



Upcoming Events/Meetings:

Capitol Hill Ocean Week June 9-11, 2009 Washington, D.C.

USNC Lead Synthesis Writing Team Meeting June 25-26, 2009 Durham, NH

> Coastal Zone '09 July 19-23, 2009 Boston, MA

USNC Fall Meeting September 21-23, 2009 Honolulu, HI

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Tomorrow's Marine and Environmental Scientists Compete in National Ocean Competition

The U.S. CoML Program Office was excited to participate in the 12th Annual National Ocean Sciences Bowl (NOSB®) Finals Competition in Washington, D.C. on April 25-27, 2009. Twenty-five high schools from all over the United States competed in this year's biodiversity-themed competition that took place at the National 4-H Youth Conference Center, with the thrilling finals occurring at the Smithsonian Institution's National Museum of Natural History (NMNH) on Monday, April 27th. In the end, Marshfield High School from Wisconsin came from behind to defeat Lexington High School from Massachusetts. It was certainly a thrilling afternoon for the students, but also for those in the audience. The 2009 competition featured a number of CoML-related speakers, sponsored activities and competition content. Dr. Nancy Knowlton of the CoML Census of Coral Reefs Ecosystems



NOSB Video Competition Winners from Lexington High School (Massachusetts)

(CReefs) project and Sant Chair in Marine Science at the NMNH, gave an enlightening keynote speech on Saturday evening. She encouraged the students to take advantage of all learning and hands-on research opportunities available as they strive for successful careers in ocean and marine sciences. The students were even lucky enough to have the new Ocean Hall all to themselves for a few hours, allowing them to tour the amazing exhibit. Over the course of the three days, the students also saw presentations from Dr. Ellen Prager, the Chief Scientist for the Aquarius Reef Base, and students from Niceville High School in Florida. The Niceville students highlighted CoML and their work with the Natural Geography in Shore Areas (NaGISA) project in learning sampling protocols. After receiving training, the students conduct research and provide NaGISA with the results. They have become ambassadors in a sense, traveling to Africa and Greece to teach these sampling protocols to other students. They hoped that their presentation would encourage other high schools

Tomorrow's Marine and Environmental Scientists Compete in National Ocean Competition (continued)

to participate with NaGISA, as it gives critical hands-on experience in research to young students.

Perhaps most rewarding for the U.S. CoML program was the fact that numerous CoML projects submitted buzzer and team challenge questions (TCQs) that highlighted their CoML research, technology and findings, as well as the general subject of biodiversity. The CoML-based questions were sprinkled throughoutthe entire 2009 competition, but interestingly, a question from the Pacific Ocean Shelf Tracking (POST) project stumped the teams in the final round of the competition.

The U.S. Program Office also assisted in the creation of a NOSB National Video Competition for high school students. The 2009 video competition, entitled "Living

on the Ocean Planet," encouraged students at high schools with active NOSB teams to highlight ways in which biodiversity is important to ecosystems, the environment and the overall health and conservation of the ocean. They were asked to create a two minute video that would serve to increase general ocean science awareness among their family, friends and the public. Two Lexington High School (Lexington, Massachusetts) students, Jorie Heilman and Erick Kao, won the video competition with their fantastic Public Service Announcement-style video, called "Our Oceans, Our World," Jorie and Erick attended the finals where their video was shown on the opening night of the competition. It will also be on display for three months on the Ocean Today Kiosk in the Sant Ocean Hall. The video will be broadcast to eight other kiosks in Coastal Ecosystem Learning Centers located throughout the U.S. and Mexico. The video is posted on numerous web sites, including the Encyclopedia of Life, and can be viewed at the CoML YouTube page (www.youtube.com/censusofmarinelife). The videos that took 2nd and 3rd place can also be viewed on at that link. The U.S. Program Office highly suggests you take a look and see what these talented high school students created!

The U.S. Program Office would like to congratulate all the teams that participated in the NOSB finals – they did a fantastic job! NOSB's 2010 technology-themed finals will take place in St. Petersburg, Florida. To learn more about NOSB, please visit www.NOSB.org.

Jellyfish Species Naming Contest

Are you creative? Do you find jellyfish fascinating? Then do we have a contest for you! The Bonaire Banded Box Jellyfish is a species that few people have seen and even fewer have studied. In fact, it currently has no scientific name. But you can change that. Beginning in early June, you can submit a suggested species name. A scientific team will then pick their top five choices and leave it up to the public to vote for their favorite in mid-June. This new name will become the official scientific name of the Bonaire Banded Box Jellyfish and will appear in several scientific publications. To learn more about the contest and how you can participate, please visit www.yearofscience2009.org/themes_ocean_water/general/jellyfish.html.



Bonaire Banded Box Jellyfish – Photo by Marijke Wilhelmus

This contest is sponsored by the Year of Science 2009 (YoS). The goal of YoS is to "engage the public in science and improve public understanding about how science works, why it matters and who scientists are." The year long celebration has 12 scientific themes, one for each month. June is the Ocean and Water month. YoS is led by participants in the Coalition on the Public Understanding of Science (COPUS), a grassroots effort whose goal is to engage the public in science to increase their understanding of the science and its roles and values to society. COPUS hopes to create new forums for communication and to develop new opportunities for engaging the public with science. To learn more about YoS, please visit: www.yearofscience2009.org/home/. More information on COPUS can be found at www.copusproject.org/.

Destination: Panama!

The U.S. CoML staff were so impressed with the 2009 NOSB champions (Seth Berger, Alex Jensen, Michael Josephson, Priya Pathak, Elisa Prebble, and their Coach, Paul Herder) from Marshfield High School in Wisconsin that we wanted to know more about them. We gave them the chance to express their thoughts on their recent victory and upcoming prize-winning trip to Panama.

Melissa Brodeur: So, how does it feel to be the 2009 NOSB champions? Did you expect to win the final round?

Michael Josephson (freshman):

It's very surreal to know that we're the champions on a national level. Going into the final round against Lexington, we thought we had a chance because we had just beaten them and had some momentum. When the score was -4 to 36 before the team challenge questions, I thought to myself, "Ok, California's Catalina Island is still an amazing prize for being runner-up." We were down and did not expect to win at all. Then we took the rest of the points for the win. When the buzzer went off when we were ahead, we were all shocked. Never in our wildest dreams did any of us expect to pull off a comeback of that scale.

We were very proud and happy to be the 2009 NOSB champions.

MB: You deserve some major bragging rights! How proud are you that a team from Wisconsin won NOSB?

Alex Jensen (junior): I am extremely proud of the fact that a team from Wisconsin was able to win the National Ocean Sciences

oceanographic research institutions such as Woods Hole or Scripps. I think it's refreshing that a team from Wisconsin was able to upset the usual winners, proving that you don't need to live near the ocean in order to gain a comprehensive understanding of it.

MB: Was teamwork a major factor in winning the competition?

"For a team that lives thousands of miles from an ocean ... the trip to nationals has provided exhilarating new opportunities to explore ocean ecosystems and experience marine science firsthand."

-Seth Berger (sophomore)

Bowl. Every year the teams at nationals go in expecting one of the coastal teams to win. Most of these schools are closely tied to major

Coach Paul Herder: We jokingly liken ourselves to the Jamaican bobsledders of this competition. However, we knew it is just for fun and that we were capable of competing with any team. This year's team is a young and self-directed group that gels both socially and academically. The four starters on the team are all veteran NOSB competitors and were automatically awarded a seat on this year's team due to their exceptional performance in the 2008 Alaska NOSB competition. The students took control, they all checked out resource materials for studying over the summer, divided responsibilities for different content areas, met for summer study sessions, practiced buzzer and team challenge questions several times each week after school and gave me, the coach, more direction than I gave them. Winning



NOSB Champions – Marshfield High School (Wisconsin)

the 2009 NOSB truly was a team effort. These students are joy to be with and I look forward to having them ALL back again next year.

MB: What was the most surprising answer of the competition? Did you learn something new?

Seth Berger (sophomore): The most surprising answer of the national competition was the final toss-up question of the final round against Lexington. "What is the final stage of the Wilson cycle of ocean basin formation that leads to the building of mountains?" was not in itself terribly surprising, but the fact that I was able to interrupt and give the exact word answer "suturing" before any of the choices were read was shocking, perhaps even more for my teammates and coach than for myself. We had not expected to place beyond the top six after our loss to North Hollywood, and certainly had not even thought of overcoming a forty-five point deficit, but with only twenty seconds remaining on the clock after that toss-up, and a lead of three points, we knew that we had taken the initiative and the competition.

Concerning the second half of this question, the whole team has undoubtedly learned much from this year's national competition, though perhaps not from the buzzer questions themselves. The NOSB competition as a whole has taught each of us volumes about the ocean, biodiversity and its importance as part of a global ecosystem. The final round versus Lexington tested our perseverance in the face of great adversity. Our triumph over personal doubt and over stiff competition, in spite of an almost insurmountable deficit, has revealed our team's unexpected strength and taught us the value of persistence. The speakers

and field trips have given us rare insight into marine science. For a team that lives thousands of miles from an ocean and whose nearest water body is a small pond at the local zoo, the trip to nationals has provided exhilarating new opportunities to explore ocean ecosystems and experience marine science firsthand. We were all enthralled to hear of the escapades of marine biologists. It is these adventures that have educated us far beyond the power of textbooks and given us memories for a lifetime.

STRI's canopy crane. We're hoping to witness Panama's biodiversity; and see monkeys, a sloth, and maybe even a sea turtle!

MB: Ok, you won a competition with the theme of 'biodiversity.' So here's one more challenge for you. Why is marine biodiversity important and why does it matter to you?

All team members (mostly Seth):

Marine biodiversity is vital to humanity because of its paramount importance to the global ecosystem. Marine biota unquestionably does

"I think it's refreshing that a team from Wisconsin was able to upset the usual winners, proving that you don't need to live near the ocean in order to gain a comprehensive understanding of it."

-Alex Jensen (junior)

MB: It was pretty rare to have the Smithsonian Ocean Hall all to yourselves for a few hours. What was your favorite part of the exhibit?

Elisa Prebble (junior): The Ocean Hall was amazing and we were excited to have the time to see it all. My favorite part was the aquarium with all the live tropical fish and corals. It was really bright and lively and different from what you usually see in a museum.

Priya Pathak (junior): We all were fascinated by the giant squid, too.

MB: As the champions, you've earned a trip to the Smithsonian Tropical Research Institute in Panama. What are you looking forward to the most during your trip to Panama?

Elisa Prebble (junior): We are lookingforward to enjoying Panama's flora and fauna the most. We can't wait to snorkel with colorful fish and explore the jungle tree tops in

far more than provide food. They are linked to all major nutrient cycles that control terrestrial and marine productivity, and in a warming climate, biogeochemical cycles have wide reaching effects on climate. Marine biodiversity holds the delicate but critical key to the maintenance of a wealth of resources and to the perpetuation of ecosystem health worldwide. These factors should make us all grateful for the stunning variety of marine life and call us all to be stewards for future generations. We personally cannot contemplate, despite Marshfield's quite apparent separation from the ocean's shores, what an immense loss it would be to society to dispose of such a wealth of beauty displayed by marine biota, from the dazzling brilliance of coral reef communities, to the fortitude of those living on battered rocky shores, to the solitude of the deep scattered benthos, and all of the diverse communities in between.

CoML Researchers Open a Window to Oceans Past

Before oil hunters of the early 1800s harpooned whales by the score, the ocean around New Zealand teemed with about 27,000 southern right whales, roughly 30 times as many as today. The number of southern right whales (Eubalaena australis, www.eol. org/pages/313009) declined rapidly once whaling began and by 1925, perhaps as few as 25 reproductive females survived. This is one of several astonishing reconstructions of ocean life in olden days that was recently presented at the May 26-28, 2009 CoML conference, entitled "Oceans Past II - Multidisciplinary Perspectives on the History and Future of Marine Animal Populations." Using such diverse sources as old ship logs, literary texts, tax accounts, newly translated legal documents and even

"Joni Mitchell once famously sang that 'you don't know what you've got 'til it's gone.' But when it comes to marine life, in many cases we're only just starting to fully realize what the planet once had."

- Ian Poiner, CoML SSC Chair

mounted trophies, CoML researchers, particularly from the History of Marine Animals (HMAP) project, continue to piece together images of fish of such sizes, abundance and distribution in ages past that they stagger modern imaginations. By comparing photos of 13 groups of "trophy" reef fish landed by Key West-area sport fishermen between 1956 and 2007, HMAP revealed that the average fish size shrank from an estimated 20 kg to 2.3 kg and that the mix of species changed greatly.

Ian Poiner, Chair of the CoML Scientific Steering Committee (SSC), underscores the implications of the recent HMAP findings. "The insights emerging from this research of the past provide a new context for contemporary ocean management. Understanding the magnitude and drivers of change long ago is essential to accurately interpret today's trends and to make future projections." For more information, please see www. hmapcoml.org/oceanspast.



(Left) Trophy fish caught on Key West charter boats (1958). (Right) Trophy fish caught on Key West charter boats (2007). Photos courtesy of Monroe County Library.

Surprises shared at the Oceans Past II Conference:

- Human fishing and impacts on near-shore and island marine life, including the catching of shellfish, finfish and other marine mammals, apparently began in the Middle Stone Age (300,000 to 30,000 years ago). This is 10 times earlier than previously believed;
- Passages of Latin and Greek verse written in the 2nd century AD suggest Romans began trawling with nets;
- In the early to mid 1800s, years of overfishing followed by extreme weather collapsed a European herring fishery. Then, the jellyfish that herring had preyed upon flourished, seriously altering the food web.

U.S. National Committee meets in Washington, D.C.

The CoML U.S. National Committee (USNC) held its latest meeting at the Consortium for Ocean Leadership offices on March 11-12, 2009. The meeting's main discussions focused on the USNC contributions to the international synthesis activities (including general public scientific books, journal articles, maps and assisting in the premieres of the Galatée film Oceans in Spring 2010) and a variety of methods for ensuring a strong impact within the U.S. The USNC decided to hold a 2010 roll-out event in the U.S. to build upon the expected enthusiasm and press from the international CoML 2010 media briefing, symposium and celebration events - "Census of Marine Life 2010: A Decade of Discovery" - which are scheduled for October 4-7th in London. On March 12th, the U.S. Synthesis Writing Team met to discuss progress on the development of a regional chapter that will become part of a CoML global assessment of the current state of knowledge on marine biodiversity.



"DC Springtime Cherry Blossoms" - Photo by Melissa Brodeur

In an effort to continue their interaction with the NOAA Science Advisory Board (SAB), members of the USNC attended the SAB's March 9-10, 2009 meeting as David Fluharty (Univ. of Washington) briefed the SAB about his participation in the September 2008 USNC meeting and consequent discussions with the USNC and U.S. Program Office. Members of the USNC and SAB plan to meet and formulate recommendations on how NOAA might move forward on creating a coordinated marine biodiversity program. The recommendations will be presented to the SAB by David Fluharty at the July NOAA SAB meeting.

The USNC will meet next on September 21-23, 2009 in Honolulu, HI and will be hosted by Dr. Jo-Ann Leong of the Hawaii Institute of Marine Biology.

ORRAP Makes Recommendations for Future Direction of CoML

In early April, the Ocean Research and Resources Advisory Panel (ORRAP) drafted a series of recommendations to the National Ocean Research Leadership Council (NORLC) and the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI) after receiving a briefing by CoML U.S. National Committee (USNC) Chair Dr. Andrew Rosenberg. Specifically, the ORRAP recommended that transitional funds be provided for one to three years to ensure the continuation of a coordination office for CoML and the Ocean Biogeographic Information System (OBIS), until future, long-term funding is secured. This transitional funding would provide an opportunity to assess the nation's requirements for a marine biodiversity monitoring and research program, and identify critical components of the program. ORRAP members noted that a federal agency should provide oversight of the program to make certain that CoML data and results meet management needs and translate from research to application.

The NORLC consists of the heads of fifteen federal agencies involved in conducting or funding ocean research or developing ocean research policy. The ICOSRMI incorporates the NORLC's current mandate within its broader mandate that includes ocean resource management. More information on these governing bodies can be found on the Committee for Ocean Policy web site: http://ocean.ceq.gov/welcome.html.

Education Corner

The U.S. program office explores new ways in which to educate the next generation of scientists about CoML and marine biodiversity. In March, Michael Feldman, the U.S. CoML Program Coordinator, had the privilege of taking part in the International Polar Year (IPY) Ocean Day. The multi-city, multi-nation web-cast event brought Arctic and Antarctic researchers and their findings into classrooms. We were so impressed with the enthusiasm and interest of a group of 6th graders from Hanson Park School, Chicago, IL that we asked their teacher, Marc Hans, for a first person account of the IPY event.

As the 6th grade science teacher at Hanson Park School in Chicago, Illinois, it is my privilege to guide my students through a year long scientific journey of Earth Science. Our 6th graders are engaged in lessons that are inquiry based, hands-on and always leave them asking questions. It is challenging to teach students about science topics that are far removed from their daily life. I place an emphasis on making all lessons relevant to my young scientists, whether by identifying biodiversity in our urban environment or predicting weather patterns for upcoming Chicago Cubs' baseball games.

This year, we were asked to be a part of the IPY video conference at Chicago's Museum of Science and Industry. Our presentation was on "The Polar Oceans." I selected 30 students for this project; the students would need to stay after school, come in early and take work home in order to be successful in this endeavor. [The students] were not selected based upon test scores, grades or attendance. Instead, I chose students who exhibited enthusiasm, genuine inquiry and interest in science class. The resulting group, an equal mix of boys and girls, included learning disabled students, students who have failed reading and/or math and students who receive bilingual educational support. This is one of the aspects of science education I love the most; the fact that all students have the chance to succeed.



Marc and his students outside the Museum of Science and Industry, Chicago IL

As the students and I began to brainstorm ideas for our presentation, two things became very apparent. What could we present that our audience of international scientists and college students didn't already know and how could we make this personal to Hanson Park?

The answers, as they often do in science, lie in the questions. We focused on the students' real knowledge of the polar oceans rather than what we might find in a textbook. The students set out to discover "Do we know enough to save our planet?" They produced and distributed a 10 question survey focused on global warming and its effect on the polar oceans to over 300 middle school students.

The results were astonishing! The 6th graders discovered that even on the streets of Chicago among

the factories, street gangs and challenges that city life can present, our students are aware of the environmental issues which threaten our precious polar oceans. As their teacher, I took joy in observing the students engaging in data collection with feverish enthusiasm.

When our presentation day came, I was as excited as the students as we boarded the bus to the museum. Our students were thelast to present during the live video web conference and were rewarded with a round of applause from the conference participants in Alaska, Antarctica, England, and Canada. This was truly an experience the students will remember forever and proved that science education can be relevant and personal to all students all over the world.

To learn more about the Museum of Science and Industry please visit www.msichicago.org/.

New Policy Recommendations Released from the Joint Ocean Commission Initiative

In April, the Joint Ocean Commission Initiative released an urgent set of recommendations, "Changing Oceans, Changing World: Ocean Priorities for the Administration and Congress." The Joint Initiative identifies specific actions the Obama Administration and Congress should take within two to four years to improve ocean and coastal policy, management, science and funding. These actions address the pressing national challenges of climate change, energy security and reviving the economy.

"Our oceans and coasts together are one of the biggest drivers of the U.S. economy," states Bill Ruckelshaus, former administrator of the Environmental Protection Agency and Joint Initiative commissioner. "Improvements in ocean policy are absolutely critical if we are to restore the economy anytime soon."

The recommendations incorporate input from leaders at some of the most respected and influential ocean and coastal policy and science organizations in the country and many of the actions will require increased funding for ocean science, management and education. However, the benefits will be widespread.

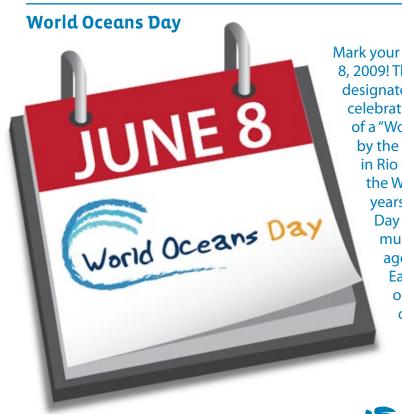
For a full list of the specific recommendations included in the Joint Initiative's "Changing Oceans, Changing World: Ocean Priorities for the Administration and Congress,"



Joint Ocean Commission Recommendations:

- Establish a national ocean policy;
- Strengthen the National Oceanic and Atmospheric Administration;
- Reauthorize the Coastal Zone Management Act;
- Integrate ocean science into broader climate change, energy and economic initiatives; and
- Renew the nation's leadership in international ocean policy.

please visit www.jointoceancommission.org. The Joint Ocean Commission Initiative is a bipartisan, collaborative group that aims to accelerate the pace of change that results in meaningful ocean policy reform.



Mark your calendars for World Oceans Day on June 8, 2009! This year, World Oceans Day was officially designated by the United Nations, and the global celebration looks to be its biggest ever. The concept of a "World Oceans Day" was first proposed in 1992 by the Government of Canada at the Earth Summit in Rio de Janeiro. The Ocean Project, along with the World Ocean Network, has spent the last six years promoting and coordinating World Oceans Day events and activities with aquariums, zoos, museums, conservation organizations and agencies, universities, schools, and businesses. Each year, an increasing number of countries and organizations have been marking June 8 as an opportunity to celebrate our world ocean and our personal connection to the sea. To check out events that are happening in your country, please see www.theoceanproject.org/wod/.

Seven Questions with Nancy Knowlton

As a regular feature of the U.S. CoML Newsletter, we ask a member of the CoML Community seven (or so) questions. This edition features an interview with Dr. Nancy Knowlton, Sant Chair in Marine Science at the Smithsonian's National Museum of Natural History and leader of CoML's Census of Coral Reef Ecosystems (CReefs) project.



Melissa Brodeur: You recently spoke to the students participating in the National Ocean Sciences Bowl (NOSB) 2009 Finals Competition. What do you hope they took away from your presentation?

Nancy Knowlton: It was great to talk to students who are so excited about the ocean and so well informed. I hope they learned that we need their help to keep the oceans healthy, and that there are many routes to this end.

MB: It was a huge treat for the NOSB students (and ourselves) to see the Smithsonian's amazing, new Ocean Hall. What is your favorite part of the exhibit?

NK: I have a hard time choosing a single favorite. I of course love the live coral reef, but Science on a Sphere, the coelacanth, the beautiful trilobites and many other things are also favorites. The whole is much greater than the sum of the parts.

MB: CReefs seems to be making new discoveries with every expedition. What do you think is CReef's greatest, or most surprising, accomplishment to date?

NK: I think documenting the sheer scale of what we don't know is the most important accomplishment to

date – in just 22 small heads of corals we found 65 crab species, a number that equals 1/3 of all the crabs ever described from all European seas. And not one genetic sequence matched anything in the databases.

MB. If you were to lead a "Second CoML" what would you want the overall program to look like? What topics or themes should the program focus on?

NK: In part I would scale up the program and continue to take advantage of rapidly evolving DNA techniques – for some groups like

"The key [to solving ocean health issues] is an interdisciplinary approach oriented around solving problems and giving students the skills they need to communicate with the public and policy makers."

-Nancy Knowlton

coral reefs and microbes, we were only able to scratch the surface during the first phase. Using the Census to find solutions for the problems facing the ocean would also be a priority.

MB: You've mentioned how you and your husband were once known as "Drs. Gloom and Doom" on the presentation circuit. How do you plan to shake that moniker?

NK: We just organized an all-day

symposium entitled "Beyond the Obituaries: Success Stories in Ocean Conservation" - there were over 50 talks and posters. Hundreds of people attended and we received much positive feedback about how important it is to recognize the successes we do have, so that we can learn from and be inspired by them.

MB: What do you think needs to change so that the next generation of scientists can effectively solve the many issues threatening the health of the ocean?

NK: I think things are already changing – the key is an interdisciplinary approach oriented around solving problems and giving students the skills they need to communicate with the public and policy makers. We pioneered this approach at the Center for Marine Biodiversity and Conservation at the Scripps Institution of Oceanography with the help of support from the National Science Foundation. Programs like ours are sprouting up now all over the place.

MB: We know you travel a lot. Where is your next adventure taking you? Can we go with you? (We promise to pack lightly.)

NK: Actually, my next trip is to London to attend a meeting on bioinformatics, but where I just came from was particularly exotic – Indonesia and East Timor - where I lectured at the invitation of the State Department at the World Ocean Conference and at a number of universities.

Check Out Our You Tube Video Clip of the Quarter!

"Living on the Ocean Planet" Video Contest Winner!

www.youtube.com/watch?v=PVsojxI1Tas

Check out the video that won 1st place in the 2009 National Ocean Sciences Bowl "Living on the Ocean Planet" Video Contest, sponsored by NOSB and CoML. The video entitled "Our Oceans, Our World" by Jorie Heilman and Erick Kao from Lexington High School in Lexington, Massachusetts highlights their ideas on the importance of marine



Screenshot of the winning video

biodiversity. To learn more, read the cover story in this issue of our newsletter or visit www.nosb.org.

USNC Program Staff

Michael Feldman
Program Coordinator

Melissa Brodeur Program Asso<u>ciate</u>

Heather Mannix
Program Associate

Maureen Crane Travel Coordinator

Gregg Schmidt
Deputy Director for Communications

Bob Gagosian
President and CEO, Ocean Leadership

Mel Briscoe

Director, Research & Education Program

U.S. CoML Committee Members

Dr. Andy Rosenberg (USNC Chair) • University of New Hampshire, Durham, NH

Dr. John W. "Wes" Tunnell (USNC Vice-Chair) • Harte Research Institute, Corpus Christi, TX

Dr. Vera Alexander (SSC Liaison) • University of Alaska, Fairbanks, AK

Dr. Judith Connor • Monterey Bay Aquarium Research Institute, Monterey, CA

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Dr. Sylvia Earle • Conservation International, Oakland, CA

Dr. Daphne Fautin • University of Kansas, Lawrence, KS

Dr. Daniel Finamore • Peabody Essex Museum, Salem, MA

Dr. Mark Fornwall • U.S. Geological Survey, Kahului, HI

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Dr. Pat Halpin • Duke University, Durham, NC

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Mr. Paul Kelly • Ret. from Rowan Industries, Houston, TX

Dr. Judith Kildow • Monterey Bay Aquarium Research Institute, Monterey, CA

Dr. Clarence Pautzke • North Pacific Research Board, Anchorage, AK

Dr. Shirley Pomponi • Harbor Branch Oceanographic Institution, Fort Pierce, FL

Dr. Paul Sandifer • Hollings Marine Laboratory, Charleston, SC

Dr. George Sedberry • Gray's Reef National Marine Sanctuary, Savannah, GA

Ms. Margaret Spring • Nature Conservancy, Monterey, CA

Ms. Nina Young • Marine Mammal Commission, Bethesda, MD

*For member's biographies visit our website at: www.coml.us/dev2go.web?anchor=CoML_us_leadership

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