

Interactive comment on “What are “ecogenomic sensors?” – a review and thoughts for the future” by C. A. Scholin

Anonymous Referee #4

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Genetic-based sensors and systems have been developed for a variety of applications including medicine, law enforcement, homeland security, and many others. However, their use for oceanographic research is relatively recent. The challenges facing oceanographers wishing to capitalize upon these new technologies are many as well described by Scholin in this excellent review article. Nonetheless, the potential rewards awaiting the creative, ambitious, and persevering biological oceanographer are exceptionally great and the need for Scholin's review is clear.

Scholin has carefully outlined the steps needed to develop and utilize what he defines to be ecogenomic sensors. Sample preparation is likely the least glamorous aspect, but

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perhaps most critical, of ecogenomic sensors as well outlined by Scholin. I was pleased to see that he has placed a high value on collection of complementary oceanographic data to optimally utilize data that result from ecogenomic sensors. Their integration into autonomous sampling platforms and observatories is well discussed in the paper.

The paper provides a nice bibliography, which will be valuable for those interested in this topic. Although few efforts have been documented for the oceanographic application of genomic sampling, Scholin has done a nice job in describing the few efforts underway.

I feel that the paper is especially worthy of publication in Ocean Science Discussions and will be widely cited. I have only a few recommendations. I feel that a few more figures would enliven the paper and give the reader a better feel for the type of hardware that may be used to successfully do genomic sampling. In particular, some pictures and schematics of the AMG and ESP would be useful. Another type of illustration explaining TFF and DFF might be of value as well.

This paper should be accepted with minor revisions.

A few small grammatical recommendations follow:

1. P. 2 Abstract, line 4 'series of review papers were' to 'series of review papers was'
2. P. 2 Abstract, line 8 'covey' to 'convey'
3. P. 3 1.0 Introduction, line 5, 'outside of' to 'outside of the'
4. P. 3 1.0 Introduction, line 9,'set' to 'sets'
5. P. 3 1.1, line 5, 'possible dig' to 'possible to dig'
6. P. 3.1.1, line 15, 'at mere click of button' to 'at a mere click of a button'
7. P. 4, 2.0 line 10, 'broad draw' and 'broad and draw'

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8. P. 5, line 18, 'involve' to 'involves'
9. P. 5, 2.1, line 8, 'adsorption of ' to 'adsorption'
10. P. 7, 3rd line above section 2.3, 'such rRNA' to 'such as rRNA'
11. P. 7, 2.3, line 6, 'done parallel' to 'done in parallel'
12. P. 8, section 2.4 line 4, 'microarrys' to 'microarrays'

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