Underwater Acoustic Sensor Networks
Xiao Yang, Editor, CRC Press, Boca Raton FL, (2010), 333 pp., hardbound, 99.95 USD, ISBN 978-1-4200-6711-8.

In their concluding remarks, the authors (Seah, Tan and Lee) of Chapter 4 paraphrase the overall theme of my opinion of *Underwater Acoustic Sensor Networks*: "there is a critical need to address realistic scenarios for sensor network deployments. Most of the scenarios that have been considered so far tend to be limited and even unrealistic."

Most chapters of the book appear to be thinly disguised edits of previous conference papers written by graduate-level, academic researchers. As such, they tend to be overly theoretical, leaving the impression that the authors have not yet experienced sea trials of their designs. There is nothing quite like the epiphany of your first at-sea test - realizing just how big those waves are, how inadequate your sensor case design is, and how small your chances are of seeing your test items again.

Another hazard of publishing a collection of papers like this is that the various chapters tend to reference one another. Also, many of the parent papers are available online for free from various sources, leaving one to wonder about the added value of the collection.

The two chapters that do involve hardware and data collection involve intentionally low-cost, hobbyist-level hardware and data collected in buckets and pools. Hydrophones are fashioned from 3-inch paper cone speakers and an underwater modem is made from an obsolete "T-mote Invent" wireless sensor module wrapped in a rubber balloon. The high cost of equipment and sea trials as reasoning to rely heavily on mathematical simulations and kludged equipment is a common theme for all of the chapters. With much of the work in the book having been funded by NSF grants, it is understandable that performing field work off campus would be cost prohibitive. If the author list had been expanded to include those working for underwater acoustic modem manufacturers (e.g. LinkQuest, DSPComm, EvoLogics) and end users (e.g. from industry: petroleum, salvage, and fishery companies, and government: NOAA, USGS, and the U.S. Navy) that have daily experience in operating underwater acoustic networks, a practical applications section of the book would have been much more practical.

The book is a good primer on acoustic networking theory, fault tolerance, routing, protocols and modeling, and therefore, will most likely find a home on the shelves of software system developers.

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