. Copepod is intermediary host for transfer between spatially diverse areas. Studying parasite transmission. Questions: Rick: How do we know that the nematode came with Ta'ape? Greta: We don't know for sure, but genetic analysis is helping to discern the answer.

Dr. Michael Stat - Coral-Symbiodinium symbioses – a tool for monitoring reef impact and variability. (Presentation) Symbiodinium clades – functional diversity. Clade C – more carbon for coral, faster growth. Clade D – less carbon, slow growthObjectives: Identify coral symbionts susceptible to disease Identify susceptible coral – symbiodinium to disease
Clade A is sub-optimal symbiont. Clade C is optimal symbiont. Corals harboring Clade A have a higher susceptibility to disease. Corals harboring Clade D are found to be less susceptible to disease but Clade D is sub-optimal. A shift toward Clade D is a signature for impact from a variety of sources. Thermal Stress Anomalies. Using clade composition in corals helps to inform us. Identified a biological indicator of coral disease susceptibility – presence of Clade A

Identified a biological indicator of impact – Clade D. Question: ‘Aulani – how fast do we see a shift in symbiont clades? Michael – rapid shifts have not been clearly documented; it is more of a gradual change over time, or with multiple impacts.

Dr. Marc Lammers – EARs in the sea: what listening to shrimp, fish and whales can tell us about the PMNM (Presentation). Many marine species use sound to communicate and locate each other. We are familiar with sounds of dolphins and whales. But what actually produces the most sound on a reef are snapping shrimp. Sounds like sizzling bacon. Fish also make sounds - spawning, courting, feeding. Humans produce a number of marine sounds. Objectives: #1 use acoustic monitoring to measure long-term trends in biological and anthropogenic activities in PMNM. #2 study trophic food webs. Using Ecological Acoustic Recorder (EAR) for monitoring of acoustic environment. It is non-invasive. Currently 8 EAR units deployed in NWHI, 18 in MHI. Snapping shrimp – have found that snapping shrimp activity is tied to day/night cycles, lunar cycles, and temperature fluctuations as well as precipitation and storm events. Snapping shrimp are highly sensitive to changes, and indicators of physical factors influencing the reef. Fish sounds are also driven by day/night cycles, and have high species variability. Long-term trends in acoustic activity will provide valuable insights about stability. Cetacean sounds are excellent indicators of presence/absence and also presence of prey items. Episodic bouts of nocturnal dolphin foraging at Rapture Reef, FFS indicative of important periods of productivity for the area?
Vessels – no detection of illegal activity. But deployment in deeper water may provide more info for illegal activities. Question: Tammy: wondering what impact of ATOC cable was on soundscape in Kauai. Marc: not sure, thought the cable was deactivated.
Susan: what frequency are the EARS recording on, and do you think they recorded activity from Hurricane Necki? Marc: 15 Khz, just beyond human hearing. Not sure if they recorded activity during Hurricane Necki. ‘Aulani: How do you analyze the data, is it all mechanized?
Marc: No, a lot of it is still manual, and requires a lot of graduate student time.

Dr. Paul Jokiel: Ecosystem health and global climate change. (Presentation)

1) mapping habitats
2) Traditional vs. western management techniques.

How do we define coral reef health? Find that the worst of the NWHI is healthier than any of the MHI.Forecasting impact of climate change – northern atolls more susceptible to impacts.
Found that acidification dramatically affected corraline algae much more so than coral growth.
Coral Change Solutions and Indigenous Environmental Practices Movement towards traditional methods of management. Question: Rick: Are you working with anyone who is using the Hawaiian newspapers, the fishing information is phenomenal? Paul: No, we are not yet.
Question: Tammy: Are you looking at contaminants in the species consumed by the monk seals? Have you done testing on the monk seals? Paul: Not directly since it is very expensive to measure.

Dr. Rob Toonen: A map of anthropogenic threats and cumulative impacts (Presentation) Implementing ecosystem based management. How do you do that?
Blueprint for a true EBM tool: Ecological ranking:
A threat ranking system: Scale of impact,Frequency of impact, Functional impact Ecosysem resistance, More….Calculating a cumulative impact score. Using approach for a global impact

on oceans, narrow down to NWHI and develop cumulative impact maps. Question: Cindy: Who is taking care of the impact map? Rob: NCEC National Center for Ecological Change in UC Santa Barbara. Gail: Do you need better resolution for the pixels? Rob: Yes, of course we need more info. Linda: Has this info been distributed to the public, and filmed for distribution. Carlie: Not filmed, but provided through continuing education.

Discussion on whether the RAC should support the shark culling permit proposal? Concern over setting a precedent about commenting on permits. Rick – individuals can go before the Land Board and voice opinions about the proposal, or can also inform their Land Board member.
Tim – concern about sending a recommendation letter from the RAC. Should be submitted to ʻAulani since the RAC advises the Reserve. Tim – mentioned that he has not had the opportunity to speak to his community about supporting a 5-year shark culling program. Cindy – mentioned that Frank Parrish's presentation focused on the broader issue rather than the proposed solution.
Margaret – monk seal predation presentation today was a briefing and was informational. Presenters did mention getting a voice of support. Tim – we are at a sensitive stage in the activities of the RAC and may be sending the wrong message about what this RAC does. When the issue came up before Land Board there was much more discussion. William – the issue has not been brought before the Native Hawaiian Cultural Working Group, but William and Buzzy Agard are both in favor, especially with the traditional uses conditions. Becky – there is a concern about timing, and if this is not done now it might be too late for this year. Don – has the cultural working group discussed this and come to consensus? William – they have discussed it but have not come to consensus on the issue. Tim – still not sure if the approaches are
Motion: A general letter be drafted that the RAC is concerned about the continued decline of the Hawaiian Monk Seal based on the presentations given today by Frank Parrish, Charles Littnan, and Lloyd Lowry. Motioned Linda, Seconded by Gail. In Favor: Linda, Brian, Gail, Laura, William ,Rick Opposed:Cindy. Abstain: Tim, Don
Linda, William and Gail will work on a general letter of support in favor of doing what is needed to save the Hawaiian monk seal. Brian Bowen – would the letter specifically mention the culling, or sharks? There was evidence presented today that bottomfish presence has had an effect on the population.
Reserve 10 Year Anniversary Events
Dan mentioned that the Monument is pulling together a number of events and opportunities to celebrate the 10th Anniversary of the Reserve. Ideas on the big theme to be the vision and mission of the Monument. Dan – 10 years of Ocean Protection is the theme currently proposed. Tim: Concern about confusion between the NWHICRER and other Reserve. Don – ongoing and continuous threats to the ocean resources. Cindy wants to continue the theme of bringing the place to the people, and make sure it is emphasized. Triumph of the community to bring this place to the forefront, and now many people know about it, many people care about it, and many people are talking to decision makers about it. This should be a primary theme. Don't want to forget about Bill Brown who was the science advisor to Bruce Babbitt. Secretary Norman Minetta. Ellen Athis. Deyna Bear. Tammy – back in the early 60s a Lieutenant Tim recorded an incident when sharks surrounded one of the islands at FFS, so thick that they could not even get to the island.

ADJOURNMENT
Mr. Johns adjourned the meeting at 4:30pm