

Appendix 1. Inclusion/exclusion criteria, coding variables, and sensitivities with a full list of papers reviewed.

We conducted the search from January to April 2018 using the following keywords in English: ["community based monitoring" OR "participatory monitoring"] AND ["Fisheries management" OR "fisheries monitoring" OR "fisheries assessment" OR "fisheries"].

Literature review inclusion/exclusion criteria

- Relevant studies included those implementing or reviewing community-based monitoring in fisheries management, sometimes more broadly focused review papers were included.
- We included manuscripts published prior to August 2017, when the review commenced.
- Only peer-reviewed articles were included.
- Only full text documents available online were included.
- Only studies published in English were included, given the larger body of literature is available in English, and the linguistic competency of the review team. Authors acknowledge the consequent bias introduced.

Coding Variables

1. Research questions/objectives
2. Region
3. Form of governance
4. Tools and methods used
5. What kinds of data
6. Public participation

And we look for relationships between:

1. Level of public participation
2. Level of engagement with policy makers and support for decision making
3. Overall purpose: system understanding, prediction/forecasting, decision support, or social learning/communication

List of papers reviewed

Citation
VanGerwen-Toyne, M., Gillis, D. M., & Tallman, R. F. (2014). Statistical power: an important consideration in designing community-based monitoring programs for Arctic and sub-Arctic subsistence fisheries. <i>Polar Biology</i> , 37: 1435-1444.
Tawake, A., Vuki, V., & Aalbersberg, W., (2007). Fishing for Anadara: A case study of Ucuivanua village in Verata, Fiji Islands. <i>Women in fisheries information bulletin</i> Iss. 17: 27-31.
Oviedo, A. F. P. & Bursztyn, M. (2017). Community-based monitoring of small-scale fisheries with digital devices in Brazilian Amazon. <i>Fish Manag Ecol</i> , 24: 320-329.
Carvalho et al. (2009). Reliability of community-based data monitoring in the Olifants River estuary. <i>Fisheries Research</i> , 96: 119-128.

Danielsen et al. (2007). Local participation in natural resource monitoring: a characterization of approaches. <i>Conservation Biology</i> , 23(1): 31-42.
McKenzie, L., Lee Long, WJ; Coles, R G. (2000). Seagrass-watch: community based monitoring of seagrass resources. <i>Biologia marina mediterranea</i> Vol. 7, Iss. 2, (Mar 2000): 393-396.
Muir, A.M., Leonard, D.M., Krueger, C.C., 2013. Past, present and future of fishery management on one of the world's last remaining pristine great lakes: Great Bear Lake, Northwest Territories, Canada. <i>Rev. Fish Biol. Fish.</i> 23, 293–315. https://doi.org/10.1007/s11160-012-9295-1
Vaoarinorotsihoara, L. A. & Shawn, P. (2011). The role and effectiveness of community-based natural resource monitoring (CBM) in a locally management marine area (LMMA), Madagascar. 7 th Western Indian Ocean Marine Science Association (WIOMSA) Scientific Symposium – Coping with Global change: Mombasa, Kenya.
Schemmel, E., Friedlander, A., Andrade, P., Keakealani, K., Castro, L.M., Wiggins, C., Wilcox, B.A., Yasutake, Y., Kittinger, J.M., 2016. The codevelopment of coastal fisheries monitoring methods to support local management. <i>Ecol. Soc.</i> 21.
Schemmel, E.M., Friedlander, A.M., 2017. Participatory fishery monitoring is successful for understanding the reproductive biology needed for local fisheries management. <i>Env. Biol Fish</i> 100, 171–185.
X. Zhu, A. Chapelsky, T.J. Carmichael, D.L. Leonard, E. Lea, R.F. Tallman, M. Evans, C. Podemski and G. Low. 2017. Establishment of ecological baseline metrics for integrated ecomonitoring and assessment of cumulative impacts on Great Slave Lake fisheries ecosystems. <i>Can. Tech. Rpt. Fish. Aquat. Sci.</i> 3223: x + 58 p.
Stadel, A.V., Nelson, J.G., 1995. The role of citizen participation in ecosystem monitoring. <i>Proc. Second Int. Conf. Sci. Manag. Prot. Areas.</i>
Theobald et al. (2015). Global change and local solutions: Tapping the unrealized potential of citizen science for biodiversity research. <i>Biological Conservation</i> , 181: 236-244.
Burgos et al. (2013). A systems approach to modeling Community-Based Environmental Monitoring: a case of participatory water quality monitoring in rural Mexico. <i>Environmental Monitoring Assessment</i> , 185: 10297-10316.
Overview papers
Bliss, J., Aplet, G., Hartzell, C., Harwood, P., Jahnige, P., Kittredge, D., Lewandowski, S. & Mary Lou Soscia (2001) Community-Based Ecosystem Monitoring, <i>Journal of Sustainable Forestry</i> , 12:3-4, 143-167, DOI: 10.1300/J091v12n03_07
Boyd, H. and Charles, A. (2006). Creating community-based indicators to monitor sustainability of local fisheries. <i>Ocean and Coastal Management</i> , 49: 237-258.
Conrad, C. and Hilchey, K. (2011). A review of citizen science and community-based environmental monitoring: issues and opportunities. <i>Environmental Monitoring Assessment</i> , 176: 273-291.
Cox, M., Arnold, G., & Tomás, S. V. (2010). A Review of Design Principles for Community-based Natural Resource Management. <i>Ecology and Society</i> , 15(4).
Johnson, N., Behe, C., Danielsen, F., Kruümmel, E.-M., Nickels, S., Pulsifer, P.L., 2016. Community-Based Monitoring and Indigenous Knowledge in a Changing Arctic: 74.

Miller-Rushing, A., Primack, R., & Bonney, R. (2012). The history of public participation in ecological research. *Frontiers in Ecology and the Environment*, 10(6): 285-290.

Pollock, R. M. & Whitelaw, G. S. (2005). Community-based monitoring in support of local sustainability. *Local Environment*, 10(3): 211-228.

Fleener, C., Gofman, V., Peskov, V., Retter, G-B., Torikka-Gelencsér, R., 2004. Community-based Monitoring – a discussion paper. Supporting publication to the CAFF Circumpolar Biodiversity Monitoring Program – Framework Document. CAFF CBMP Report No. 9, CAFF International Secretariat, Akureyri, Iceland, 21 pp.

Sharpe, A. & Conrad, C. (2006). Community based ecological monitoring in Nova Scotia: Challenges and Opportunities. *Environmental Monitoring and Assessment*, 113: 395-409.

Gruber, J. S. Key Principles of Community-Based natural Resource Management: A synthesis and interpretation of identified effective approaches for managing the commons.

Whitelaw, G., Vaughan, H., Craig, B., 2003. Establishing the Canadian Community Monitoring Network 10.