



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C. 20460**

**OFFICE OF THE ADMINISTRATOR  
SCIENCE ADVISORY BOARD**

September 26, 2017

EPA-SAB-17-010

The Honorable E. Scott Pruitt  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Subject: SAB Recommendations for EPA's FY 2017 Scientific and Technological  
Achievement Awards

Dear Administrator Pruitt:

The EPA Science Advisory Board (SAB) is pleased to transmit its recommendations for the EPA's FY 2017 Scientific and Technological Achievement Awards (STAA). The STAA program was established by the agency in 1980 to recognize EPA employees who have made outstanding contributions to the advancement of science and technology through their publications in peer-reviewed articles or books, or as peer-reviewed EPA reports. Additional objectives of the STAA program include making the general public more aware of the quality and depth of EPA science, and improving the credibility of the science underpinning agency decisions. The SAB has been asked by EPA's Office of Research and Development to review EPA's nominated scientific publications and make recommendations for awards. The SAB is pleased to continue to serve in this important role in the STAA program.

The SAB STAA Committee review consisted of a two-step process: an initial review of each nomination for award, followed by a Committee discussion of all nominations. Each nomination may include a maximum of three publications for consideration of STAA recognition. This year, the SAB reviewed a total of 58 nominations comprised of 87 publications within 10 science and technology categories. The SAB recommends: three nominations for Level I, the highest award; four nominations for Level II; 18 nominations for Level III; and 18 nominations for Honorable Mention. The SAB's recommendations are provided in the enclosed report.

The SAB commends the agency for its publications and finds that the 2017 STAA nominations were of high quality. The SAB assures the EPA that its scientists are doing high quality work and producing excellent scientific publications that have maximal public and environmental health benefits.

The SAB appreciates the efforts that the agency has made to implement SAB's previous recommendations for improving the nomination procedures and administration of the STAA program. While many of the SAB's previous recommendations have been or are being incorporated into improving the STAA nomination process and program, the SAB expresses concern that several previous SAB recommendations have not apparently been incorporated. The SAB reiterates several of these recommendations in this report, and also includes several additional recommendations to further strengthen and improve the STAA program. In particular, we recommend that the EPA should:

- Clarify its descriptions of award levels for STAA recognition, and merge these descriptions with the agency's STAA nomination evaluation criteria.
- Update STAA nomination procedures and guidelines to require submittal of information on previous STAA recognition received by authors, additional information on previously submitted nominations, and the rationale for providing supplemental information in the nomination package. The procedures and guidelines should also emphasize the potential value of delaying submission of nominations to better demonstrate the impact of the work. It is also important that nominations based solely on review articles be accurately categorized.
- Provide for more consistent, better organized nomination packages by continuing to improve the automated system for generating nominations and processing awards, assuring that each nomination is complete and meets all nomination eligibility requirements.
- Develop additional requirements for submission of formal EPA publications.
- Consider developing a separate awards program to recognize early career scientists who are making significant contributions and inroads to the mission and goals of the agency.
- Assess the trend of decreasing numbers of STAA nominations, and determine potential causes and if barriers that restrict submission can be addressed.

The SAB commends the agency for again successfully administering its annual STAA program and applauds the EPA's public recognition of the scientific work of EPA scientists and engineers that is published in the peer-reviewed literature. Thank you for providing the SAB with the opportunity to assist the agency with this important program. The SAB looks forward to reviewing the FY 2018 STAA nominations.

Sincerely,

/s/

Dr. Peter S. Thorne  
Chair  
Science Advisory Board

/s/

Dr. Jay R. Turner  
Chair  
SAB 2017 Scientific and Technological  
Achievement Awards Committee

Enclosure

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# 1. BACKGROUND

EPA's Scientific and Technological Achievement Awards program (STAA) was established in 1980 to recognize the agency's scientists and engineers who published their technical work in peer-reviewed literature. The STAA program is administered and managed by the EPA Office of Research and Development (ORD). This year, the EPA Science Advisory Board (SAB) was asked to review the EPA's nominated scientific publications and make recommendations for STAA awards in consideration of the EPA's criteria. The EPA announced the call for nominations for the 2017 STAA program to senior managers and employees on March 20, 2017, and closed the period for electronic nominations on April 24, 2017. ORD screened the nominations for conformance with EPA's *2017 STAA Nomination Procedures and Guidelines*. The Guidelines describe the award levels, eligibility criteria, and factors that the SAB considers during its review of STAA nominations.

The agency's charge to the SAB was to consider which of the nominations to the 2017 STAA program are deserving of STAA recognition. The SAB considered the following criteria defined by the agency for STAA recognition:

- Level I awards are for nominees who have accomplished an exceptionally high-quality research or technological effort. The awards recognize the creation or general revision of a scientific or technological principle or procedure, or a highly significant improvement in the value of a device, activity, program, or service to the public. Awarded research is of national significance or has high impact on a broad area of science/technology. The research has far reaching consequences and is recognizable as a major scientific/technological achievement within its discipline or field of study.
- Level II awards are for nominees who have accomplished a notably excellent research or technological effort that has qualities and values similar to, but to a lesser degree, than those described under Level I. Awarded research has timely consequences and contributes as an important scientific/technological achievement within its discipline or field of study.
- Level III awards are for nominees who have accomplished an unusually notable research or technological effort. The awards are for a substantial revision or modification of a scientific/technological principle or procedure, or an important improvement to the value of a device, activity, program, or service to the public. Awarded research relates to a mission or organizational component of the EPA, or significantly affects a relevant area of science/technology.
- Honorable Mention awards acknowledge research efforts that are noteworthy but do not warrant a Level I, II or III award. Honorable Mention applies to research that: (1) may not quite reach the level described for a Level III award; (2) show a promising area of research that should be encouraged; or (3) show an area of research that is too preliminary to warrant an award recommendation at this time.

As described in the agency's *Nomination Procedures and Guidelines*, the SAB reviews the nomination packages in consideration of the above criteria and the following factors:

1. The extent to which the work reported in the nominated publication(s) resulted in either new or significantly revised knowledge. The accomplishment is expected to represent an important advancement of scientific knowledge or technology relevant to environmental issues and EPA's mission.
2. The degree to which the accomplishment is a product of the originality, creativeness, initiative, and problem-solving ability of the researchers, as well as the level of effort required to produce the results.
3. The extent to which environmental protection has been strengthened or improved, whether of local, national, or international importance.
4. The extent of the beneficial impact of the accomplishment and the degree to which the accomplishment has been favorably recognized from outside EPA.
5. The nature and extent of peer review, including stature and quality of the peer-reviewed journal or the publisher of a book for a review chapter published therein.

## 2. SAB REVIEW PROCEDURE

The SAB Staff Office formed a new SAB 2016-2018 STAA Committee in 2016 to review EPA’s STAA nominations. The Committee was formed by the SAB Staff Office Director in accordance with the SAB process as described in the SAB 2002 publication, *Panel Formation Process: Immediate Steps to Improve Policies and Procedures* (EPA-SAB-EC-COM-02-003).

In April 2017, ORD submitted to the SAB Staff Office 57 nominations for 2017 STAA recognition within 10 science and technology categories. On July 11, 2017, ORD submitted an additional nomination for 2017 STAA recognition to the SAB Staff Office, which the SAB Committee agreed to also review. 58 STAA nominations (see Table 1) is approximately half of the average number of nominations reviewed by the STAA Committee in recent years. In light of the reduced number of nominations and associated reduced workload for their review, the SAB Staff Office Director decided to reduce the number of SAB STAA Committee members who would participate in the 2017 STAA review. All EPA nominations and nomination evaluation criteria were provided to the SAB STAA Committee in advance of the Committee’s review meeting.

**Table 1. 2017 STAA Nominations by Topic Category**

Topic	Number of Nominations Submitted to SAB
Ecological Research	10
Environmental Futures	5
Health Effects Research and Human Health Risk Assessment	10
Integrated Risk Assessment	1
Monitoring and Measurement Methods	3
Other Environmental Research	13
Review Articles	5
Risk Management and Ecosystem Restoration	1
Social Sciences	5
Transport and Fate	5
<b>TOTAL</b>	<b>58</b>

The SAB STAA Committee review consisted of a two-step process: an initial review of each nomination, followed by a Committee discussion of all nominations. After receiving feedback from members of the STAA Committee on their review preferences, the Chair of the SAB STAA Committee assigns nominations to each committee member for review. Each nomination was initially reviewed by two Committee members, with one exception. The initial review of this single nomination was conducted by four Committee members because its category of research was incorrectly labeled in the spreadsheet provided by ORD. Thus, two additional Committee members with subject matter expertise in the correct research category also reviewed this nomination. This administrative error has not occurred previously and is considered an anomaly to the review process. Committee members assigned for initial review of each nomination provided their preliminary recommendation for STAA recognition and a written summary of their preliminary assessment, following the EPA’s award criteria described in Section 1. This information was distributed to Committee members a few days before the July 19-20, 2017, Committee meeting.

During the SAB STAA Committee’s closed meeting on July 19-20, 2017, in Washington, DC, the Committee discussed award recommendations for the EPA’s 2017 STAA program. The Committee’s

discussion was closed to the public because such discussions involved personnel matters, including the relative merits of various employees and their respective work. Such disclosure would be a clear unwarranted invasion of personal privacy and is, therefore, protected from disclosure by sections (c)(2) and (c)(6) of the Government in the Sunshine Act, specifically 5 U.S.C. 552b(c)(2) and 5 U.S.C. 552b(c)(6).

At the July 19-20, 2017, Committee meeting, each nomination was discussed separately by Committee members using the following process: each Committee member assigned as an initial reviewer presented a summary of his or her preliminary evaluation; the Committee at large then discussed the nomination; and the Committee reached a consensus position on the recommended award rating. If there were widely divergent recommendations for awards at this stage in the discussion, the chair implemented one of two options: 1) requesting further discussion of that nomination later in the meeting, or 2) conducting a vote of the Committee on final recommendations for award. The Committee's total discussion time for each nomination averaged approximately twelve minutes, during which they reached consensus on the recommendations for awards. To avoid an appearance of bias or a loss of impartiality, some members were asked to recuse themselves from the Committee deliberations on selected nominations. The Committee also discussed recommendations to further strengthen the STAA program and facilitate the SAB review of future STAA nominations.

On September 15, 2017, the chartered SAB held a closed teleconference to consider this report of the 2017 SAB STAA Committee. The SAB approved the report with modifications for transmittal to the EPA Administrator.

### 3. AWARD RECOMMENDATIONS

Table 2 summarizes previous recommendations for STAA awards by year for the last 11 years, including the current recommendations for 2017. For 2017, the SAB STAA Committee recommended: 3 nominations for Level I, the highest award; 4 nominations for Level II; 18 nominations for Level III; and 18 nominations for Honorable Mention. Appendix A lists the EPA nominations recommended for each of the award levels, I through III, and those recommended for Honorable Mention. The final rankings were agreed to by consensus at the SAB STAA Committee meeting on July 19-20, 2017, and discussed and approved by the chartered SAB on September 15, 2017.

**Table 2. Comparison of Award Recommendations Over Time**

<b>Award Level</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<b>Nominations Reviewed</b>	140	130	109	121	130	104	117	72	116	75	58
<b>Level I</b>	5 (4%)	5 (4%)	3 (3%)	5 (4%)	3 (2%)	4 (4%)	0	1 (1%)	1 (1%)	0	3 <sup>a</sup> (5%)
<b>Level II</b>	13 (9%)	16 (12%)	22 (20%)	14 (12%)	13 (10%)	10 (10%)	10 (9%)	2 (3%)	3 (3%)	8 (11%)	4 (7%)
<b>Level III</b>	37 (26%)	30 (21%)	31 (28%)	42 (35%)	35 (27%)	29 (28%)	27 (23%)	20 (28%)	38 (33%)	13 (17%)	18 (32%)
<b>Honorable Mention</b>	45 (32%)	43 (33%)	25 (23%)	33 (27%)	44 (34%)	36 (35%)	45 (38%)	29 (40%)	42 (36%)	32 (43%)	18 (32%)
<b>Not Recommended</b>	40 (29%)	36 (28%)	28 (26%)	27 (22%)	35 (27%)	25 (24%)	35 (30%)	20 (28%)	32 (27%)	22 (29%)	14 (24%)

a - The SAB combined two nominations into one because they covered related research.

Table 3 summarizes the distribution of 2017 award recommendations by category for all nominations reviewed by the Committee.

**Table 3. Summary of Award Recommendations by Category for FY2017**

Nomination Categories	Total Nominations Reviewed <sup>a</sup>	Award Levels				Honorable Mention
		I	II	III	Total	
Ecological Research	10	0	2	4	6	2
Environmental Futures	5	0	0	1	1	1
Health Effects Research and Human Health Risk Assessment	10	1	1	3	5	2
Integrated Risk Assessment	1	0	0	1	1	0
Monitoring and Measurement Methods	3	0	0	0	0	3
Other Environmental Research	13	1	0	3	4	6
Review Articles	5	0	1	1	2	1
Risk Management and Ecosystem Restoration	1	0	0	1	1	0
Social Sciences	5	0	0	4	4	1
Transport and Fate	5	1	0	0	1	2
<b>TOTALS:</b>	<b>58</b>	<b>3</b>	<b>4</b>	<b>18</b>	<b>25</b>	<b>18</b>

a - The SAB combined two nominations into one because they covered related research.

## 4. ADMINISTRATIVE RECOMMENDATIONS

The SAB appreciates the Agency's efforts to implement recommendations to the Administrator that have resulted from previous SAB reviews of STAA nominations. The SAB concludes that the strong majority of the 2017 nominations adhered to existing STAA program guidelines, and that these guidelines helped the STAA Committee to conduct a well-informed and balanced review of each nomination.

The SAB has the following recommendations to further strengthen the STAA program in future years:

### *I. Clarify award level descriptions for STAA recognition, and merge these descriptions with the agency's 'evaluation criteria':*

The SAB strongly encourages the agency to clarify the criteria for the SAB to use when reviewing STAA nominations. There are four different award levels of STAA recognition, as described in the agency's 2017 STAA nomination procedures and guidelines (i.e., Level I, Level II, Level III and Honorable Mention). In its review of nominations, the SAB STAA Committee has frequently found it difficult to distinguish between the various levels of award, particularly between Level I and Level II and between Level III and Honorable Mention recognition. The SAB strongly recommends that the agency revise the different levels of STAA recognition to provide clear, distinct descriptions of each level of award and develop award descriptions that have 'bright-line' differences between each level.

To help distinguish the award levels, the SAB recommends that the agency provide additional, specific details to the criteria descriptions within the nomination procedures and guidelines for each level of award, and to develop a list of minimum attributes associated with each level of STAA recognition. Note that nominations for awards at each level of STAA recognition should also embody all attributes at the preceding lower levels of recognition.

The agency should remove vague descriptions for levels of award. For example, Level II recognition should not be described as 'similar to, but to a lesser degree' than the same criteria listed for Level I recognition. Level III recognition should not be described as 'an unusually notable research or development effort.' Honorable Mention recognition should not be described as recognition that 'may not quite reach the level described for a Level III award.'

In addition, the SAB encourages the agency to ensure the 'evaluation criteria' noted in the STAA nomination procedures and guidelines are reflected in the award-level descriptions for STAA recognition, because some attributes listed in the evaluation criteria are not included in the award criteria.

To address these issues, the SAB developed the following 'straw proposal' of updated award level descriptions for the agency's consideration and for illustrative purposes only, and provides these descriptions as an example of how the agency could revise the award level descriptions to improve clarity in light of the issues noted above.

**Honorable Mention** awardees will be recognized on the EPA Internet site.

An Honorable Mention recognition:

- is relevant to EPA's mission; and either
- shows a promising achievement of research in an area that should be encouraged; or
- shows a promising achievement of research that is too preliminary to currently warrant a higher recommendation.

**Level III** awardees will receive \$2,000 to be divided among authors and a certificate of appreciation.

A Level III STAA award:

- is relevant to EPA's mission;
- recognizes a substantial revision or modification of a scientific/technological principle or procedure; or an important improvement to the value of a device, activity, program, or service to the public;
- strengthens or improves environmental protection at the local, national, or international level; and
- significantly affects a relevant area of science/technology.

**Level II** awardees will receive \$5,000 to be divided among authors and a certificate of appreciation.

A Level II STAA award:

- is highly relevant to EPA's mission and has contributed to EPA policy;
- recognizes a substantial revision or modification of a scientific/technological principle or procedure; or an important improvement to the value of a device, activity, program, or service to the public;
- strengthens or improves environmental protection at the local, national, or international level;
- has timely consequences and contributes an important scientific/technological achievement within its respective discipline to a degree that has been favorably recognized from outside EPA;
- significantly affects a relevant area of science/technology through publication by a high quality publisher or in a high quality journal; and
- recognizes research resulting from substantial originality, creativeness, initiative, and problem-solving ability of the researchers, as well as substantial level of effort required to produce the results.

**Level I** awardees will receive \$10,000 to be divided among authors, a certificate of appreciation, and a plaque.

A Level I STAA award:

- is highly relevant to EPA’s mission, and has demonstrated a direct influence on EPA’s mission and policies;
- recognizes the substantial creation or revision of a scientific or technological principle or procedure, or a highly significant improvement in the value of a device, activity, program, or service to the public;
- strengthens or improves environmental protection at the local, national, or international level;
- has timely consequences and is recognizable as a major scientific/technological achievement within its respective discipline to a degree that has been favorably recognized from outside EPA;
- significantly affects a relevant area of science/technology through publication by a high quality publisher or in a high quality journal;
- recognizes research resulting from substantial originality, creativeness, initiative, and problem-solving ability of the researchers, as well as substantial level of effort required to produce the results; and
- has national significance or a high impact on a broad area of science/technology.

## ***II. Clarify or revise STAA nomination procedures and guidelines:***

- Each nomination should include information on previous STAA recognition received by authors, and the impact of previously submitted nominations. The current STAA nomination procedures and guidelines requires a description of the relationship between the current nomination to any previous or current nomination(s) with similar subjects authored by the same group or subgroup. The SAB recommends that the STAA nomination procedures and guidelines also require nominees to submit information on whether any of these previous nominations received STAA recognition. In addition, because many current STAA nominations build on work submitted for STAA recognition in years past, SAB recommends that the STAA nomination procedures and guidelines require nominees to describe how their previously nominated publications in related topic areas may have provided a foundation for their current nomination, particularly if such nominations received SAB recommendations for STAA recognition of ‘Honorable Mention’ or ‘Not Recommended’.
- Emphasize potential value in waiting to submit nomination to show impact: The 2017 STAA nomination procedures and guidelines note that publications are eligible for five years based on publication date. The procedures and guidelines also note that “*It may be to your benefit to wait one to two years before submitting so that the impact of your contribution may be realized.*” The SAB recommends that the agency delete the words: “one or two” and insert “a few”, since the window for publications is now five years. Also, the SAB recommends that STAA nomination procedures and guidelines include this sentence in bold print to emphasize the importance of this suggestion.
- Clarify the nomination procedures regarding submission of supplemental information. The procedures and guidelines for the 2017 STAA nominations describe supplemental materials that either “may be” or “must be” submitted as part of the nomination package, but does not require

nominees to describe why this supplemental information is being submitted. Supplementary information includes: a) supplemental information sent to journals and posted online along with the publication; b) publications in excess of the three nominated publications, including publications nominated in earlier STAA competitions; c) patent documents; d) other publications relating to the nominated publication's achievement; e) other publications from the series but not part of the nomination; and f) selected excerpts or abstracts from other sources relevant to the achievement. The SAB STAA Committee has frequently found it difficult to understand the reasons why some supplemental information has been included. In addition, some nominations include supplemental materials that do not clearly state whether the materials are provided to support the nomination or were provided to journals during peer review of the publication and are posted online along with the publication.

To help the SAB STAA Committee understand the purpose of the supplemental information, the SAB recommends that the agency revise the STAA nomination procedures and guidelines to require nominees to briefly describe why each supplemental attachment is included in the nomination package. Further, the SAB recommends that the agency require nominees to distinguish the supplementary materials by submitting them under separate headings: "*Supplemental materials provided to journals along with the nominated publications*" and "*Additional materials in support of the nomination.*"

- Clarify policy regarding letters of support. One 2017 nomination included a letter of support authored from someone outside of the agency to highlight the impact of nominated work. The SAB recommends that the agency update the 2017 STAA nomination procedures and guidelines to explicitly state whether letters of support can be submitted as supplemental materials within the nomination package.
- Nominations that only include review publications should be properly categorized. One 2017 STAA nomination only included review article publications, but was submitted in a different nomination category than "Review Articles". The SAB requests that the agency clarify the STAA nomination procedures and guidelines to emphasize that nominations that only contain review article publications should be categorized as such. The SAB notes the importance of this categorization, because the STAA nomination procedures and guidelines require that review articles critically synthesize and evaluate information, lead to new insights, and include an assessment on future perspectives.

The SAB also recognizes an increasing trend of nominations in the following topic areas over the past several years: environmental economics and green chemistry. The SAB recommends that the agency update the automated nomination system to add these two topics as new categories under which nominators can submit their nomination.

- Consider developing separate award criteria for nominated review articles. The STAA nomination procedures and guidelines state that "*Review articles are expected to include a synthesis and a critical analysis of a previous body of literature that lead to a better understanding of the area. The article should provide an assessment on future perspectives and provide new insight into a particular discipline.*" This statement should be revised to also include the need for new knowledge generated by review papers. The SAB suggests revising this statement to include the clause "*knowledge and*" after the words "*future perspectives and provide new*".

In addition, attributes are not reflected in the existing STAA award criteria, nor the nomination form. The agency should consider developing STAA award criteria for nominated review publications which reflect these distinct objectives. The agency should also consider the benefits of developing a different nomination form tailored to review articles.

- Develop additional requirements for submission of formal EPA publications. The SAB remains concerned that formal EPA publications (e.g., those released by the agency with an EPA report number) are generally developed through a committee process involving an intensive series of inter-agency or intra-agency reviews and revisions. The SAB recommends that the agency consider including separate justification requirements associated with such publications, including whether such publications were highly impactful on EPA's mission. The agency should also develop clarifying requirements that would assure that the nominated author(s) wrote the strong majority of the final EPA publication, and that the final nomination accurately ascertains and ascribes authorship contribution.

*Background:* In its January 13, 2017 advisory report: “*Recommendations for Strengthening the Nomination and Review Process for the EPA’s Scientific and Technological Achievement Awards*” (EPA-SAB-17-004), the SAB noted that while formal EPA publications are commendable, it is often difficult to ascertain and ascribe authorship contribution within nominations of such publications. For example, some agency publications are initially drafted by a task group, then reviewed and revised sequentially through an intra-agency or inter-agency workgroup process. Subsequently, they undergo an intensive peer-review process during which substantial modifications suggested by the peer reviewers are made directly to the agency’s publication. The original authors of the EPA publications may not be making such revisions to the agency’s publication. In addition, peer reviews of EPA publications are often not blind reviews and are not conducted with the intent to accept or reject the publication. The peer review process for publication in journals is generally different, since peer review comments are provided to the original authors and they are responsible for making all revisions to the manuscript which ensures direct ownership of all content by the authors.

In addition, the agency’s current STAA nomination procedures and guidance should be clarified to note that the requirements for peer review also apply to formal EPA publications that are nominated for STAA recognition, and that such EPA publications need not also be published in a journal or book. The procedures and guidance currently state that “nominated publication(s) must have been published in a high-quality peer-reviewed journal...or a suitable book.” The procedures and guidelines also state that “Nominations may include videos or other non-traditional publication techniques” and that “These non-traditional publications still need to be peer reviewed to ensure that the science is credible.” The agency should clarify these requirements to ensure that peer review requirements for nominated formal EPA publications are met.

### *III. Recommendations to improve the content and form of the nomination packages:*

- Prepare a master index of prior STAA nominations: The 2017 STAA nomination procedures and guidelines prohibit resubmission of publications nominated for STAA recognition in prior years. SAB requests that the agency submit a master list that includes all nominations from the previous five years for each current-year author. This will assist the SAB STAA Committee members in their review by providing information regarding the author's nominated research in terms of its innovativeness and novelty, whether it represents a continuation of previous research by the nominee, and to help verify that publications nominated in prior years are not being resubmitted. The master index should be sorted alphabetically by author, indicate any author who has been nominated more than once during the previous five years (and in such cases, note the titles of that author's previously nominated publications), and note whether any author was nominated more than once for the current year's STAA.
- Include justification questions in the nomination packages: The 2017 nomination packages included responses to justification questions but not the questions to which the nominees were responding. To improve clarity of the nomination package, both the justification questions and answers should be provided within the package.
- Provide full publications within the nomination packages: Several 2017 nomination packages only included a web-based link to publications and not the full publication. For ease of review, each nomination should include the full copies of journal publications and not a web-based link to such publications. For very large documents that are nominated for STAA recognition (e.g., EPA publications), a web-based link would be appropriate.
- Provide information on the number of citations received by nominated publications: The current electronic nomination system does not require nominees to include information on the number of citations that their nominated publications have received within other publications by the time of submittal of the nomination package. The SAB finds this information would be useful for assessing the impact of the nomination, and thus requests that the agency require nominees to include this information as part of the nomination package.

The SAB requests that the nomination package include information on the total number of citations received as of the date of the nomination, and how many of these citations were self-citations (i.e., citations of the nominated publication in another publication authored by one-or-more of the nominated authors). Citation tools (e.g. Web of Science, Google Scholar) can yield different results so for consistency the SAB recommends that the agency specify the citation tool to be used but also allow the use of additional citation tools if the nominator desires so s/he is not limited to the required tool. In addition, for book chapters submitted as part of the nomination, the nomination package should clarify whether such citations are for the book chapter that was submitted for STAA recognition or for the entire book in which the nominated chapter was published.

Also, as discussed during the public portion of the August 15, 2016, STAA Committee meeting, the SAB understands that the agency is considering a requirement for nominees to provide information on article-based or author-based metrics within nomination packages. The SAB recommends that the agency continue to require that nominees provide the publication journal's impact factor, because the SAB finds journal metric information useful as it considers the impact

of a nomination. This information should be provided in addition to the proposed article-based or author-based metrics that the agency presented at the 2016 Committee meeting.

#### ***IV. Completeness and Clarity of Nomination Package:***

- Continue to improve the automated system for generating nominations and processing awards. Two years ago, the agency incorporated an automated nomination and award processing system to improve the STAA nomination and award generation process. While the system has generated more consistent, better organized nomination packages, this system is still under development and errors are occurring in the Excel list of nominations that the agency provides to the SAB as well as in the nomination packages that the agency provides to the SAB on compact discs.

The agency submitted several 2017 STAA nominations to the SAB that were improperly organized or incomplete (i.e., supplemental information or bibliometric journal statistics were not included; justification information provided as part of the nomination package appeared after the nominated publications; information on authorship attribution missing from a nominated publication). The automated system also did not screen out nominations that did not meet all requirements for STAA nominations, as noted in the 2017 STAA nomination procedures and guidelines (i.e., one nomination included six nominated publications, while the 2017 STAA nomination procedures and guidelines allow a maximum of three publications to be submitted for STAA recognition within a single nomination package). In addition, a nomination not listed on the Excel list of nominations was included as a nomination on the compact disc. These errors might not be identified by the STAA committee in sufficient time for the agency to correct the nomination package before the Committee meeting is adjourned.

To help prevent these types of errors in the future, the SAB encourages the agency to continue to improve the STAA program's automated nomination system, and recommends that the automated system and/or agency or contractor staff perform the functions noted below:

- a) Assure that each nomination meets all eligibility requirements as provided in the STAA nomination procedures and guidelines.*
- b) Assure that each nomination provides all information required to be included within a complete nomination package.*
- c) Assure that the nomination information noted on the Excel list of nominations is consistent with the nomination packages that are included on the compact disc.*
- d) Provide the SAB with consistently organized nomination packages.* To help provide for efficient, focused review efforts, the SAB recommends the following order for information provided within each nomination package:
  - Table of contents
  - List of nominated authors
  - List of nominated publications with: bibliometric journal statistics including the Immediacy Index, Citation  $\frac{1}{2}$  Life, Journal Impact Factor; and number of citations that the article has received (including number of self-citations) and citation tool.
  - Justification information (organized in order of justification questions, including the numbered justification question itself and response to each question)

- Nominated publications, listed in order of importance
- Supplemental materials, organized by 1) materials submitted to journals and posted online along with the nominated publication(s), or 2) materials submitted in support of the nomination, with supporting rationale for the materials being submitted
- Information on authorship attribution (verification of author eligibility and percent contribution to authorship; email verifications indicating agreement to such percent contribution).

e) *Provide principal authors a copy of the final draft nomination package for quality review.* To further assure that nominations are complete and accurate before being submitted to the SAB, the SAB recommends that the agency consider providing the principal author of each submitted nomination a copy of the PDF/acrobat file of each nomination that the agency downloaded from the electronic nomination system, with a request that the principal author review the file and provide assurance that the PDF/acrobat file of their nomination is complete. The agency would request this review by the principal author after the nomination period ends but before that consolidated PDF file is submitted to the SAB.

#### **V. Other Recommendations:**

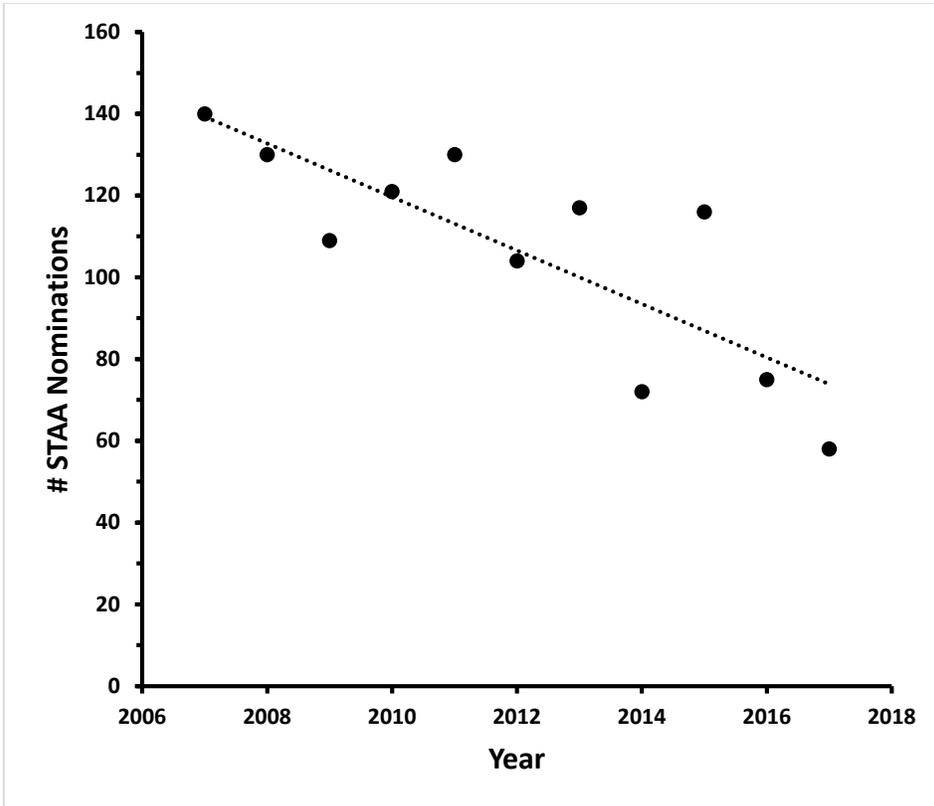
- Develop a separate awards program to recognize early career scientists. Researchers who are early in their EPA career and are part of a team of authoring scientists may need to wait many years to be recognized through the STAA program for their contribution to research publications. In addition, the 2017 STAA nomination procedures and guidelines extended the window for publications eligible for STAA recognition to five years based on publication date, and note “*It may be to your benefit to wait one to two years before submitting so that the impact of your contribution may be realized.*”

To provide incentives for, and early formal recognition of, young researchers and post-doctoral scientists at the agency for producing high quality published research and who are making significant contributions and inroads to the mission and goals of the agency, the SAB recommends that the agency develop a separate awards program to recognize early career scientists who have published within the previous two years for research carried out while employed at the agency. If the agency develops such a program, the agency should also develop a definition for ‘early career scientists.’ The SAB previously provided this recommendation in its January 13, 2017, advisory report (EPA-SAB-17-004).

- Assess the recent trend of decreasing number of STAA nominations: The SAB is uncertain why there is a continuing trend of decreasing numbers of STAA nominations over the past several years. Most recently: in 2015, 116 nominations were received, with 195 publications contained within these nominations; in 2016, 75 nominations were received, with 130 publications contained within these nominations; and in 2017, 58 nominations were received, with 87 publications contained within these nominations. The graph below reflects this trend. The SAB suggests that the agency assess the reasons for this trend.

In particular, the SAB recommends that the agency assess whether barriers and/or onerous and time-consuming requirements associated with the submittal of nominations for STAA recognition could be among the reasons for this trend. In addition, to help inform on whether the decreased number of nominations simply reflects the large authorships of many recent nominations and publications nominated for STAA recognition, the SAB requests that agency

assess whether the total number of authors within 2015-2017 STAA nominations may be staying the same or going up when compared to STAA nominations from prior years. Also, to assist in this assessment, the agency could survey nominees to gather information on actions that could be taken to encourage future nomination submissions.



## APPENDIX A: NOMINATIONS RECOMMENDED FOR 2017 STAA RECOGNITION

Note: The percentages given after each name represent the percent of the total level of effort as documented in the EPA nomination.

<b>Nominations Recommended for a Level I Award -- Total of 3</b>		
<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
<b>215</b>	Understanding the fate and transport of human adenovirus in environmental matrices.	Zepp, Richard (2% EPA) Xagorarakis, Irene (5% Non-EPA) Wong, Kelvin (54% EPA) Voice, Thomas (2% Non-EPA) Mukherjee, Biplab (10% Non-EPA) Molina, Marirosa (20% EPA) Kahler, Amy (2% Non-EPA) Bouchard, Dermont (5% EPA)  <b>NERL</b>
<b>425</b>  <b>Linked With</b>  <b>444</b>	Using retrospective case studies to better understand the relationship between non-traditional oil and gas development and drinking water resources	Wilkin, Richard (28% EPA) Ludwig, Ralph (28% EPA) Beak, Douglas (15% EPA) Rectenwald, David (10% EPA) Lee, Tony (8% EPA) Ruybal, Christopher (11% Non-EPA)  <b>NRMRL</b>  Wilkin, Richard (10% EPA) Beak, Douglas (23% EPA) Lee, Tony (5% EPA) Mravik, Susan (10% EPA) Oberley, Gregory (10% EPA - Region 8) Acree, Steven (7% EPA) Ross, Randall (7% EPA) Overbay, Michael (10% EPA-Region 6) Wolfe, Amy (10% EPA) Ruybal, Christopher (8% Non-EPA)  <b>NRMRL</b>

**Nominations Recommended for a Level I Award -- Total of 3**

<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
446	Demonstrating the effects of air pollution on individuals with prior cardiac complications	Devlin, Robert (13% EPA) McGuinn, Laura (7% Non-EPA) Blach, Colette (1% Non-EPA) Haynes, Carol (2% Non-EPA) Dowdy, Elaine (2% Non-EPA) Miranda, Marie Lynn (1% Non-EPA) Kraus, William (3% Non-EPA) Koutrakis, Petros (1% Non-EPA) Diaz-Sanchez, David (15% EPA) Cascio, Wayne (5% EPA) Mukerjee, Shaibal (2% EPA) Stallings, Casson (1% Non-EPA) Smith, Luther (1% Non-EPA) Simon, Gregory (1% Non-EPA) Shah, Savti (1% Non-EPA) Hauser, Elizabeth (2% Non-EPA) Neas, Lucas (15% EPA) Schneider, Alexandra (1% Non-EPA) Chudnovsky, Alexandra (1% Non-EPA) Ward-Caviness, Cavin (25% Non-EPA)  <b>NHEERL</b>

**Nominations Recommended for a Level II Award -- Total of 4**

<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
<b>214</b>	Reviewing the need for, use of, and demands on modeling to support ‘robust’ decision frameworks around resiliency	Weaver, Christopher (50% EPA) Lempert, Robert (10% Non-EPA) Brown, Casey (10% Non-EPA) Hall, John (10% Non-EPA) Revell, David (10% Non-EPA) Sarewitz, Daniel (10% Non-EPA)  <b>NCEA</b>
<b>341</b>	Demonstrating the utility of the Seqapass tool for addressing 21st century challenges in species extrapolation	LaLone, Carlie (20% EPA) Villeneuve, Daniel (15% EPA) Lyons, David (5% EPA) Helen, Henry (5% Non-EPA) Robinson, Serina (5% Non-EPA) Swintek, Joseph (5% EPA) Saari, Travis (5% Non-EPA) Ankley, Gerald (20% EPA) Gray, Leon (5% EPA) Hornung, Michael (5% EPA) Russom, Christine (10% EPA)  <b>NHEERL</b>
<b>384</b>	Researching the role of neuroendocrine stress axes activation in systemic and pulmonary health effects of air pollutants	Kodavanti, Urmila (30% EPA) Miller, Desinia (20% Non-EPA) Schladweiler, Mette (10% EPA) Ledbetter, Allen (5% EPA) Snow, Samantha (6% EPA) Vallanat, Beena (2% EPA) Andrews, Debora (2% EPA) Ghio, Andrew (5% EPA) Cascio, Wayne (2% EPA) Gilmour, M. Ian (2% EPA) Madden, Michael (2% EPA) Soukup, Joleen (2% EPA) Ward, William (2% EPA) Bass, Virginia (2% Non-EPA) Karoly, Edward (2% Non-EPA) Jones, Janice (2% Non-EPA) Bell, Lauren (Nicki) (2% Non-EPA) Richards, Judy (2% Non-EPA)  <b>NHEERL</b>

**Nominations Recommended for a Level II Award -- Total of 4**

<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
465	Investigating the role of reservoirs in removing excess reactive Nitrogen	Beaulieu, Jake (70% EPA) Smolenski, Rebecca (4% Non-EPA) Nietch, Christopher (10% EPA) Townsend-Small, Amy (4% Non-EPA) Elovitz, Michael (4% EPA) Schubauer-Berigan, Joe (4% EPA) Young, Jade (4% Non-EPA)  <b>NRMRL</b>

**Nominations Recommended for a Level III Award -- Total of 18**

<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
<b>388</b>	Creating a scientifically sound method of quantifying water-damage and mold growth in homes	Vesper, Stephen (50% EPA) Wymer, Larry (50% EPA)  <b>NERL</b>
<b>393</b>	Measuring the effects of nutrients on aquatic ecosystems at the large scale	Stoddard, John (63% EPA) Van Sickle, John (9% EPA) Herlihy, Alan (7% Non-EPA) Brahney, Janice (5% Non-EPA) Paulsen, Steve (4% EPA) Peck, David (4% EPA) Mitchell, Richard (4% EPA) Pollard, Amina (4% EPA)  <b>NHEERL</b>
<b>400</b>	Simulating the downstream effects of geographically isolated wetlands on downstream waters	Golden, Heather (45% EPA) Lane, Charles (30% EPA) Amatya, Devendra (5% Non-EPA) Bandilla, Karl (5% Non-EPA) Raanan Kiperwas-Hadas (5% Non-EPA) Knights, Christopher (5% EPA) Ssegane, Herbert (5% Non-EPA)  <b>NERL</b>
<b>401</b>	Helping inform decisions impacting the places we live, learn, work and play through EnviroAtlas	Neale, Anne (30% EPA) Pickard, Brian (25% Non-EPA) Daniel, Jessica (25% Non-EPA) Jackson, Laura (10% EPA) Mehaffey, Megan (10% EPA)  <b>NERL</b>
<b>427</b>	Simulating extreme weather for environmental impact studies using regional meteorological modeling techniques	Spero, Tanya (40% EPA) Nolte, Christoher (30% EPA) Otte, Martin (20% EPA) Bowden, Jared (10% Non-EPA)  <b>NERL</b>

<b>Nominations Recommended for a Level III Award -- Total of 18</b>		
<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
<b>428</b>	Improving the understanding of how eutrophication and hypoxia affect the functioning of marine benthic communities	Hale, Stephen (55% EPA) Cicchetti, Giancarlo (30% EPA) Deacutis, Christopher (15% Non-EPA)  <b>NHEERL</b>
<b>429</b>	Evaluating naturally occurring asbestos toxicity to inform risk assessment of contaminated sites	Gavett, Stephen (24% EPA) Daly (Cyphert) Jaime (23% Non-EPA) Kodavanti, Urmila (20% EPA) Schladweiler, Mette (10% EPA) Nyska, Abraham (7% Non-EPA) (McGee) Hargrove Marie (7% Non-EPA) Mahoney, Ron (3% Non-EPA) Andrews, Debora (3% EPA) Dodd, Darol (3% Non-EPA)  <b>NHEERL</b>
<b>432</b>	Designing a quantitative framework that estimates a water treatment plant's economic incentive to protect its source water	Heberling, Matthew (46% EPA) Nietch, Christopher (30% EPA) Thurston, Hale (7% EPA) Elovitz, Michael (7% EPA) Birkenhauer, Kelly (2% Non-EPA) Panguluri, Srinivas (2% Non-EPA) Ramakrishnan, Balaji (2% Non-EPA) Heiser, Eric (2% Non-EPA) Neyer, Tim (2% Non-EPA)  <b>NRMRL</b>
<b>435</b>	Developing and refining methods to estimate the economic costs and benefits of greenhouse gas mitigation policies	Marten, Alex (50% EPA) Newbold, Steve (33% EPA) Brooks, Wesley (17% EPA)  <b>OA</b>

**Nominations Recommended for a Level III Award -- Total of 18**

Nom.	Citation	Authors and Nominating Organization
439	Applying biological effects prediction, surveillance, and monitoring approaches to complex mixture assessments	Villeneuve, Daniel (16% EPA) Ankley, Gerald (16% EPA - SES) Blackwell, Brett (4% EPA) Elone, Colleen (1% EPA) Jensen, Kathleen (5% EPA) Jicha, Terri (1% EPA) Johnson, Rodney (1% EPA) Kahi, Michael (5% EPA) LaLone, Carlie (1% EPA) Berninger, Jason (2% Non-EPA) Blanksma, Chad (1% Non-EPA) Cavallin, Jenna (11% Non-EPA) Eid, Evan (1% Non-EPA) Garcia-Reyero, Natalia (1% Non-EPA) Hughes, Megan (1% Non-EPA) Jorgenson, Zachary (1% Non-EPA) Lee, Kathy (2% Non-EPA) Li, Shibin (6% Non-EPA) Martinovic-Weigelt, Dalma (6% Non-EPA) Mayasich, Joe (1% Non-EPA) Milsk, Rebecca (1% Non-EPA) Nelson, Krysta (1% Non-EPA) Perkins, Edward (1% Non-EPA) Schoenfuss, Heiko (1% Non-EPA) Schroeder, Anthony (10% Non-EPA) Stevens, Kyle (1% Non-EPA) Thomas, Linnea (1% Non-EPA) Weberg, Matthew (1% Non-EPA)  <b>NHEERL</b>
441	Advancing assessment of oil spill impacts with integrated laboratory studies, field surveys, and spatially explicit modeling	Awkerman, Jill (20% EPA) Raimondo, Sandy (30% EPA) Barron, Mace (10% EPA) Lilavois, Crystal (10% EPA) Hemmer, Bechy (10% EPA) Krzykwa, Julie (10% Non-EPA) Almario, Alex (10% EPA)  <b>NHEERL</b>

**Nominations Recommended for a Level III Award -- Total of 18**

<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
450	Using novel zebrafish toxicity assays to evaluate a predictive model of developmental vascular toxicity Toxicology.	Tal, Tamara (10% EPA) Kleinstreuer, Nicole (10% EPA) Kitty, Claire (10% Non-EPA) Kennedy, Breandan (10% Non-EPA) Smith, Andrew (10% Non-EPA) LaLone, Carlie (10% EPA) Padilla, Stephanie (10% EPA) Tennant, Alan (10% EPA) Knudsen, Thomas (5% EPA SES) McCollum, Catherine (10% Non-EPA) Bondesson, Maria (5% Non-EPA)  <b>NHEERL</b>
452	Measuring the employment effects of regulations	Ferris, Ann (40% EPA) Shadbegian, Ron (40% EPA) Wolverton, Ann (20% EPA)  <b>OA</b>
454	Analyzing retrospective cost of EPA regulations	Kopits, Elizabeth (14% EPA) McGartland, Al (2% EPA) Morgan, Cynthia (14% EPA) Pasurka, Carl (14% EPA) Shadbegian, Ron (14% EPA) Simon, Nathalie (14% EPA) Simpson, David (14% EPA) Wolverton, Ann (14% EPA)  <b>OA</b>
456	Measuring sustainability through ecosystem service-based valuation of coastal restoration projects	Fulford, Richard (50% EPA) Yoskowitz, David (10% Non-EPA) Russell, Marc (20% EPA) Dantin, Darrin (10% EPA) Rogers, John (10% EPA)  <b>NHEERL</b>

**Nominations Recommended for a Level III Award -- Total of 18**

<b>Nom.</b>	<b>Citation</b>	<b>Authors and Nominating Organization</b>
458	Improving hazard concentration estimates for ecological risk assessments of threatened and endangered species	Raimondo, Sandy (30% EPA) Awkerman, Jill (20% EPA) Barron, Mace (20% EPA) Lilavois, Crystal (20% EPA) Willming, Morgan (10% Non-EPA)  <b>NHEERL</b>
459	Filling an analytic gap in benefit-cost analysis of methane and nitrous oxide emission reductions	Martin, Alex (40% EPA) Kopits, Elizabeth (30% EPA) Griffiths, Charles (10% EPA) Newbold, Steve (10% EPA) Wolverton, Ann (10% EPA)  <b>OA</b>
460	Measuring the impact of light exposure on transformations and aggregation of emerging chemicals	Zepp, Richard (25% EPA) Bouchard, Dermont (15% EPA) Henderson, W. Matthew (10% EPA) Hou, Wen-Che (15% Non-EPA) Chowdhury, Indranil (10% Non-EPA) Chang, Xiaojun (5% Non-EPA) Martin, Sharon (5% Non-EPA) Fairbrother, Howard (10% Non-EPA) Goodwin, David (5% Non-EPA)  <b>NERL</b>

**Nominations Recommended for Honorable Mention (No Monetary Award) -- Total of 18**

Nom.	Titles of Submitted Papers	Authors and Nominating Organization
110	Evaluation of cyanobacteria cell count detection derived from MERIS imagery across the eastern USA. Published in Remote Sensing of Environment.	Lunetta, Ross (20% EPA) Schaeffer, Blake (20% EPA) Stumpf, Richard (20% Non-EPA) Murphy, Mark (20% Non-EPA) Keith, Daryll (10% EPA) Jacobs, Scott (10% EPA)  <b>NERL</b>
387	Mutagenicity and Pollutant Emission Factors of Solid-Fuel Cookstoves: Comparison with Other Combustion Sources. Published in Environmental Health Perspectives.	DeMarini, David (25% EPA) Mutlu, Esra (20% Non-EPA) Warren, Sarah (10% EPA) Ebersviller, Seth (5% EPA) Kooter, Ingeborg (10% Non-EPA) Schmid, Judith (5% EPA) Dye, Janice (5% EPA) Linak, William (5% EPA) Gilmour, Matthew (5% EPA) Jetter, James (5% EPA) Higuchi, Mark (5% EPA)  <b>NHEERL</b>
395	(1) Evaluation of the Efficacy of Methyl Bromide in the Decontamination of Building and Interior Materials Contamination. Published in Applied and Environmental Microbiology.  (2) Whole-Building Decontamination of Bacillus Anthracis Sterne Spores by Methyl Bromide Fumigation. Published in Journal of Applied Microbiology.	Wood, Joe (20% EPA) Wendling, Morgan (15% Non-EPA) Richter, William (10% Non-EPA) Lastivka, Andrew (10% Non-EPA) Mickelsen, Leroy (10% EPA) Serre, Shannon (20% EPA) Calfee, Worth (5% EPA) Gray, Marshall (1% EPA) Scheffrahn, Rudolph (5% Non-EPA) Perez, Renny (1% Non-EPA) Kern, William (1% Non-EPA) Daniell, Neil (2% Non-EPA)  <b>NHSRC</b>

**Nominations Recommended for Honorable Mention (No Monetary Award) -- Total of 18**

Nom.	Titles of Submitted Papers	Authors and Nominating Organization
398	Expanding the Test Set: Chemicals with Potential to Disrupt Mammalian Brain Development. Published in Neurotoxicology and Teratology.	Mundy, William (10% EPA) Padilla, Stephanie (10% EPA) Crofton, Kevin (8% EPA) Gilbert, Mary (8% EPA) Herr, David (8% EPA) Jensen, Karl (8% EPA) Raffael, Kathleen (8% EPA) Schumacher, Kelly (8% EPA) Shafer, Timothy (8% EPA) Cowden, John (8% EPA) Radio, Nicholas (8% EPA) Breier, Joseph (8% EPA)  <b>NHEERL</b>
424	(1) Counting Legionella Cells Within Single Amoeba Host Cells. Published in Applied and Environmental Microbiologist.  (2) Enhanced Survival but Not Amplification of <i>Francisella</i> spp. in the Presence of Free-Living Amoebae. Published in Acta Microbiologica et Immunologica Hungarica.  (3) Legionellae in Engineered Systems and Use of Quantitative Microbial Risk Assessment to Predict Exposure. Published in Water Research.	Buse, Helen (45% EPA) Ashbolt, Nicholas (25%) Rice, Eugene (15% EPA) Schaefer III, Frank (10% EPA) Schoen, Mary (5% EPA)  <b>NHSRC</b>
426	(1) Dietary Supplementation with Olive Oil or Fish Oil and Vascular Effects of Concentrated Ambient Particulate Matter. Published in Environmental Health Perspectives.  (2) Dietary and Pharmacological Intervention to Mitigate the Health Effects of Air Pollution Toxicity. Published in Biochim Biophys Acta-General Subjects.	Tong, Haiyan (25% EPA) Samet, James (25% EPA) Rappold, Ana (12% EPA) Diaz-Sanchez, David (5% EPA) Devlin, Robert (5% <u>SES</u> ) Cascio, Wayne (5% EPA) Montilla, Tracey (5% EPA) Bassett, Maryann (5% EPA EPA) Case, Martin (5% EPA) Caughey, Melissa (2% Non-EPA) Hinderliter, Alan (2% Non-EPA) Berntsen, Jon (2% Non-EPA) Bromberg, Philip (2% Non-EPA)  <b>NHEERL</b>

**Nominations Recommended for Honorable Mention (No Monetary Award) -- Total of 18**

Nom.	Titles of Submitted Papers	Authors and Nominating Organization
434	<p>(1) SOA Formation from the Atmospheric Oxidation of 2-Methyl-3-buten-2-ol and its Implication for PM<sub>2.5</sub>. Published in Atmospheric Chemistry and Physics.</p> <p>(2) The Formation of SOA and chemical Tracer compounds from the Photooxidation of Naphthalene and its Methyl Analogs in the Presence and Absence of Nitrogen Oxides. Published in Atmospheric Chemistry and Physics.</p> <p>(3) Secondary Organic Aerosol Formation from the Oxidation of a Series of Sesquiterpenes: <math>\alpha</math>-Cedrene, <math>\beta</math>-Caryophyllene, <math>\alpha</math>-Humulene, and <math>\alpha</math>-Farnesene with O<sub>3</sub>, OH, and NO<sub>3</sub> radicals. Published in Environmental Chemistry</p>	<p>Kleindienst, Tadeusz (30% EPA)  Lewandowski, Michael (20% EPA)  Offenberg, John (15% EPA)  Jaoui, Mohammed (25% Non-EPA)  Docherty, Kenneth (7% Non-EPA)  Lonneman, William (3% Non-EPA)</p> <p><b>NERL</b></p>
442	<p>(1) Preferential Colonization and Release of Legionella Pneumophila from Mature Drinking Water Biofilms Grown on Copper. Published in International Journal of Hygiene and Environmental Health.</p> <p>(2) Impact of Drinking Water Conditions and Copper Materials on Downstream Biofilm Microbial Communities and Legionella Pneumophila Colonization. Published in Journal of Applied Microbiology.</p>	<p>Lu, Jingrang (36% EPA)  Buse, Helen (36% Non-EPA)  Struewing, Ian (9% Non-EPA)  Gomez-Alvarez, Vicente (11% EPA)  Santo Domingo, Jorge (1% EPA)  Ashbolt, Nicholas (7%)</p> <p><b>NERL</b></p>
451	<p>Isomers/Enantiomers of Perfluorocarboxylic Acids: Method Development and Detection in Environmental Samples. Published in Chemosphere.</p>	<p>Washington, John (30% EPA)  Naile, Jonathan (30% EPA)  Garrison A. W. (30% EPA)  Avants, Jimmy (10% Non-EPA)</p> <p><b>NERL</b></p>
457	<p>Welfare Estimates of Avoided Ocean Acidification in the U.S. Mollusk Market. Published in Journal of Agricultural and Resource Economics.</p>	<p>Moore, Chris (100% EPA)</p> <p><b>OA</b></p>
464	<p>Eco-Directed Sustainable Prescribing: Feasibility for Reducing Water Contamination by Drugs. Published in Science of the Total Environment.</p>	<p>Daughton, Christian (100% EPA)</p> <p><b>NERL</b></p>

<b>Nominations Recommended for Honorable Mention (No Monetary Award) -- Total of 18</b>		
<b>Nom.</b>	<b>Titles of Submitted Papers</b>	<b>Authors and Nominating Organization</b>
<b>467</b>	Inactivation of Burkholderia Pseudomallei on Environmental Surfaces Using Spray-Applied, Common Liquid Disinfectant. Published in Letters in Applied Microbiology.	Calfee, Michael Worth (90% EPA) Wendling, Morgan (10% Non-EPA)  <b>NHSRC</b>
<b>468</b>	Probing Photosensitization by Functionalized Carbon Nanotubes. Published in Environmental Science & Technology.	Zepp, Richard (50% EPA-SES) Chen, Chia-Ying (50% Non-EPA)  <b>NERL</b>
<b>469</b>	Temporal Changes in Biological Responses and Uncertainty in Assessing Risks of Endocrine-Disrupting Chemicals. Published in Toxicological Sciences.	Ankley, Gerald (50% SES EPA) Billeneuve, Daniel (50% EPA)  <b>NHEERL</b>
<b>470</b>	(1) Sediment Bioaccumulation Test with Lumbriculus Variegatus: Effects of Feeding. Published in Archives of Environmental Contamination and Toxicology.  (2) Sediment Bioaccumulation Test with Lumbriculus Variegatus: Effects of Organism Loading. Published in Archives of Environmental Contamination and Toxicology.	Burkhard, Lawrence (15% EPA) Mount, Dave (14% EPA) Norberg-King, Teresa (15% EPA) Highland, Terry (15% EPA) Hockett, James (15% EPA) Billa, Nanditha (10% Non-EPA) Hubin-Barrows, Dylan (10% Non-EPA) Hawthorn, Steven (2% Non-EPA) Miller, David (2% Non-EPA) Grabanski, Carol (2% Non-EPA)  <b>NHEERL</b>
<b>474</b>	(1) Chloride Released from Three Permeable Pavement Surfaces After Winter Salt Application. Published in Journal of the American Water Resources Association.  (2) Evaluation of Surface Infiltration Testing Procedures in Permeable Pavement Systems. Published in Journal of Environmental Engineering.  (3) Assessment of Clogging Dynamics in Permeable Pavement Systems with Time Domain Reflectometers. Published in Journal of Environmental Engineering.	Borst, Michael (60% EPA) Brown, Robert (40% Non-EPA)  <b>NRMRL</b>

<b>Nominations Recommended for Honorable Mention (No Monetary Award) -- Total of 18</b>		
<b>Nom.</b>	<b>Titles of Submitted Papers</b>	<b>Authors and Nominating Organization</b>
<b>475</b>	<p>(1) Sustainable Pathway to Furanics from Biomass via Heterogeneous Organo-Catalysis Green Chemistry</p> <p>(2) Sustainable Strategy Utilizing Biomass: Visible Light-Mediated Synthesis of <math>\gamma</math>-Valerolactone. Published in ChemCatChem.</p> <p>(3) Visible Light Mediated Upgrading of Biomass to Biofuel. Published in Green Chemistry.</p>	<p>Varma, Rajender (30% EPA)  N. Nadagouda, Mallikarjuna (30% EPA)  Verma, Sanny (20% Non-EPA)  Baig, R.B. Nasir (20% Non-EPA)</p> <p><b>NRMRL</b></p>
<b>480</b>	<p>A Near-Road Modeling System for Community-Scale Assessments of Traffic-Related Air Pollution in the United States. Published in Environmental Modeling and Software.</p>	<p>Barzyk, Timothy (30% EPA)  Isakov, Vlad (30% EPA)  Cook, James (10% EPA)  Venkatram, Akula (10% Non-EPA)  Arunachalam, Saravanan (10% Non-EPA)  Naess, Brian (10% Non-EPA)</p> <p><b>NERL</b></p>

***Key to Acronyms used in the above Tables***

*NCEA – ORD National Center for Environmental Assessment*

*NERL – ORD National Exposure Research Laboratory*

*NHEERL – ORD National Health and Environmental Effects Laboratory*

*NHSRC – ORD National Homeland Security Research Center*

*NRMRL – ORD National Risk Management Research Laboratory*

*OA –Office of the Administrator*