

Interactive comment on “Deep-sea search and recovery: with and without operating an underwater vehicle” by Tongwei Zhang et al.

Anonymous Referee #3

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The paper describes traditional methods for the search and recovery of objects lost at the deep sea and it also describes a new system for this search-recovery problem. This new system seems interesting in practice; however, some points should be discussed in the study:

1. The sections 2, 3 and 4 basically describe the objects that are typically lost at the deep sea and the methods for searching and rescuing them. These sections are long and do not include any new scientific contribution. They could thus be reduced and merged into the introduction. Further, some parts of these sections seem to lack reference, for example: line 9-13 on page 2, line 5-10 on page 3, line 1 on page 4, line 21-23 on page 6, and line 14-19 on page 7.
2. The objective of the study could be clearer at the end of the Introduction (lines 22-25

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on page 1). Especially, the last sentence (line 25 on page 1) lacks precision.

3. The new system proposed in the publication is very well described in section 5. However, even though it has not been tested in the field yet, some deeper discussion regarding the outcomes of its use should be presented in this study (costs, time of operation, possible damages on the lost object during grabbing or others). Further, a detailed scientific methodology should be considered to substantiate the discussion.
4. The recovery system seems to be designed to be directly connected to the winch of the vessel. In this case, the motion of the vessel would be coupled to the recovery system, inducing possible high dynamic effects on the system. How would these effects interfere with the searching process and with the controllability of the system (especially during the grabbing phase)?
5. Subsea lifting operations are ruled by some international standards, such as DNV-OS-H205, DNV-OS-H206, and DNV-RP-H103. How does the operation described in page 14 (especially lines 17-26) comply with these regulations?

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