

Template for Annual SCOR Working Group Reports to SCOR

1. Name of group

SCOR Working Group #143: Oceanic methane and nitrous oxide

2. Activities since previous report to SCOR (e.g., virtual or in-person meetings, email discussions, special sessions). Limit 1000 words

In the past 12 months we have been working on the Standard Operating Protocols for dissolved methane and nitrous oxide measurements. Draft documents have been posted on a publicly available website (<https://web.whoi.edu/methane-workshop/sops/>) for the community to comment on. We are now working with the OCB program to convert the word documents into reader-friendly pdfs that have consistent formatting. This should be completed by December 2021.

Sam Wilson (co-chair) has also received funding from NSF for the production of consensus material which was a task identified at the workshop and in the 2020 publication as being of high importance. 'Production of consensus material for dissolved methane and nitrous oxide' National Science Foundation, Chemical Oceanography, Principal Investigator: S. Wilson, \$82,560 (April 2021 – March 2022)

3. Documents published since previous report to SCOR (e.g., peer-reviewed journal articles, reports, Web pages) and should be limited to publications that resulted directly from WG activities and which acknowledge SCOR support

Bourbonnais A, Frey C, Sun X, Bristow LA, Jayakumar A, Ostrom NE, Casciotti KL and Ward BB (2021) Protocols for Assessing Transformation Rates of Nitrous Oxide in the Water Column. *Front. Mar. Sci.* 8:611937. doi: 10.3389/fmars.2021.611937

4. Progress toward achieving group's terms of reference. List each term of reference separately and describe progress on each one. Limit 1000 words

1. Conduct an intercalibration exercise between the time series programs (for methane and nitrous oxide)

This is completed and published (Wilson et al., 2018).

2. Establish the appropriate standards to be used by the scientific community

This is completed and published (Bullister et al., 2016)

3. Recommend the analytical reporting procedures to be used for N₂O and CH₄

We are halfway through the publication of the Standard Operating Protocols (SOPs) for methane and nitrous oxide. There are 9 Chapters which cover all aspects of the measurements from sampling,

analysis, data reporting. The draft documents are available at <https://web.who.edu/methane-workshop/sops/>.

4. Establish framework for an N₂O/CH₄ ocean time series network and write a global oceanic N₂O/CH₄ summary paper for publication in an open access journal.

This is completed and published (Bange et al., 2019).

5. WG activities planned for the coming year. Limit 500 words

We will complete the SOP document which is to be the last activity of WG#143.

6. Is the group having difficulties expected in achieving terms of reference or meeting original time schedule? If so, why, and what is being done to address the difficulties Limit 200 words

No difficulties to report

7. Any special comments or requests to SCOR. Limit 100 words.

None at this time. Thank you to Ed Urban, Patricia Miloslavich and SCOR for supporting the activity of WG#143 during the past seven years. It has been extremely helpful to the progress of methane and nitrous oxide measurements in the ocean

Additional information can be submitted and will be included in the background book for the SCOR meeting at the discretion of the SCOR Executive Committee Reporter for the WG and the SCOR Secretariat.