2015 Finals Competition
Ocean Springs, Mississippi
It is with great pleasure that I welcome you to the 18th Annual National Ocean Sciences Bowl (NOSB) Finals! Your many months of hard work and preparation have paid off as you are one of the 23 teams competing here in Ocean Springs, Mississippi. On behalf of the 89 members of the Consortium for Ocean Leadership, I would like to congratulate you on being here. Over 360 high schools from around the United States competed in this year’s NOSB regional competitions. You should feel proud of yourselves and your teammates. What a feat to be the nation’s top high school ocean science experts!

Here in Ocean Springs, the heart of the Mississippi Gulf coast, you are in the perfect location for this year’s Finals. The resilient Gulf area has endured disasters from Hurricane Katrina to the Deepwater Horizon oil spill. Throughout this weekend, you will be able to gain a deeper understanding of the issues in this critically important part of the Gulf region through the speakers, field trips, competitions, and the Science Expert Briefing. The theme for the 2015 NOSB is The Science of Oil in the Ocean; a timely and relevant topic given that this year marked the five year anniversary of the Deepwater Horizon incident here in the Gulf. Everything from the marine environment to the unique local culture is extraordinary here in Ocean Springs. It is our hope that during your stay here, you have increased awareness and comprehension of the 2015 theme, which has such an impact on organisms, ecosystems and humans alike.

I would like to thank everyone involved in making this NOSB Finals Competition possible. When the traditional model of support for the NOSB was challenged, the community noticed and took action. So many generous federal agencies, private organizations and individuals have come together to advance the NOSB mission this year. All of our sponsors have provided key support to our program, including the following major sponsors: Office of Naval Research, National Oceanic and Atmospheric Administration, Wendy & Eric Schmidt, Deerbrook Charitable Trust, G. Unger Vetlesen Foundation, IEEE Ocean Engineering Society, Gulf of Mexico Research Initiative, Bureau of Ocean Energy Management, the National Aeronautics and Space Administration, and Shell. Thank you to each of our donors, who clearly recognize the great importance of fostering the growth of ocean science education. I would also like to extend a special thank you to our Finals host, and sponsor, the University of Southern Mississippi for having all of us this weekend. Please, also, join me in thanking our dedicated and hard-working volunteers who make this competition possible.

Since 1998, the NOSB has strived to encourage and support you – the next generation of marine scientists, policy makers, teachers, explorers, researchers, technicians, environmental advocates and informed citizens. We are thankful for your dedication to the oceans and hope the NOSB can continue to have a lasting effect on you for years to come.

This is my first NOSB Finals weekend, and, I have to say, I am thrilled to be here with all of you. I am so excited to witness first-hand your extensive knowledge of – and passion for – ocean science. Best of luck to each and every one of you.

Sincerely,

Sherri Goodman
President & CEO
The 2015 Finals Competition Event Program has “gone green” by reducing the number of pages and hiring a printer that uses environmentally friendly sources of ink and paper. The event program is printed on Forest Stewardship Council (FSC)-certified paper, meaning the end product must pass through FSC-certified forests, paper manufacturers, merchants and printers. The certification also ensures that the civil rights of the native people are respected and that after harvesting, the forests are reforested, becoming a sustainable source for wood production.
# Schedule of Events

**Thursday, April 23**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>6:30pm-8:00pm</td>
<td>NOSB Career Event (GCRL, Field Studies Building &amp; Dining Hall)</td>
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<tr>
<td>7:00pm-8:00pm</td>
<td>Coach/Regional Coordinator Meeting (GCRL Auditorium)</td>
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**Friday, April 24**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00am-8:00am</td>
<td>Breakfast (GCRL Dining Hall)</td>
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<tr>
<td>8:30am-4:00pm</td>
<td>Field Trips</td>
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<tr>
<td>5:00pm</td>
<td>Buses depart GCRL for the Maritime &amp; Seafood Industry Museum</td>
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<tr>
<td>5:30pm-9:00pm</td>
<td>Opening Ceremony at Maritime &amp; Seafood Industry Museum</td>
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**Saturday, April 25**

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>7:00am-7:45am</td>
<td>Team Breakfast (OSHS Cafeteria)</td>
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<tr>
<td>7:00am-7:45am</td>
<td>Volunteer Breakfast and Meeting (OSHS Cafeteria)</td>
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<tr>
<td>8:00am-9:00am</td>
<td>All Hands Meeting (OSHS Auditorium)</td>
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<tr>
<td>9:00am-12:00pm</td>
<td>Round Robin Competitions, Rounds 1-4 Science Expert Briefings</td>
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<tr>
<td>11:15am-12:45pm</td>
<td>Team &amp; Volunteer Lunch (OSHS Cafeteria)</td>
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<tr>
<td>12:20pm-12:45pm</td>
<td>Volunteer Meeting (Auditorium)</td>
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<tr>
<td>12:45pm-2:15pm</td>
<td>Round Robin Competitions, Rounds 5-6 Science Expert Briefings</td>
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<tr>
<td>2:20pm-2:50pm</td>
<td>Presentation/Activity (OSHS Auditorium)</td>
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<tr>
<td>2:20pm-3:00pm</td>
<td>Scoring &amp; Seeding for Double Elimination</td>
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<tr>
<td>3:00pm-4:30pm</td>
<td>DE Competitions, Rounds 1-2</td>
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<tr>
<td>3:00pm-5:00pm</td>
<td>Activities for non-competing teams</td>
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<tr>
<td>4:30pm-6:00pm</td>
<td>DE Competitions, Rounds 3-4</td>
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<tr>
<td>6:15pm-7:15pm</td>
<td>Science Expert Briefing Discussion with Judges (GCRL)</td>
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<tr>
<td>7:15pm-9:00pm</td>
<td>Saturday Night Dinner (GCRL)</td>
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**Sunday, April 26**

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<th>Time</th>
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<td>7:00am-8:00am</td>
<td>Team Breakfast (OSHS Cafeteria)</td>
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<td>7:15am-8:15am</td>
<td>Volunteer Breakfast and Meeting (OSHS Cafeteria)</td>
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<tr>
<td>8:15am-8:50am</td>
<td>All Hands Meeting (OSHS Auditorium)</td>
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<tr>
<td>9:00am-10:45am</td>
<td>DE Competitions, Rounds 5-6</td>
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<tr>
<td>9:00am-10:45am</td>
<td>Activities for non-competing teams</td>
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<tr>
<td>10:45am-11:30am</td>
<td>DE Competition, Round 7 (OSHS Auditorium) (determines 3rd Place)</td>
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<tr>
<td>11:30am-12:15pm</td>
<td>DE Competition, Round 8 (OSHS Auditorium) (determines 1st &amp; 2nd Place)</td>
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<tr>
<td>12:15pm-1:00pm</td>
<td>DE Competition, Round 9 (if needed)</td>
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<tr>
<td>11:30am-1:30pm</td>
<td>Lunch (OSHS Cafeteria)</td>
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<tr>
<td>2:00pm-3:00pm</td>
<td>Awards Ceremony (OSHS Auditorium)</td>
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<tr>
<td>3:30pm</td>
<td>Teams depart for airport from hotel</td>
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* GCRL = Gulf Coast Research Laboratory
* OSHS = Ocean Springs High School
The Office of Naval Research’s Ocean, Atmosphere and Space Division has been supporting the National Ocean Science Bowl since the contest’s inception in 1998. Through investments in educational programs like NOSB, the Navy hopes to inspire students and stimulate interest in science and technology to feed the pipeline of future researchers and operational scientists interested in, and trained for, Navy-relevant technical disciplines. The future resilience of our Navy and Marines Corps, and of our Nation, depends on our ability to recruit and train the brightest and most innovative minds to help us maintain the science and technology edge in the future. It’s really a matter of economic and national security.

Having personally met ocean science graduate students who had previously been NOSB team members as high school students, I see that we are succeeding in reaching ONR’s goals for this program.

Every time I observe the NOSB National Finals, I am extremely impressed with the thorough knowledge of ocean science, technology and policy that you students possess. You are bright, focused, quick-thinking and cooperative with your teammates. You exude confidence and exhibit enthusiasm! Best of luck to all the competitors in this year’s finals competition!

The NOSB would not succeed without the help of the dedicated coaches, judges, and others who volunteer their personal time to support this wonderful program. I extend my sincere appreciation and admiration to all of them.

— Joan Cleveland, Director of Discovery & Invention, Office of Naval Research

ONR supports basic and applied research in Arctic and Global Prediction, Littoral Geosciences and Optics, Marine Mammals and Biology, Marine Meteorology and Space, Ocean Acoustics, Ocean Engineering and Marine Systems, and Physical Oceanography.
2015 NOSB THEME
THE SCIENCE OF OIL IN THE OCEAN

Oil is a naturally occurring substance that has a major role in ocean ecosystems and human society. Having formed in sediment buried deep beneath the seafloor, oil—along with methane and hydrogen sulfide—naturally escapes through seeps from the seafloor into the ocean environment, supporting organisms that are well-adapted to this harsh environment. An unnatural amount of oil introduced into the environment, such as through industry oil spills, can have serious impacts on organisms and the environment, as well as humans and the economy.

Our “science of oil in the ocean” theme includes many science disciplines and encourages increased awareness and understanding of topics such as:

- the origins of oil in the ocean;
- transport, breakdown, and remediation of oil in the ocean;
- the impact of oil on organisms, ecosystems, and humans; and
- policy related to oil production, spills, and restoration.

The theme encompasses all major STEM areas: physical oceanography and mathematical modeling, including the way oil is transported through an ocean system; chemistry, particularly the way oil changes as it is weathered or degraded; geology, in the origins of oil and natural seeps; biology and ecology, in the impact that oil has on organisms and an ecosystem and as a food source for microorganisms; and engineering and technology, in terms of the solutions needed to explore for and extract oil from the seafloor or to mitigate spills. Oil production and use are an inherent aspect of our present society, but is not without impact on humans and our ocean and is, ultimately, a finite resource. Informed students and citizens can lead our country to more sustainable energy use and resource conservation.
THANK YOU TO OUR REGIONAL HOST!

A special thank you goes out to our 2015 NOSB Finals Competition host:

**University of Southern Mississippi’s Gulf Coast Research Laboratory.**

The Gulf Coast Research Laboratory is also the host of the NOSB’s regional Hurricane Bowl. The Regional Coordinator of the Hurricane Bowl, Aaron Lamey, deserves a huge thank you for all the time and effort he put in to planning a wonderful, Gulf Coast National Finals Competition! The Hurricane Bowl was established in 1998 as one of the original 16 NOSB regions. 2015 marks the 10th anniversary of the Hurricane Bowl hosting the Finals Competition, which was held in Biloxi, MS in 2005.

We hope students attending Finals enjoyed learning about the Gulf Coast region while preparing for this year’s theme of *The Science of Oil in the Ocean*, an issue of particular interest to the region. The Gulf of Mexico is full of natural oil seeps. It is also a region important for oil energy resources and production, and further challenged by coastal erosion, “dead zones,” and extreme weather. 2015 is the 10th anniversary of Hurricane Katrina and the 5th anniversary of the Deepwater Horizon oil spill. There are many opportunities to continue learning more about the science of oil in the ocean and the Gulf of Mexico marine and coastal environments while competing and visiting the sites along the coast.

We sincerely appreciate the commitment and dedication that staff members of the Gulf Coast Research Laboratory – specifically Sam Clardy and Chris Snyder – have made in hosting the 2015 National Ocean Sciences Bowl Finals Competition. We also thank all the Hurricane Bowl volunteers that are joining us at Finals this year. The competition could not happen without each and every one of you and your continued dedication to the NOSB participants!

_Gulf of Mexico Research Initiative, focused on investigating the effect of oil spills on the marine environment and public health, congratulates all of the NOSB Finals competitors! We look forward to your future contributions and informed decision making as marine scientists._

[www.gomri.org](http://www.gomri.org)
Renowned marine life artist Wyland changed the way people think about our environment when he started painting life-size whales on the sides of buildings in the 1980s. Wyland always thought big.

And he never stopped.

Today, the Wyland name has become synonymous with the new generation of awareness about environmental conservation. Through his unique marine life paintings, sculptures, and photography, Wyland has inspired a generation about the importance of marine life conservation. His life – like his art – can find him anywhere around the world, at any time, from the Antarctic ice shelf on a photo expedition to document climate change to a grassroots journey down the Mississippi River on a mission of conservation.

Since 1993, the non-profit Wyland Foundation has set the standard for environmental outreach. In partnership with the United States Forest Service and National Oceanographic and Atmospheric Administration, Wyland is actively engaged in teaching millions of students around the world to become caring, informed stewards of our ocean, rivers, lakes, estuaries, and wetlands.

The enormous extent of Wyland public artworks, his award-winning art galleries, and community service projects have made him one of the most recognized and beloved artists in the nation. He is considered one of the most influential artists of the 21st Century, with artwork in museums, corporate collections, and private homes in more than one hundred countries.

For more information, visit wyland.com.

The NOSB wants to thank Wyland for his time and artistic inspiration for this year’s theme. We truly appreciate his creation for the 2015 National Finals Competition t-shirt and event program artwork.
Trip to West Ship Island

Participants will travel to historic West Ship Island aboard the passenger ferry vessels operated by Ship Island Excursions. Activities will include beach combing, benthic sampling, and touring Fort Massachusetts. West Ship Island is part of the Gulf Islands National Seashore.

Pascagoula River Tour

Participants will get a guided tour of the Pascagoula River which is the longest unaltered river in the lower 48 states. The trip will be guided by McCoy’s River and Marsh Tours where encounters with numerous bird species, raccoons, and alligators are common. Activities will conclude with a visit to the Audubon Society.

Stennis Space Center & Infinity Science Center

Participants will travel to NASA’s John C. Stennis Space Center to tour the facility and its different departments including, NOAA’s National Coastal Data Development Center, NASA’s rocket test sight, Naval Oceanographic Office, and NOAA’s National Data Buoy Center. The tour will conclude with a visit to the Infinity Science Center to experience the flight simulator.
Tour of R/V Point Sur and cruise

Participants will board the newly acquired University of Southern Mississippi Research Vessel Point Sur, where they will tour the vessel, participate in research demonstrations, and learn how to use the equipment while cruising the Mississippi Sound. Activities/demonstrations on the cruise may include sediment coring, side scan sonar, CTD/rosette sample, and a net tow.

Trip to Horn Island via Biloxi Schooner

Participants will travel to a local gem – Horn Island aboard the Biloxi Schooner. Participants will be able to help with raising sails and turning the wheel. Upon arrival to Horn Island, participants can learn how to throw a cast net and explore Horn Island’s amazing habitat. Activities will include beach combing, benthic sampling, and water quality testing.

Visit to Dauphin Island Sea Lab

Participants will travel to Dauphin Island, Alabama and will receive a tour of the Dauphin Island Sea Lab, tour the Estuarium, explore some of the island habitats, and receive lab demonstrations from scientists who work there.
PRIZES & AWARDS

This year the top three national teams will have the opportunity to select from the following three award prizes, with the national champions having the honor of making the first selection.

Award Trip Option #1 Juneau and Sitka, Alaska
Team members will travel to Alaska’s capital, Juneau. There, students will visit the Juneau Icefield and Medenhall Glacier. The trip will also include tours of marine labs and sampling on research vessels, and possibly some whale-watching! Finally, the team will ferry to Sitka and explore the Gulf of Alaska fishing town before heading home. This prize is provided courtesy of the IEEE Oceanic Engineering Society. Coordinated through the University of Alaska. (mid July 2015, exact dates TBD)

Award Trip Option #2 Corpus Christi and Port Aransas, Texas
Spend an exciting week on the Gulf Coast of Texas, visiting the Texas State Aquarium, touring the USS Lexington, exploring the Padre Island National Seashore and more! The team will also have the opportunity to visit marine research labs and academic facilities. This prize is provided courtesy of the IEEE Oceanic Engineering Society. Coordinated through Texas Sea Grant. (July 2015, exact dates TBD)

Award Option #3 GoPros
Team members and the coach that select this prize will each receive a GoPro video camera. The team will enjoy capturing and sharing their explorations of the natural world with this versatile camera. This prize is provided courtesy of the IEEE Oceanic Engineering Society.

4th – 8th Place
Each team will receive a gift certificate to Amazon.com for marine science textbooks. The 4th place team will receive $875; 5th place will receive $750; 6th place will receive $625; and 7th and 8th place will each receive $500. These prizes are provided through the generous support by the IEEE Oceanic Engineering Society.

Additional team prizes have been donated by Ellen Prager (Earth2Ocean), Leave Only Bubbles, Russell Dobbyn & Puzzles USA, and the American Meteorological Society.

1st – 8th Place Coaches will receive Marine Technological Society Memberships.

James D. Watkins Sportmanship Award
This highly esteemed award is offered to the team that demonstrates the best sportsmanship throughout the NOSB Finals Competition. The selected team will receive a brand new buzzer system. The team will also receive a $500 gift certificate to Amazon.com. These prizes are provided courtesy of the James D. Watkins Fund.
GAME SUMMARY

The NOSB Finals Competition is comprised of three elements: a Round Robin competition, a Scientific Expert Briefing, and a Double Elimination competition.

ROUND ROBIN:
The round robin competition involves all the participating teams. With twenty-three teams competing, teams are not playing in divisions. Each team is placed by blind draw into a randomized schedule. Each team will play four other teams during the round robins for the opportunity to proceed to the double elimination portion of the tournament.

SCIENTIFIC EXPERT BRIEFING (SEB):
The SEB involves all the participating teams and involves a written report due prior to the competition and an oral presentation during the competition. In a closed session each team will present their abstracts to and answer questions from one of two panels of judges during the round robin portion of the competition.

SCORING FOR ADVANCEMENT:
The top sixteen teams with the highest combined round robin (75%) and SEB (25%) scores are guaranteed a spot in the double elimination tournament. All of the remaining teams are then eliminated.

SEEDING FOR DOUBLE ELIMINATION:
Seeding (for group rank in the round robin, seeding for the double elimination competition and final rank for the competition) is based on the following criteria, in order: game points [2 for a win, 1 for a tie, 0 for a loss (round robin only)]; head to head results (if applicable); fewest number of losses; total number of points scored by a team; point differential, and finally, a coin toss.

DOUBLE ELIMINATION:
The double elimination competition involves the top sixteen teams. These teams are seeded based on the results achieved in the round robin competition. No team is eliminated from the double elimination competition until they have lost two games. This means that the team in the final game, which has not been defeated, must lose twice in order to be eliminated. Ties in the double elimination competition will be resolved with a group of 5 toss-up questions (no bonus) to determine a winner. This procedure will be repeated until a winner is achieved.
## Competition Room Assignments

<table>
<thead>
<tr>
<th>Round</th>
<th>Time</th>
<th>Room 131</th>
<th>Room 133</th>
<th>Room 135</th>
<th>Room 136</th>
<th>Room 137</th>
<th>Room 138</th>
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<tbody>
<tr>
<td>Round 1</td>
<td>9:00</td>
<td>Marshfield &amp; Dexter</td>
<td>West Windsor &amp; Friday Harbor</td>
<td>Centerville &amp; Eastside</td>
<td>Bishop Sullivan &amp; Mat-Su</td>
<td>Boise &amp; Rockdale</td>
<td>Mt. Sinai &amp; NCSSM</td>
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<tr>
<td>Round 2</td>
<td>9:45</td>
<td>Chaparral Star &amp; MAST</td>
<td>Sanger &amp; Arcadia</td>
<td>Marshfield &amp; Friday Harbor</td>
<td>West Windsor &amp; Liberty Common</td>
<td>Centerville &amp; Mat-Su</td>
<td>Eastside &amp; Bishop Sullivan</td>
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<td>Round 3</td>
<td>10:30</td>
<td>Long Beach &amp; Coginchaug</td>
<td>ConVal &amp; Lexington</td>
<td>Chaparral Star &amp; Sanger</td>
<td>MAST &amp; Arcadia</td>
<td>Marshfield &amp; West Windsor</td>
<td>Dexter &amp; Friday Harbor</td>
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<td>Round 4</td>
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<td>Round 5</td>
<td>12:45</td>
<td>Rockdale &amp; Thomas Jefferson</td>
<td>NCSSM &amp; Mission San Jose</td>
<td>West Windsor &amp; Bishop Sullivan</td>
<td>ConVal &amp; Coginchaug</td>
<td>Chaparral Star &amp; Liberty Common</td>
<td>MAST &amp; Sanger</td>
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<td>Round 6</td>
<td>1:30</td>
<td>Centerville &amp; Sanger</td>
<td>Mat-Su &amp; Boise</td>
<td>Lexington &amp; Arcadia</td>
<td>Long Beach &amp; Chaparral Star</td>
<td>NCSSM &amp; Thomas Jefferson</td>
<td>Rockdale &amp; Mission San Jose</td>
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<td>Science Expert Briefing</td>
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<td></td>
<td>Drexter &amp; Arcadia</td>
<td>Friday Harbor &amp; Eastside</td>
<td>11:15</td>
<td>Marshfield &amp; Centerville All teams except Arcadia, Centerville, Dexter, Eastside, Friday Harbor and Marshfield</td>
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Get In The Game!
Round 1
Saturday, 3:00 PM

T-6
- Game 5
  Rm 138

T-11
- Game 6
  Rm 136

T-3
- Game 7
  Rm 133

T-14
- Game 8
  Rm 135

T-7
- Game 9
  Rm 137

T-10
- Game 10
  Rm 139

T-2
- Game 11
  Rm 140

T-15
- Game 12
  Rm 142

Round 2
Saturday, 3:45 PM

Round 3
Saturday, 4:30 PM

Round 4
Saturday, 5:15 PM

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Game 23
Rm 142
- W to G27 • L to G26

Game 24
7th/8th Place
Rm 140
- W to G26

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Game 15
Rm 138

Game 20
Rm 136

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Game 16
Rm 140

LG10

LG5

LG6

LG7

LG8
2015 NOSB Top Science Expert Briefing Teams

1. 

2. 

3. 

Double Elimination Brackets
**Bay Scallop Bowl**

Stony Brook University

Regional Coordinators: Mr. William Wise, Mrs. Kim Knoll

**Mount Sinai High School**

The Mount Sinai Ocean Bowl Team is coached by Gina Sing and assisted by David Chase and Glynis Nau-Ritter. The team captain is a junior, Alex Mule. Danny O’Mara, Alec Donowitz, and Nick Eberhard are also juniors. After high school Danny plans to study mathematics with applications in physical science. Alec would like to major in engineering/applied sciences and is also interested in technology. Devon Gaynes is a senior and plans to study physical or biological oceanography next year at the University of New Haven in Connecticut. All team members have formed a tight knit community. The NOSB program has shown us what it is like to be a single component of something, working together towards a single goal, and there is nothing more rewarding than that.

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**Blue Crab Bowl**

Virginia Institute of Marine Science (VIMS)

Regional Coordinators: Dr. Victoria Hill, Dr. Carol Hopper Brill

**Bishop Sullivan Catholic High School**

Although Bill Dunn, a retired ship captain, and assistant coach Dr. Carol Stapanowich, a real scientist affectionately known as Dr. S., are bringing their seventh team to the NOSB Finals, this year’s team is short on veterans! Led by our only NOSB veteran junior Patrick West (captain) and junior Ryan Remias, they are joined by sophomore Ignatius Liberto and freshmen Gerry Fernandez and Dominic Gentlesk. Patrick enjoys NOSB, piano, and cross country, and hopes to attend UVA. A varsity tennis player, Ryan hopes to attend UVA and play varsity ping-pong. Sophomore, Ignatius Liberto, hopes to attend the US Naval Academy, is a varsity football and lacrosse player, and is known for his ability to answer obscure questions! Freshmen Gerry Fernandez and Dominic Gentlesk’s favorite phylum is Porifera because they enjoy soaking up marine biology. All enjoy NOSB because it combines their love of the ocean with rigorous academic competition.
Blue Heron Bowl
North Carolina State University
Regional Coordinator: Dr. Janelle Fleming

North Carolina School of Science and Mathematics
Dr. Christine Muth and Mr. David Green sponsor the Ocean Science Bowl team at NCSSM. However, much of the club is left to the students to run themselves. Senior captains Chase Yuan and Pranav Arrepu spent the first third of the year teaching students about general oceanography. They then worked with the rest of the team, including juniors Katherine Yang, Justin Zhang, and Chandler Gay, to practice buzzer questions and TCQs two hours each week. Team members come from all over the state of North Carolina, from Orange County to Camden County. This is the first time the school has been able to attend nationals in three years, and they are excited to travel and meet new teams from all over the country in Ocean Springs. Some of the team’s favorite marine organism are the nudibranch, the pufferfish, and siphonophores.

Blue Lobster Bowl
Massachusetts Institute of Technology
Regional Coordinators: Ms. Lori Tsuruda, Ms. Kathryn Shroyer, Mr. Rob Vincent

Lexington High School
Some people call us the “Fish Team!” Swimming way down south from Lexington High School and the Blue Lobster Bowl in New England, we are excited to be here, and ready to compete! When not writing practice questions, Caroline loves being on the water, sailing and windsurfing on the Charles River. A biology enthusiast, Afareen is crazy about baby harp seals and blob fish, which are fascinating to study as well as to look at (must be those eyes). Roshan pursues his love of math on alternate Fridays, while Mayukha writes for the Musket, our school newspaper. Sneha loves to take photographs of beautiful land- and waterscapes during her travels. Dr. D., our coach, is a paleontologist who now teaches Environmental Earth Science. We look forward to making friends from across the country who share our passion for the ocean.
**CHESAPEAKE BAY BOWL**

George Mason University  
Regional Coordinator: Mr. Richard Friesner

**Thomas Jefferson High School for Science and Technology**

The TJHSST Ocean Bowl team has had a whale of a time preparing for the competition! Their weekend meetings typically involve eating Goldfish and discussing carnivorous sediment. The team’s favorite organism, the cubozoan, is this year’s mascot. Co-captains Emily Sun and Jared Nirenberg, as well as returning member Virginia Pan, are grateful to have had Mrs. Lisa Wu as both their NOSB coach and their marine biology teacher. When not diving into Ocean Bowl topics, Jared can be found diving into the pool as an All-State swimmer. Emily volunteers at a local elementary school and doodles sea life in her free time. Virginia loves running, hiking, surfing, and other outdoor recreation activities. Katherine Barbano enjoys studying geology; she also dances in a pre-professional tap company and on TJHSST’s dance team. Jennifer Bailey is the team’s aquarium aficionado and is especially interested in deep-sea biology.

**DOLPHIN CHALLENGE**

Texas Sea Grant / Texas A&M University  
Regional Coordinator: Ms. Terrie Looney

**Sanger High School**

You “otter” be ready!! Sanger High’s Ocean Bowl team is coached by science teacher Lori Bradley who enjoys seeing her students grow and enjoy science through ocean bowl and her math compadre Kathy Vidourek. The team is comprised of captain Kierstin Bradley, a senior who will attend Southern Miss, senior Trent Hopson who will attend the University of North Texas, senior Zach Fargo who will attend NCTC and juniors Jacy Beam and Jaret Gillum. The team will never forget the long, long drives to regional competition in Galveston and their penquin plunge into the Gulf of Mexico. Obviously their favorite ocean mammal is the otter and they take great pride in their otter heritage. The Otter’s look forward to meeting everyone in Mississippi and exploring the coastal environment. Their team motto is “I’m just one drop, together we are an ocean.”
GREAT LAKES BOWL

University of Michigan,
School of Natural Resources and Environment
Regional Coordinators: Ms. Holly Muir, Ms. Elyse Larsen, Ms. Alison Gould, Ms. Ellen Spooner

Dexter High School

For 18 years, Mrs. Cheryl Wells has dominated the Great Lakes Ocean Science Bowl. Now, on the eve of her retirement, she has assembled a team of three señors, Ben, Noah, and Alec; and two juniors, Will and Ryan, to take Mississippi by storm. These five comrades are powerful individually: Ben is an aspiring marine biologist, planning to attend Oregon State University; Noah is a musician, hoping to eventually pursue something more practical; Alec is a prospective engineer, preparing to attend the University of Michigan. Will intends to go into biomedical engineering at MIT or JHU, while our illustrious captain Ryan will descend into biochemical studies. However, once united with the honorable Chairwoman Wells, they will join to hail the great and mighty sea potato.

HURRICANE BOWL

University of Southern Mississippi, Gulf Coast Research Lab, Marine Education Center
Regional Coordinators: Mr. Aaron Lamey, Mr. Sam Clardy

Long Beach High School

Hale Switzer has been teaching at Long Beach high school for 17 years and coaching NOSB for almost as long. He studied Marine Biology at the University of Southern Mississippi. NOSB is a family tradition for team captain Charles Hem. Both of his older brothers took teams to the national competition, and his ambition is to make it further than they did. Charles is a National Merit finalist and plans to attend Rochester Institute of Technology. It is Danes Wedgeworth’s second year on the team and he brings a competitive edge from years of playing sports. Dane is also an avid kayak fisherman. Josy Coursey also joined the team her junior year and aspires to be a physical oceanographer and plans to attend the University of Southern Mississippi. Patrick Littlefield joined the team his sophomore year and plans to attend Mississippi State University to study chemical engineering. Rounding out the all senior team is Michael McMillan. Michael is Long Beach’s star student this year and also intends to study chemical engineering.
Marshfield High School

The Marshfield High School Ocean Bowl team from landlocked Central Wisconsin is excited to compete at the national competition. This is Paul Herder’s fourteenth year of coaching the Marshfield team. He enjoys deep conversations and long walks on the beach with Jim Lubner (Grey Beard of Knowledge). The team consists of the classy Sarah Claessens, the groovy Andrew Gilkerson, the glamorous brothers Gui (David and Michael), and the legit Lara Prebble. Sarah is attending University of Minnesota next year to study chemistry and Lara will be attending Wellesley College to study environmental science. Andrew’s favorite animal is the sea monkey (Seaus monekyus) while Michael’s favorite animal is David and vice versa. In addition to thanking Paul Herder, the team would like to thank Dan and Dean McFarlane for helping with practices. When asked about our regional win, we were quoted for saying “We’re krilling the competition and are excited for this oppor-tuna-ty!”

Chaparral Star Academy

Chaparral Star Academy is excited for its 8th national tournament; having dedicated numerous hours to continue the school’s mission of reaching goals through hard work. Kris Barnett enters his 6th coaching year with assistant coach Allyson Fox in her 4th year. After a heart-pumping regional victory, senior and team captain Brady Romero will be completing his 4th year in NOSB with a computer engineering degree as his next step. Seniors and squad co-captains Alex Clarke and Kimberly Brockhausen are sad to end their NOSB journey (4 and 3 years, respectively), but future endeavors in graphic design and architectural design, respectively, will keep their passions ablaze. Juniors Thaddeus Ellsworth and Jason Cannon use charisma and charm to add cohesive factor to these powerful champions. With a rich background in ocean factoids and a drive to excel, CSA is honored to compete against such wonderful talent. Go Sharks!
Arcadia High School

Karen R apacon has coached Arcadia High School’s Ocean Sciences Bowl for the past four years. She is a biology teacher and also shares a passion for the marine sciences. Her team members Kathy Lee, Dorothy Chang, Steven Kurniawidjaja, and Kevin Wang are eager to represent Arcadia in the national Finals Competition. The team has become very close through many practice sessions and enjoys spending time with each other. Steven loves studying marine biology. Kevin loves studying meteorology and the Gulf Stream. Dorothy and Kathy often go to the beach together to enjoy the waves and add to their sea glass collection.

MANATEE BOWL

Harbor Branch Oceanographic Institute at Florida Atlantic University
Regional Coordinator:
Dr. Dennis Hanisak

Maritime and Science Technology (MAST) Academy

MAST Academy is a school known for its excellence in marine studies. Its NOSB team has been led by Christina Walker for the past two years. Her team, consisting of Ryan Winslow, David Denmark, John Nieves, Michelle Mestres, and Alek Moul y, is filled with prospective scientists. Senior Ryan Winslow has decided to study environmental engineering at the University of Florida. Senior Michelle Mestres aspires to be a meteorologist, but is yet undecided on a college. John Nieves plans to pursue a future career in ocean engineering, while David Denmark, plans to major in computer science, which he hopes to integrate into his studies of marine science. Alek Moul y is undecided on his future career path, but loves marine science! Although MAST Academy’s school mascot is the Mako Shark, the NOSB team’s mascot is Shawn the Sheep’s Wool Sponge. Be on the lookout for him!
Nor’Easter Bowl
University of Maine, Orono
Regional Coordinator: Ms. Katie Clegg

ConVal (Contoocook Valley) Regional High School

Ken Cloutier has coached an Ocean Bowl team at ConVal Regional High School in Peterborough, NH since 2003 when he was recruited to drive the van. He teaches Oceanography, Biology. This year’s team members are Doug White, Ben Graves, Michael Zrzavy, Chris Galea and Thayer Taft, and they are excited to represent ConVal’s return to the Finals Competition for the first time since 2012. They all enjoy Marine Science, working with friends and for Michael it is a family tradition where he is the third Zrzavy sibling to reach the Finals. Thayer and Doug are fans of marine mammals while Ben, Michael and Chris like cuttlefish and tartigrades. Future plans include bioengineering, mechanical engineering, electrical engineering and medical science. The favorite NOSB memory is the semi-final match against the ConVal B team in the Nor’Easter Bowl.

Orca Bowl
Washington Sea Grant, University of Washington
Regional Coordinator: Ms. Maile Sullivan

Friday Harbor High School

Jesse Visciglia has been the head coach of the Friday Harbor High School Orca Bowl in Friday Harbor, Washington for the past two years and has taught Oceanography for the past 3 years. His team is comprised of one sophomore, Myron (Corbin) Williams, and three seniors, Sam Stewart, Max Haenel, and Captain Courtney Bell, all of whom have competed in the Orca Bowl twice. Sam Stewart plans to attend Gonzaga University and major in biology, while Max plans to attend the University of Washington and major in molecular biology. Courtney has not decided on a college, but she plans to study chemistry and marine science. The team studies by bringing in guest lecturers from the University of Washington’s Friday Harbor Laboratories and three team members enrolled in the Oceanography course offered by Mr. Visciglia. In addition to participating in NOSB, the team enjoys playing sports like golf, soccer, and baseball.
Centerville High School

The Centerville team originally joined its regional ocean science bowl to further engage students on its Science Olympiad team who were already interested in Oceanography. Coach Penny Manfredi (with the help of coaches Beth Cahill and Jim Simpson) first brought the team to the regional Penguin Bowl in 2007, where they found that their love and knowledge of marine science ran deeper than they thought. They continued to go to their regional bowl each year, having won twice prior to this year. This year’s members, Nicholas Brockman, Abhijeet Mulgund, Rosie Ries, Angela Kaissieh, and Matthew Stuve, are experienced participants, four of them seniors having competed since their freshman or sophomore years. Although Centerville, Ohio is located quite far from any ocean or Great Lake, they do enjoy water related activities; they have collected many shells and fossils from their local creek and dried reservoir. Their only regret is that their community is not home to the grunion, their spirit animal.

Coginchaug Regional High School

COGINCHAUG CEPHALOPODS – GOT INK! Captain Amelia Bianchi (Mantis Shrimp Aficionado) and Ryan Gossart (Mr. Interrupt) were awed by their 2014 trip to the Seattle Nationals, especially by the intense aggressive strategies of the other competitors. Determined to adopt these techniques for themselves, they’ve battled their way back to Nationals accompanied by teammates Josh Dalo (Project Oceanology Addict), Garrett Puchalski (Ocean Boy), and Lydia D’Amato (Secret Weapon). The team continues to be united by their love for all things that come in salt water, their joy in out-buzzing one another, and their knack for “unstudying” with fellow competitors over card games and cookies the night before competition. Coach Lorrie Martin has for nine years now been fully in charge of maintaining ORDER amongst the ever-growing cast of loyal team mascots. Amelia and Josh are aspiring to careers as marine biologists, and Ryan is optimistically wading into the field of marine biochemistry.
Salmon Bowl
Oregon State University
Regional Coordinator: Ms. Lindsay Carroll

Boise High School
Although deprived of a local coastline (besides that of the nearby seas of potatoes), Boise High’s NOSB team shore loves the ocean. The team consists of senior Eric Huang, a dazzling pianist and the team’s resident troll; junior Karthik Mouli, an avid birdwatcher and renowned expert of obscure geographic trivia; junior Benjamin Huang, an exquisite clarinetist and Eric’s trusty sidekick; and junior Nate Marshall, a passionate violist and runner. Mr. Baca, the team coach, plays the trumpet and teaches amateur radio, and he has coached quiz bowl for nine years. The team loves to ponder deep mysteries such as why Antarctic sea ice is increasing and why oil companies are on the verge of Arctic drilling (poor narwhals). A long walk down the beach would be the optimal location for such discussions, but alas, the river will have to do, at least for a few more centuries.

Sea Lion Bowl
Stanford University
Regional Coordinator: Dr. Jenny Saltzman

Mission San Jose High School
Julie Luikart, a record-speed knitter and awesome anatomy teacher, has been coaching Mission San Jose since 2009. The team is well-versed in the diet of the ocean sunfish (favorite food? guacamola), and its members carry a floppy Mola mola plush wherever they go. As the #SquidSquad captain, Bethany enjoys wearing a neon cephalopod-shaped hat. Ironically, she loves calamari. Peter is over 60% water and the oceans cover 70% of earth, so oceanography comes naturally for him. He enjoyed Disney’s Atlantis and flinches when people mention its box-office failure. Tingting loves studying currents. She sobbed for Titanic and joined OSB to find Jack’s body. Joshua has always loved oceanography. While other children idolized astronauts and firefighters, Joshua dreamed of marine biology. Brian’s first encounter with the ocean left him awestruck until he realized it was just the bay. Completely taken aback, his quest for truth has since uncovered many oceanographic wonders.
West Windsor-Plainsboro High School South

Dr. Sunila Sharma coaches the NOSB team at West Windsor-Plainsboro High School South. She teaches chemistry at South and also coaches its Science Bowl team. On the team are first year NOSB participants Jamie You and Captain Bill Yan Huang and returning members Aleck Zhao, Dhruva Byrapatna, and Science Bowl President Ishan Mazumdar. Juniors Jamie and Dhruva cover biology and earth science, while seniors Aleck and Ishan are interested in chemistry and biology. Bill, our Homecoming King and Captain, is interested in everything except biology. The WW-P South team is honored to represent New Jersey at the NOSB national event and is excited to visit Ocean Springs, Mississippi. Jamie is especially excited to consume its local fares.

Aleck’s favorite marine organism is the sea pig, while Dhruva’s is Patrick Star. Ishan likes all marine activities except swimming.

Rockdale Magnet School for Science and Technology

Diana Kennen has coached an Ocean Science Bowl team from RMSST in Conyers, GA for the last three years as part of the school’s Science Team. Her team members are Megan Symons, Sean Keeler, Arianna Gibbs, and Samantha Godwin. They have participated in NOSB for the past two to three years and are excited to be back at nationals for the 2nd year in a row. They study the ocean sciences to gain a better understanding of our natural world. The team’s favorite marine animal is the cuttlefish because it has a remarkable ability to camouflage itself. It has four graduating seniors. Sean would like to study mathematics. Arianna wants to pursue chemistry. Sammi is interested in forensic science and Megan wishes to become a science teacher.
**Spoonbill Bowl**

University of South Florida, College of Marine Science
Regional Coordinators: Dr. Teresa Greely, Dr. Angela Lodge

**Eastside High School**

The Eastside Oceanography team has been called many things from ‘middle schoolers’ to ‘babies’ but that didn’t stop these tough freshman from winning the Spoonbill Bowl. Alex Janelle, Emily An, Ike Gugel, Liliana Valle, and Zosia Caes have learned everything from the estuarine shuffle to the amphidromic point dance from the best coaches they could ask for, Anne West-Valle and Arnoldo Valle. Liliana has been captivated by oceanography ever since she learned to snorkel at 2 and is glad to have such chill teammates. Emily knew nothing about oceanography before this year except that jellyfish are, in fact, not fish, but has loved learning about the oceans and hopes to continue. Zosia has learned so much through oceanography this year, from sverdrups to Papahānaumokuākea, and is glad to have such an amazing team. Alex always seems to forget something for practice but loves to work with such great guessers. Ike had no idea what he was joining the first day, only that they were giving out cookies, but has since learned a lot and is glad to have joined the club.

**Trout Bowl**

University of Colorado, Boulder
Regional Coordinator: Ms. Amanda Morton

**Liberty Common High School**

Liberty Common High School, new to NOSB this year, is thrilled they won the 2015 Trout Bowl. They’re also thrilled to simply visit the ocean. Senior Lucas Elder plans to study at the Colorado School of Mines. He’ll major in engineering and his favorite sea animals are the tunicates. Sophomore Brady Lane loves studying naval military history, although he’s not willing to join the Navy. His favorite are the coelacanths with their odd name. Matt Iverson, also a sophomore, gravitates toward physics and math and animals with ferocious teeth – specifically sharks. Sophomore Josh Pletcher wants to study zoology at Aberystwyth University. He loves the crabeater seal, or porpoises, or hammerhead sharks. Matthew Colvin, sophomore, first learned to love the sea when he lived on Long Island. He hopes to attend NYU someday and favors whales. The team is coached by Dawn Karr and Kathryn Elder.
The NOSB would like to give a **BIG THANK YOU** to all of our National Finals Competition question reviewers for their time, effort, and dedication to high quality NOSB questions.

Kassandra Cerveny, Ocean Leadership
Jennifer Collins, Ocean Leadership/Smithsonian
Larissa Ford, Bureau of Land Management
Steve Gittings, National Oceanic and Atmospheric Administration
Lucia Gutierrez, American Psychological Association
Katherine Horst, Ocean Leadership
Lea Locke Wynn, U.S. Naval Oceanographic Office
Jim Lubner, University of Wisconsin Sea Grant
Jason Krumholz, University of Rhode Island
Jiang Liqing, National Oceanic and Atmospheric Administration
Alexis Martin, University of Delaware/Knauss Fellow
Christopher Robin Mattheus, Youngstown University
Charna Meth, Ocean Leadership
Jay Muza, Broward College
Rick Peterson, Coastal Carolina
Rick Rigazio, U.S. Coast Guard
Alexis Rudd, Ocean Leadership
George Sharman, National Oceanic and Atmospheric Administration
Jake Sobin, Contros Systems & Solutions
Henry Snyder, Gallaudet University
Wayne Sternberger, Johns Hopkins University, Applied Physics Laboratory
William Ullman, University of Delaware
Gene Williamson
William Wise, State University of New York at Stony Brook

We also need to extend a ‘THANK YOU’ to the many volunteer reviewers at the regional level who assist us each and every year!

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**Tsunami Bowl**
University of Alaska, Seward Marine Center
Regional Coordinator: Ms. Phyllis Shoemaker

**Mat-Su Career & Technical High School**
Tim Lundt has coached at Mat-Su Career & Technical High School in Wasilla, Alaska for the past 8 years. He has been teaching oceanography and taken multiple trips with students to Belize and Costa Rica to study marine biology as a way to increase interest in ocean sciences. His team consists of Captain Joshua Hartman, and Ariel Hasse who have competed in ocean bowl for the last three years, Lucas Arthur who has competed two years, Jacob Cucinello and Cade Johnstone who are competing in the first year. The whole team also competes in Science Bowl and Science Olympiad. Joshua plans to study chemistry at University of Alaska, Fairbanks and Ariel plans to study physics at Cal Tech next year. Lucas would like to be an astrophysicist, Jacob a robotic engineer and Cade a dynamic soccer playing scientist.
Proud Sponsor of the NOSB

Congratulations to all NOSB participants!

The OES encourages you to use your passion for the oceans as a stepping stone toward a career in the ocean sciences. There are many career opportunities centered around exploring and protecting the oceans, including ones in engineering, science, medicine, and law.

www.ieeeoes.org

Congratulations and good luck
NOSB Regional Winners

To find out more about our scholarships, funding opportunities, and learning resources, please visit the NOAA Education Resource Portal:

www.education.noaa.gov
The Consortium for Ocean Leadership is a Washington, DC-based nonprofit organization that represents more than 89 of the leading public and private ocean research education institutions, aquaria and industry with the mission to advance research, education and sound ocean policy. The organization also manages ocean research and education programs in areas of scientific ocean drilling, ocean observing, ocean exploration, and ocean partnerships.

Ocean Leadership’s Mission
Ocean Leadership shapes the future of ocean science and technology through discovery, understanding and action. We provide expertise in managing, coordinating, and facilitating scientific programs and partnerships; influencing sound ocean policy; and educating the next generation of ocean leaders.

Ocean Leadership’s Vision
Our vision is a global society that views its own well-being as intimately connected to the ocean.

www.oceanleadership.org

NOSB’s Mission
Inspiring Tomorrow’s Ocean Leaders. The mission of the National Ocean Sciences Bowl® (NOSB) is to prepare the next generation of students for careers in ocean science by providing an educational forum for students to excel in math and science, as well as receive national recognition for their diligence and talents. NOSB has proven that it can generate student interest and excitement about science and the ocean, giving young people a chance to examine the marine sciences as an in-depth area of study and as a possible career.

Science • Competition • Stewardship

www.nosb.org