SCIENCE EXPERT BRIEFING TEAM INSTRUCTIONS

2017 NOSB
Finals Competition

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The Science Expert Briefing (SEB) component to the NOSB competition is a simulation of a Congressional hearing. The SEB encourages the development of life skills for students – research and analysis, critical thinking, writing, public speaking, consensus building, problem solving, conflict resolution and compromise, and cooperation. In the SEB, students step into the shoes of scientists, businesspersons, non-profits, state and federal employees to propose recommendations on a chosen piece of legislation to "Members of Congress" (judges). While playing their roles as stakeholders, student "experts" make speeches, prepare draft recommendations, negotiate with allies and adversaries, and resolve conflicts - all in the interest of heightening visibility and increasing cooperation to resolve current issues of concern in the marine environment.

Before playing out their expert roles in the oral component of the SEB competition, students research the issue and piece of legislation chosen for the year. SEB participants learn how the ocean community mobilizes on issues of concern, including ocean acidification, marine debris, and invasive species, while addressing the goals and requirements of the stakeholder they represent. Researching is the first and most important step in preparing for the SEB. Not only is it necessary to have a grasp on the chosen issue, it is critical to understand the piece of legislation, and to understand the stakeholder you are representing. Insights the students gain from their preparation and research into chemistry, biology, physical oceanography, science policy, and economics of the chosen issue play a major role in the authenticity of the role-playing and success of their proposed recommendations. The students' knowledge of the issue as well as understanding and portraying their respective role ensures an experience that is both memorable and enjoyable.

OVERVIEW

The National Ocean Sciences Bowl piloted a policy briefing as part of the 2011 Finals Competition to expand the role of critical thinking and introduce science policy to young scientists. The 2017 competition will include an evening event where judges can provide feedback to students. Listed below is a summary of the 2017 Science Expert Briefing (SEB) Competition.

1. Stakeholder Roles
   - Each student presenter will represent one of five "expert" stakeholders whose area of expertise relates to the briefing topic.
   - The five stakeholder "experts" are representatives from Federal Agency, State Agency, Academia, Non-Governmental Organization (NGO), and Industry.
   - At least one stakeholder "expert" (e.g. Federal Agency, State Agency, Academic, Non-Governmental Organization, Industry,) must be a technologist (including engineers).
   - At least one stakeholder "expert" must be a planner or otherwise address the issue from a planning perspective (e.g. urban planner, spatial planner, etc.).
   - At least one stakeholder "expert" must be an ecologist.
2. Written Testimony
   - Written testimonies will be 300-500 words
   - Abstracts will be 80-100 words
   - Three to five citations are required for each testimony. All sources must be academic.
   - Sample citations are provided to the teams as reference in the appendices.
3. Oral Testimony
   - Oral Testimony will be based on each stakeholder's abstract with the addition of a brief introduction of the "expert."
   - Each stakeholder "expert" will be asked one question about their testimony (six questions in total per team)

- Questions will relate to the chosen piece of legislation and topic. The six questions will be the same for each team in the competition.
- The judges will be able to ask one follow-up question to any one of the experts on a team, as time allows. These follow-up questions will not be uniform for each team, but Judges will formulate these questions on an individual basis to gain clarity on a student's response.
- Each team briefing will last a maximum of 18 minute, allowing for 4 minutes of transition time between groups. Students should be prepared with their testimony copy and ready to present immediately upon entering the room.

4. SEB Scoring in Overall Competition
   - The scores from the Science Expert Briefing and the Round Robins will be added together, with the Round Robin accounting for 75% of the total possible points, and the SEB score making up the remaining 25%
   - Rankings (within the divisions, if applicable), based on this total score, will determine which teams advance to double elimination.
   - The top scoring SEB team will still receive a trophy and a small prize (given availability, similar to the Sportsmanship award).
5. Judges
   - They will use a laptop to record all scores.
   - They will participate in a training session to learn the process and allow NOSB staff to gauge their scoring tendencies.
   - They will receive two weeks to review written testimonies.
   - They will participate in a de-briefing event on Saturday evening to answer questions students might have about the topic.
   - Judges will remain after last SEB session to discuss feedback with National Office staff before participating in an evening feedback session with the teams and coaches.
6. National Office Responsibilities
   - In mid-March, National Office staff will hold a coach-oriented webinar training to provide clear guidelines on student preparation and best practices.
   - National Office staff will train judges to prepare them for the competition and the rubric, which should help facilitate fair and easy scoring.
   - National Office staff will provide a rubric to coaches, RCs, and judges.

SCIENCE EXPERT BRIEFING TEAM INSTRUCTIONS

The 2017 Science Expert Component consists of two key elements -- a written document (*Science Expert Briefing Written Testimony*) that the teams will write and submit prior to the Finals Competition and an oral presentation (*Oral Testimony*) that the team will give to a panel of judges during the competition on Saturday, April 22, 2017. We recommend all teams and coaches review these instructions carefully.

The 2017 Science Expert Briefing score will be included in the scoring for the Finals Competition. All points gained from the Science Expert Briefing will be added to a team's Round Robin Scores before advancement to the Double Elimination round is determined. Any team that chooses not to fully participate in the Science Expert Briefing will not be eligible to attend and/or compete in the 2017 Finals.

The Science Expert Briefing topic will be provided after the national office training webinar for all coaches in March and, as possible, will be related to the theme of the year. The release of the topic and chosen piece of legislation at that time ensures that all teams are on a level-playing field, regardless of when their regional competition occurred.

COMPONENTS OF THE SCIENCE EXPERT BRIEFING

Part I – Science Expert Briefing Written Testimony

The first phase of the SEB is the ***Science Expert Briefing Written Testimony*** includes, a written compilation of five different stakeholders' views on the scientific requirements necessary to effectively inform policy makers on the issue and/or recommendations concerning the piece of legislation, and a team discussion with final recommendations concerning the chosen piece of legislation.

As part of the competition, each team member will assume the role of an expert stakeholder (i.e. a social scientist, academic researcher, Federal employee, etc.). Each "expert" will draft an "outside witness testimony" based on their stakeholder's perspective. This written testimony will include scientific and science policy related recommendations concerning the topic and the chosen piece of legislation. Outside witness testimony is not a history of the issue, but is the testimony of a stakeholder expert for a Congressional panel. "Expert" testimonies should focus on the science necessary to fully address the topic, and recommendations to both inform and shape policy on the topic. At all times, students should maintain their assigned role and remember that their audience (judging panel) are "Member of Congress."

The teams will all receive a piece of legislation to review. As a team, the students will review the scientific issues underpinning the bill as well as other policies associated with the chosen topic. Teams will be expected to read and analyze the bill to grasp the complexity of the issue, but the SEB places an emphasis on the "experts" research for their testimony and recommendations, and must come from primary and secondary scientific sources on the subject. Each "expert" is required to cite 3-5 sources, minimally.

As individual team members, each student will play the role of an "expert stakeholder" and must explore their backgrounds to grasp their stakeholder's concerns with and interest in the topic. Based on this research, the "experts" will craft outside witness testimony with specific recommendations pertinent to their stakeholder role, both in the science required to address the topic and recommendations to change the legislation and policies for the better. Subsequently, each "expert" will determine what specific issues he/she believes must be addressed in his or her individual testimony, and must reflect his or her assigned role. Each "expert" will need to provide 2-5 specific recommendations from the viewpoint of their individual stakeholder to the "Members of Congress". When forming their recommendations, each "expert" should consider the following as they relate to the scientific issues surrounding the topic and their stakeholder's particular involvement: *economic impacts, environmental impacts, community*

impacts, resources and services, research & development and capacity building. Students do NOT need to contact stakeholders to conduct their research.

In total, each team will prepare six (6) testimonies – five (5) outside witnesses that represent each of the stakeholders' views (listed below) and one (1) list of final recommendations, with explanations of each recommendation, if needed. Representatives from:

1. Federal Agency
2. State Agency
3. Academia
4. Non-Governmental Organization
5. Industry

It is important to note that each team's selection of experts MUST also address the following areas of expertise:

1. At least one stakeholder "expert" (e.g. Federal Agency, State Agency, Academic, Non-Governmental Organization, Industry,) must be a technologist (including engineers).
2. At least one stakeholder "expert" must be a planner or otherwise address the issue from a planning perspective (e.g. urban planner, spatial planner, etc.).
3. At least one stakeholder "expert" must be an ecologist.

Each team will make 3-6 well-supported final recommendations on the issue. The final team recommendations should address the 'big picture' with a comprehensive approach that takes into consideration all stakeholders' perspectives.

The team's *Science Expert Briefing Written Testimony* must include:

1. A written outside witness testimony from EACH stakeholder "expert" that will contain:
    - 2-5 individual stakeholder recommendations,
    - 3-5 works cited, and
    - visual aids (optional)
2. The team's final written statement that includes 3-6 consensus recommendations.

Each individual stakeholder testimony within the *Science Expert Briefing Written Testimony* should be no more than 500 words. In this written testimony, team members should respond critically to the science needs surrounding the topic, citing literature to defend their argument. Given this condensed length, the "experts" must work hard to get to the heart of the issue. Students should remember that it is important to convey their science research, but they must remember that their target audience (i.e. "Members of Congress") are not scientists.

From the 500-word statement, student should then create an 80-100 word abstract efficiently summarizing the stakeholder "expert's" testimony. This abstract will be the basis/majority of the oral testimony delivered in the hearing before "Members of Congress" (judging panel) during the verbal presentation at the competition.

The team's final recommendations should be 300-500 words and should highlight and explain the 3-5 consensus recommendations of the team. The final recommendations will be the team of "expert's" consensus viewpoint and recommendations for "Congress" to address the scientific requirements and needs regarding a comprehensive policy on the chosen topic. These consensus recommendations should be well thought out, specific and highlight appropriate and realistic compromise. This should NOT be a summary of individual expert testimonies, but instead a collaborative set of recommendations that take into account each stakeholder's interests and abilities to compromise. It may also be appropriate, in certain circumstances, to include a rationale on why a strong, and apparently excellent, recommendation from a certain stakeholder was not included in the final recommendations.

As mentioned above, the inclusion of visual aids is allowable, but not required. However, all visual aids (graphs, charts, or tables) must be previously developed and publicly available, and should be specifically used to explain or reinforce an "expert's" point(s). Students should not design their own visual aid materials. In addition, as all submitted documents will be made available for the judges to review in a binder, none of the visual aid documents may be larger than 8 ½ x 11 inches (a standard sheet of paper).

The *Science Expert Briefing Written Testimony* is due electronically to NOSB prior to the competition on ***Wednesday, April 5, 2017 at Noon (local submission time)***. Additional information on the requirements for submitting and drafting the Science Expert Briefing Written Testimony, as well as a complete rubric, are included in this document and can also be found at www.nosb.org.

Part II – Oral Testimony

During the Finals Competition, the "experts" will conduct the second phase of the SEB by presenting their ***Oral Testimony*** to "Members of Congress (panel of judges). The students will orally present their prepared abstracts, which they submitted previously to NOSB, and include a brief "expert" introduction. Each oral testimony should be presented in about 40 seconds with teams presenting all their oral testimonies in less than 4 minutes.

Each team is allowed to bring one copy of their team's *Science Expert Briefing Written Testimony* into the competition room at Finals, distributed among the team's "experts." **Teams are NOT allowed to bring additional notes, papers, or materials inside room.** Visual aids from *Science Expert Briefing Written Testimony* may be used in oral testimony, but not altered from the previously submitted form. NOSB will NOT make copies of team reports, so it is important that teams remember to bring their own copy. Forgetting a copy of the testimony will be grounds for team's disqualification. Teams must arrive ready to quickly and quietly find their seats and prepare to deliver their oral testimonies.

The team should also expect a total of six questions from the "Members of Congress". The team will be given 30 seconds to confer before one "expert" answers the question, within the allotted time of 45 seconds. Each "expert" will be asked at least one question. These questions will be the same for every team. Each student will be provided one piece of blank paper and one writing utensil for the question and answer portion. No notes may be written on team's *Science Expert Briefing Written Testimony*, nor may note paper be removed from SEB room. If time allows, "Members of Congress" may ask follow-up questions, as their goal is to delve into the issue deeper and determine the team's true level of comprehension and analysis of the topic. The questions will be developed after the judges review of all teams *Science Expert Briefing Written Testimonie*s.

"Experts" should remember that they are professional representatives of their specific stakeholder interest, and should NOT dress in costume to represent their stakeholder. Moreover, students do NOT need to dress up for this activity - they may wear their NOSB t-shirt, their team t-shirt, or other appropriate event attire.

PROGRAM STRUCTURE

Whether a team has four or five members, each team will prepare testimonies for all five stakeholder "experts" associated with the issue. A team with only four students will need to assign one student the responsibility of representing two stakeholders.

The five stakeholder "experts" that will be represented in each testimony (in the order provided below) are representatives from:

1. Federal Agency
2. State Agency
3. Academia
4. Non-Governmental Organization
5. Industry

Please note, no transitions between the stakeholder presentations will be allowed.

Since every team member must participate in the Science Expert Briefing, it is important that teams divide up the requirements in a way that ensures each team member completes the following: 1) prepares a written testimony for at least one stakeholder "expert"; 2) prepares a testimony to be presented orally to the judges, and 3) prepares to participate in the answering a question from the judges during the team's presentation.

The mock Congressional briefings/hearings (oral presentations) will occur on Saturday during the first day of the Finals Competition. The majority of the teams will present their testimony during the traditional "bye" period of the round robins. There will be two separate Science Expert Briefing competition rooms, which will allow two teams to present their testimonies simultaneously. This scheduling ensures there is enough time to complete all the presentations prior to the beginning of the double elimination portion of the competition.

Each team presentation will occur within a maximum of 18-minutes. The session will start with brief opening remarks by the judging panel. The team members will be allotted a total of 40 seconds each for their individual "expert" testimonies. Each team will have a total of 4 minutes to present all their testimonies.

Teams will receive a verbal warning by the timekeeper when they have 1 minute remaining, again when thirty seconds remain, and lastly when their time has expired. There will be no warnings given for the individual 40-second presentations. When the clock expires, all "experts" are required to stop talking.

After the team presentation is finished or time has ended, a total of twelve minutes will be allotted for the question and answer session. Teams will answer six questions presented by the "Members of Congress" (two questions per judge). Each "Member of Congress" is allowed a maximum of 45 seconds to ask each question and will direct it to a specific "expert". After a question has been asked, the timekeeper will set the clock to give the team 30 seconds to confer. The "experts" will be given a 5-second warning to indicate that their conferring time is about to end. When the timekeeper has indicated that time is up, the team must stop all discussion. Any conferring after the 30 seconds has ended will result in a score of zero for that question.

"Experts" will have 45 seconds on the clock to answer each question. "Experts" will NOT be given a time warning, and must stop talking when the buzzer sounds. No answers, or partial answers, provided after the buzzer has sounded will be taken into consideration.

When the team's SEB session is finished, the team must quickly and quietly leave the room so the next team may enter and prepare to present.

SCORING

Each team's total SEB score is compiled from their *Science Expert Briefing Written Testimony* score and their *Expert Testimony* score. These two main components are made-up of eight key subcategories. Each team can earn a **maximum total of 360 points**. A complete scoring rubric is included in this document and can also be found at www.nosb.org.

- The *Science Expert Briefing Written Testimony* score will be comprised of the five stakeholder experts' scores and the team final recommendations score. Each "expert" can earn a maximum of *25 points*, with up to another *25 points* for the team final recommendations providing their team with a maximum **sub-total score of 150 points**.
    - Each subcategory (*Submission, Writing Style, Issue Comprehension, Impact/Persuasiveness*, and *Recommendations*) is worth a maximum of 5 points per category per stakeholder "expert" and team final recommendation.
    - *Science Expert Briefing Written Testimony* Score: 5 stakeholders x 5 subcategories x 5 points possible/subcategory = 125 points + 25 possible points for the team's final recommendations = 150 points
- The *Oral Testimony* portion is comprised of two parts – the oral presentation section, where the "experts" present their oral testimony, and the Q&A session. During the oral presentation, each stakeholder "expert" has the opportunity to earn *10 points*, with up to another *10 points* for the team final recommendations presentation allowing their team to acquire a maximum **sub-total score of 60 points.**
    - Each subcategory (*Style & Delivery* and *Time*) for the oral presentation is worth a maximum of 5 points per category per stakeholder "expert" and team final recommendation.
    - *Oral Testimony* = 5 stakeholder "experts" x 2 subcategories x 5 possible points/subcategory = 50 + 10 possible points for the team's final recommendations = 60 points

  The question and answer section of the *Oral Testimony* evaluates the students as a team and provides a score for each question the team answers. Each team will have the opportunity to accumulate an additional **150 points** for collectively answering the expert judges' six questions during the open forum.
    - Each question is worth a maximum for 25 points.
    - Q&A Session = 5 stakeholders x 5 questions x 25 points possible = 125 points + 1 question related to the final team recommendation x 25 points possible = 150 points

All judges' scores are final. Each team will receive a copy of their total score and Team Rankings (1-25) at the award ceremony on Sunday afternoon. Team rankings 1-3 will be posted when the Round Robin Scores are announced; numeric scores will not be posted.

Should there be a tie for the first place position:

a. The judges will first look for the highest score in the category of the total "individual" team recommendation score between the tied teams.
b. If there is still a tie, judges will look for the highest total individual score from the stakeholders' score, other than the captain's score
c. If there is still a tie, judges will look for the highest captain's score among the team score.
d. If neither of these options determines a winner, the teams will answer a TCQ on the topic and the top score will be the winner.

The SEB is a significant component of the competition. The scores from each team's SEB and overall Round Robin score will be added together to determine which teams will advance to double elimination. The team's Round Robin score will make up 75% of the total possible points a team can acquire, and the SEB score make up the remaining 25%.

ROOM SET-UP & STRUCTURE

A table with three chairs for the "Members of Congress" will be at the front of the room. Stakeholder "experts" will sit at a table facing them. The coach will sit or stand in the back of the room behind the students.

The presentations will not be open to the public. Only the team, coach, family members of that team, room officials, videographer, and NOSB National Office authorized audience members will be allowed in the room. Presentations may be recorded for program development use. Videos of top presentations may be used as a teaching tool for in the future.

COACH PREPARATION

The NOSB National Office will schedule a webinar for all the coaches participating in the 2017 NOSB Finals on **Wednesday, March 1, 2017.** The webinar will focus on how this portion of the competition is structured; what the individual SEB components are; general team preparation suggestions; and how the activity will be scored. **No questions regarding the SEB topic will be answered at this time.**

Any coach, even if they are not attending Finals, is eligible to participate in the webinar; however, all non-Finals coaches will be muted during the webinar. Coaches not participating in Finals will only be able to submit written questions through the webinar question feature.

The 2017 topic will be released to the coaches with team's competing in Finals after the webinar on **Friday, March 3, 2017.** Finals coaches will receive the topic by email; after that point all other coaches can refer to the NOSB website for information on the topic. As possible, the SEB topic will relate to the year's theme.

TEAM PREPARATION

Team captains from competing teams may submit questions to the NOSB national office via email at nosb@oceanleadership.org until **Monday, March 13, 2017**. Answers to all submitted questions will be answered at one time and will be posted on the NOSB website by **Friday, March 17, 2017**.

SCIENCE EXPERT BRIEFING WRITTEN TESTIMONY SUBMISSION REQUIREMENTS

Due Date: April 5, 2017 – 12:00pm (noon) local submission time

Submit to: nosb@oceanleadership.org, cc: aholloway@oceanleadership.org
Each team must electronically submit, to the designated email address, one team packet that includes a team cover page, all individual team members' oral testimonies, team discussion, and the final recommendations by the due date for consideration. Materials received after the date may be disqualified from the competition.

General Document Structure & Format

Formatting

- 12pt font
- Double line spacing
- 1" margins all around
- Page numbers – consecutive throughout the entire team submission
- Headers/Sub-headers
- All Stakeholder Testimonies must be submitted in the following order of representatives: federal agency, state agency, academia, non-governmental organization, and industry.

Team Packet Cover Page

- Team/School name
- Region
- Name of each team member & stakeholder role
- Name of individual making final recommendations
- Coach's name
- Captain's contact information

Individual Stakeholder Documents

Stakeholder Title Page

- Stakeholder
- Presenter name

Abstract

- 80-100 word abstract per stakeholder (may not exceed 100 words)

Stakeholder Testimony

- 500 words (1 to 1 ½ pages in length) (may not exceed 520 words)
- Testimony should include 2-5 individual stakeholder recommendations

Graphs and figures, pictures

- Max 2 per stakeholder
- Proper use of citations and documentation

Citations/References

- 3-5 per stakeholder
- APA formatting (information available at: http://owl.english.purdue.edu/owl/resource/560/01/)

Team Final Recommendation Documents

Team Final Recommendation Title Page

- Presenter's name

Abstract

- 100 word maximum abstract regarding your Final Recommendation

Final Recommendation

- 300 – 500 words
- Testimony should include 3-6 recommendations that the stakeholders/experts on the team came to consensus on

Graphs and figures, pictures

- Max 2 visual aids
- Proper use of citations and documentation

Citations/References

- 5-10 total citations – can include a mix of the team's stakeholder citations and new citations that help support the team's collaborative position on the issue
- APA formatting (information available at http://owl.english.purdue.edu/owl/resource/560/01/)

**** Plagiarism will not be tolerated and will be considered grounds for disqualification ****

APPENDIX: COACH FAQ

How much assistance is a coach allowed to provide the team in preparing for the Science Expert Briefing?

The Science Expert Briefing (SEB) is a student team driven project, which means coach guidance should only be provided on the front end to help the team understand the process, and to point them in the right direction. All the other work should be done entirely by the student team. Peer editing is highly encouraged.

Coach guidance should be limited to providing students with an understanding of the guidelines, suggesting resources, offering ideas about appropriate stakeholders, and providing recommendations for improving a student's oral presentation style.

Coaches (or any individual(s) not on the student team) are NOT permitted to provide any coaching/assistance on content, text, thought, project development or development of the recommendations. Coaches cannot edit the team's or individual student's Science Expert Briefing Written Testimony and may not provide suggestions on presentation content on any of the Congressional Testimonies.

That being said, teams may begin preparation for SEB ahead of receiving the topic and coaches may facilitate their team's success by discussing science policy issues, reviewing videos of congressional hearings, and helping their students understand basic fundamentals of civics that apply to science policy concerns.

How will the judges ask the stakeholders questions?

The judges will ask a total of six questions to each team, such that each testimony receives one question, including the team summary testimony. Thus, only the student presenting the team summary will receive two questions. Since the questions will be developed based on the information that the students will have provided within their Science Expert Briefing Written Testimony, each team will likely be asked the same six questions. The judges will also be allowed to answer any follow-up questions to help clarify a student's answer.

Will each stakeholder "expert" have to answer the judges' questions individually?

Only one person will answer each question; however, each team will be given 30 seconds to confer with their teammates before they respond to the judge's question.

Will each team get to see their scoring after the competition is over?

We will post the names of the top three (3) teams in rank order when we post the names of the teams that will be advancing to double elimination. Each team will also receive a document that includes their total score and their overall ranking by the end of the awards ceremony.

Is there anything that the teams are expected to present to the judges, other than their testimony?

The teams are only required to present their abstract to the judges, but they should be prepared to answer questions from the judges. The judges will be looking for responses from the students that show they have broader, more complete understanding of the situation than may be apparent in their 300 word written testimony.

Are we expected to take the topic and localize it? Interview local Army Corps of Engineers for example?

Teams are allowed to "localize" the topic by assuming the perspective of a local, regional or state stakeholder though it is not required. Note: the State Agency Representative may certainly

discuss how the policy would affect their state. Teams are not required to interview anyone for this project.

Could you clarify what a non-governmental organization would be?

A non-governmental stakeholder is a member of the community that is not connected with a government agency, but has a stake in the outcome of the legislation (e.g. a non-profit organization, such as the World Wildlife Fund, the spokesperson for a community association, a tribal community member, etc…)

Will the webinar be posted on the NOSB website so that we can play it back at a team meeting?

The webinar will be posted at: http://nosb.org/competitions-2/finals-competition/2014-nosb-finals/

How many pieces of legislation will we receive?

The teams will receive one piece of legislation for analysis.

Is the state agency stakeholder "expert" necessarily from our state, or can we choose the state?

No, you can pick any state.

Students are not required to dress in a special way, but would it be ok if they wore suits?

Whatever your team/school determines is appropriate attire for the entire event on Saturday is fine with us.

Is there a specified order for the stakeholders to address the judges or can the team select the order?

YES, there is specific order. Presentations of oral testimony will be in the following order by representatives from:

1. Federal Agency
2. State Agency
3. Academia
4. Non-Governmental Organization
5. Industry

APPENDIX: RESEARCH AND INSTRUCTION GUIDE FOR COACHES

The Science Expert Briefing (SEB) Component of the NOSB Finals is intended to be an opportunity for students to develop the ability to comprehend complicated and multidisciplinary subjects, as well as apply critical thinking skills to issues in ocean science and policy. We believe these goals are best accomplished when students are self-directed. Thus, we request that coaches leave the researching and construction of stakeholder arguments up to the students' own devices and discretion. This self-direction in research is an invaluable skill for college-bound students, especially for those who plan to major in the natural sciences. This being said, many high school students may not be familiar with academic research strategies that are vital to a successful Science Expert Briefing submission, and for future college research projects. Below details information and the type of guidance that coaches should provide to their students in preparation for the Science Expert Briefing Competition without encroaching on team members' self-direction.

1. *Reading and Addressing the Legislation*
   One bill from Congress will be provided for the Competition. For the NOSB Science Expert Briefing, we may ask teams to evaluate an active piece of legislation or one that is due for reauthorization. If the former, students should read all literature provided in order to understand the actions being proposed by the National Legislature. If the latter, students should read all literature provided in order to understand the current law and what is needed in the reauthorization process. We are expecting teams to delve beyond what is on the page of the current law to understand and convey its strengths and weaknesses, opportunities and challenges. Recommendations from teams should be forward looking and include science-based arguments for any components suggested to keep, what needs to be cut, as well as identification of gaps and recommended additions to address them. They are required to address the bill in its entirety—or sections of bill—that they decide are relevant to the stakeholder they represent. Coaches should ***not*** provide any guidance on the bill analysis.

2. *Basic Scientific Research*
   For a SEB submission to be successful, each individual student must include at least one (1) primary source, as well as two (2) secondary sources (with an overall total of 3-5 sources) to support their argument. We understand that many students are not familiar with the definitions of primary and secondary sources, as they exist in scientific and academic literature, so we strongly recommend that coaches provide a small lecture or teaching session to explain these source types, as well as how students can find them.

   Coaches should explain that primary sources are publications or presentations that are the direct product of a scientific study. This includes research papers from peer-reviewed scientific and economic journals (such as *Nature*, *Science*, *Ecology*, *The Journal of Aquaculture*, *Canadian Journal of Fisheries and Aquatic Science*, *Copeia*, *The Journal of Agricultural Economics*, *The Journal of Productivity Analysis*, etc.) and convention-style presentations given by scientists about their research.

   Coaches should also clarify that secondary sources are documents that review or compile scientific or economic information from primary sources. These can come in many forms, some more robust and reputable than others. Some examples of reliable secondary sources include (links are embedded):
   - Review articles from scientific journals (e.g."Butylin Contamination in Marine Mammals-A Review" in *Marine Pollution Bulletin*)
   - Government documents that establish precedents or summarize policies based on scientific research (e.g. "U.S. Seafood Safe and Unaffected by Radiation Contamination from

Japanese Nuclear Power Plant Incident; Monitoring Control Strategy Explained" from *The FDA, EPA and NOAA Seafood Safety Factsheet of May, 2011*)

- Encyclopedia articles (e.g. "Acoustic Scattering by Marine Organisms" from *The Encyclopedia of Ocean Sciences*)
- Chapters from academic textbooks (e.g. "Chapter 9: Dissolved Gases in Seawater" in *Marine Geochemistry*)
- General academic publications, such as monographs (e.g. "A Review of Cephalopod Fauna in Chinese-Japanese Subtropical Region" in *National Science Museum Monographs*)

To inform students on how to encounter such articles, coaches should introduce literature databases to students, such as JSTOR, EBSCO host, BIOSIS Previews, PubMed, etc. If such databases are not available to your students, we recommend teaching them to use Google Scholar to search for citations and abstracts. Two great resources for primary literature that are open access to all users are PLoS one and the Proceedings of the Royal Society (Proceedings of the Royal Society B provides more content exclusive to biological research). Science policy information can often be found on federal agency webpages, the Federal Register, and through the Library of Congress. As students may be closely questioned by judges about the information during presentations, it is imperative that students have a good grasp of the science and economics in the articles they use, which students may not be able to glean from abstracts alone, so please consider coordinating a trip to a university or government research library so that they have access to the articles and books cited in their testimonies. Full access to articles may provide valuable figures to be used in written and verbal testimonies. We also recommend contacting a science librarian to ask if they would be willing to help your team track down sources.
While the online presence of laboratories, non-profit organizations, and the government are good research starting points, students must understand that **a website is <u>not</u>** an acceptable citation, even if it is an academic or government website, newspaper document, or online encyclopedia (such as Wikipedia). Online copies of academic textbooks, government testimonies, or peer-reviewed articles—such as the links provided above—**<u>are</u>** acceptable sources**,** but they should be cited based on their publication information, not on their URL.

We understand this is a major time commitment, and it will help strengthen your students' submissions. Moreover, the ability to seek and cite primary literature grants an unequivocal understanding of the structure of scientific research, which will prove a great asset to your students during their undergraduate and graduate studies.

3. *Familiarizing Your Team with Hearings*
Having a clear understanding of Congressional hearings is critical to team success in the SEB portion of the competition. Helping your students get a good grasp on how scientists relate science to policy, and explain the socio-economic impact of science to policy-makers is critical. Many Congressional hearings are now available through online streaming. Watching a few hearings on a science topic of interest is a great idea. Congressional hearing calendars are available online. Consortium for Ocean Leadership also provides information about upcoming ocean and science related hearings in their weekly newsletter (subscribe via the website: http://oceanleadership.org/).

The most pertinent Congressional committees include:

- Senate Committee on Commerce, Science and Transportation
- Senate Committee on Energy and Natural Resources
- House Committee on Natural Resources Committee
- House Science, Space, and Technology

Exposing your students to science policy will strengthen their comprehensive understanding of science and the role it plays in larger discussions. As your students continue to develop their science skills in undergraduate and graduate education, this exposure to science policy will set them apart from their peers through their comprehension of and experience in researching context in which their science is a part.

4. *Recommending and Facilitating Research Direction*
   Coaches should **not** provide advice on what issues may be relevant to the Science Expert Briefing Topic—this is to be left up to the students' discretion. However, students can gain valuable insight to such issues by interviewing the real-world stakeholders/experts that they will be role-playing (researchers, industry representatives, etc.) as well as state or national legislators. We recommend such investigative methods in the Science Expert Briefing materials provided to students.

   If the students request to set up such an interview with stakeholders or other professionals (i.e. state scientist, local or regional non-profit organization staff, district or local office staff of elected officials, business professionals, etc.) of their own accord, coaches are welcome and encouraged to help their team reach out and schedule such meetings, although students should be responsible for coming up with all questions asked during the interview. If students do not request or desire to contact stakeholders or other professionals, coaches should not recommend it. If a meeting with stakeholders or other professionals is arranged, students should **not** plan to present their testimonies to them.

5. *Coaching Presentation Style*
   While coaches should **not** edit student written submissions for content, style or format, coaches may provide feedback to students when they are practicing their verbal presentations. Students should decide for themselves what they say, but coaches can provide tips on how to deliver their statements with poise, confidence and conviction. Advice on public speaking such as the use of eye contact, voice projection, gesticulation, proper handling of visual aids, etc., should be provided by coaches.

6. *Encouraging Student Collaboration*
   While coaches may **not** provide feedback on written testimonies, teammates may peer-edit to produce more polished individual submissions, as well as to help coordinate a group message. Outside of ensuring that students understand that peer-editing is allowed and helpful, coaches should **not** coerce or oversee the peer-editing process.

APPENDIX: SCORING RUBRIC

Maximum points per stakeholder: 60
Maximum points per team: 360
Team = Team's recommendation, but presented by only 1 student

Science Expert Briefing Written Testimony (total 25 points, per "expert" and team)						
	Federal Agency	**State Agency**	**Academia**	**Non-Governmental Organization**	**Industry**	**Team**
Submission 5 points max.	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points
Writing Style 5 points max.	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points
Issue Comprehension 5 points max.	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points
Impact/ Persuasiveness 5 points max.	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points
Recommendations 5 points max.	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points	0-5 points
WRITTEN TOTAL	**/25 points**	**/25 points**	**/25 points**	**/25 points**	**/25 points**	**/25 points**
Oral Testimony (total 35 points, per "expert" and team)						
Oral Presentation (Style & Delivery & Time) 10 points max.	0-10 points	0-10 points	0-10 points	0-10 points	0-10 points	0-10 points
Question and Answer Session 25 points max.	0-25 points	0-25 points	0-25 points	0-25 points	0-25 points	0-25 points
ORAL TOTAL	**/35 points**	**/35 points**	**/35 points**	**/35 points**	**/35 points**	**/35 points**
TOTAL INDIVIDUAL SCORE (written + oral total)	**/60 points**	**/60 points**	**/60 points**	**/60 points**	**/60 points**	**/60 points**
TOTAL SCORE (experts + team)					**/360 points**	

Science Expert Briefing Written Testimony – total 25 points

Submission – 5 points (judged by NOSB National Headquarters Staff)

1 point – submitted on time, 2 points – proper citations, 2 points – adhered to word count

Writing Style – 5 points

***Individual and Team Written Testimony*:**

_____Proper sentence structure
_____Used correct grammar
_____Used correct spelling
_____Document was well proofread
_____Acronyms fully defined at first usage
_____Flows well, clear articulation of "expert's" opinion and recommendation
_____ Limited to no jargon
_____Understanding of audience

Issue Comprehension – 5 points

***Individual and Team Written Testimony*:**

_____ Information and facts presented were accurate and on topic
_____Thorough development of "expert's" opinion and recommendation
_____ "Expert" addresses the full breadth of the topic before focusing in on their specific views in depth
_____Shows an admirable understanding of the topic

Impact/ Persuasiveness – 5 points

***Individual and Team Written Testimony*:**

_____ "Expert" provides more than a list of facts on the issue
_____ Argues their viewpoint well
_____Supports their opinion and recommendation with details and sound science
_____Opinions and recommendations are aligned with the role of the "expert"
_____Opinions and recommendations are presented in an acceptable manner for a non-scientist audience
_____Visual aids (if provided) were appropriate and reinforced the stakeholder "expert's" points

Recommendations – 5 points

***Individual "Expert" Written Testimony*:**

_____Provided 2-5 recommendations that were clear, grounded in science, related to the points raised in their testimony, and provided rationale

***Team Written Testimony*:**

_____Provided 3-6 recommendations from the team backed with solid rationale, and grounded in science
_____Had appropriate justification for some recommendations not chosen from stakeholder "experts"
_____Showed clear compromise and consensus of the team rather than picking winners and losers amongst the stakeholders

Oral Testimony – total 35 points

Oral Presentation (Style & Delivery & Time) – 10 points

_____Arrived in a timely fashion
_____Prepared for oral testimony
_____Prepared materials
_____Presented their oral testimony rather than reading straight from the page
_____Made eye contact with the "Members of Congress"
_____Clear, concise, and audible oral delivery
_____Limited use of verbal fillers
_____Referred to visual aids (if included in written testimony)
_____ Engaging
_____Paid careful attention to time to allow all team members adequate presentation time without rushing
_____Introduced themselves as "experts"
_____ Neither rushed delivery nor fell well short of their time limit
_____Effectively transitioned between team members

Question and Answer Session – 25 points

_____Quiet conferring between team members was inclusive and ended within the time limit
_____ "Expert" provided a comprehensive answer that showcased additional analysis and/or critical thought
_____Answer was presented eloquently and with confidence in a professional, articulate manner
_____Limited use of verbal fillers
_____ "Expert" maintained eye contact with judges