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Review of *Indigenous Use and Management of Marine Resources* by Nobuhiro Kishigami and James M. Savelle, editors. Osaka: National Museum of Ethnology, 2005, 455 pp.

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**Indigenous Use and Management of Marine Resources.** *Nobuhiro Kishigami and James M. Savelle*, eds. Osaka: National Museum of Ethnology, 2005, 455 pp. Price unknown.

This impressive volume is the result of a symposium that was held in Osaka, Japan, in December 2002. It was sponsored by the National Museum of Ethnology and included 25 scholars concerned with indigenous and commercial exploitation and management of marine resources. This interdisciplinary volume contains 24 chapters that reflect a growing interest in applied studies by Japanese anthropologists. The contributions deal with theoretical-empirical concepts, whaling, co-management efforts in tropical environments, indigenous knowledge systems, and environmental-political issues. It is only possible here to comment on a sample of these insightful contributions.

Fikret Berkes examines the concept of common property and questions whether the "tragedy of the commons" was ever a major threat to resource depletion. The "tragedy" of communal resource misuse has been challenged repeatedly by field studies in "fisheries, wildlife, forests, grazing lands, irrigation, and ground water." Berkes points out that population growth, technological change, colonialism, and globalization have disrupted the exclusionary boundaries of "communities" and consequently the mutualism that serves to regulate resource use. Communities are frequently difficult to delineate since they are embedded within larger networks that operate on multiple spatial and social scales. Also, periodic clumping and migrations of marine resources pose special management problems. Local-level communities find themselves, then, closely tied to larger-scale national and international organizations that require "co-management" and "multi-stakeholder" approaches to marine resource use.

Richard Pollnac and Jeffrey Johnson propose that studies of fishery management employ a concept of "folk knowledge" rather than "traditional or indigenous knowledge." Unlike the latter concept, folk knowledge incorporates experience and information that may be derived from non-local sources. Regional packing, colonial expansion, and the adoption of "cash cropping" of marine resources now demands that local communities must make use of information derived from more distant sources in order to make strategic decisions. They posit that, although "traditional marine exploitation" was based upon extensive knowledge of natural resources, it was designed to "capture, not conserve fish." Thus, conservation of marine resources is "epiphenomenal."

Masami Iwasaki-Goodman discusses the co-management of marine resources in the western Canadian Arctic involving the Inuvialuit and the governments of the Northwest Territories and Canada. Apparently, the success of such co-management efforts results from the complementary use of traditional ecological knowledge (TEK) of the hunters and fishers and the scientific ecological knowledge (SEK) of the wildlife management teams. Outside management teams have learned to involve local people in the collection of essential information about harvest levels, animal condition and behavior, and appropriate wildlife regulations.

Michael King discusses the problems that have arisen as a function of

centralized fisheries management in the island countries of the western Pacific. Subsistence fisheries within lagoons and near shore reefs continue to decline. Nearly one-third of the villages sampled had overexploited or exhausted their fisheries. Poisons and explosives used to harvest fish threaten animal populations and their marine habitats. Commercial fisheries that harvest tuna, mullet, giant clams, spiny lobsters, and sea cucumbers now experience marked declines in output-to-input ratios. Commercial efforts tend not to benefit local communities. Community-based fisheries management programs, on the other hand, prove to be more effective in establishing and abiding by their own regulations.

Jun Akamine offers an interesting case study of trepang (an echinoderm known as *hai-shen* or sea cucumber) exploitation in the Philippine Islands. Since the opening of their market economy in the late 1970s, Chinese demand for sea cucumbers as a delicacy has increased markedly. Philippine and Vietnamese producers do not consume trepang but they invest considerable effort in acquiring this expensive food item. The Philippines export roughly 1,000 tons of trepang per year. Individual trepang undergo intensive processing, including cleaning, identification, classification, weighing, salting, freezing, wrapping, and shipping. Trepang exploitation poses unique challenges to management and sustainability efforts because local communities utilize sea cucumbers solely as a “cash crop.”

We learn a great deal in Donna Kwan’s contribution concerning dugong hunting by the Torres Strait Islanders between Australia and New Guinea. Dugong hunting, like Arctic whaling, is conducted with harpoons and plays a central role in the diet, traditions, customs, and ceremonies of the Islanders. A sustainability model for dugong hunting was developed based upon their “susceptibility to over-harvesting” and “capacity to recover.” Female dugong exhibit low reproductive rates and only bear young once every three years. Currently, only Torres Strait Islanders and indigenous Australians are allowed to carry out harpoon-based hunting of dugong for subsistence purposes. Co-management efforts incorporate local-level observations about dugong and turtle abundance, crayfish catches, and seagrass conditions into a regional-level resource management plan. Management decisions are then made at different social and political levels and, consequently, the Islanders possess a greater sense of ownership and responsibility for the dugong and turtles.

Mark Nuttall discusses the impact of climate change upon sensitive Arctic environments and the Inuit people. Adverse impacts of climate change include continued reduction of the areal extent and quantity of sea ice, snow, and glacial ice. Seals and walrus, for example, are adversely affected by reduced sea ice cover. In today’s world, the Inuit rely heavily upon these marine mammals and fish. These resources play a central role in Inuit subsistence and cash economies, as well as social obligations and the spiritual world. The Arctic Climate Impact Assessment highlights the significance of marine resource conservation efforts for maintaining indigenous use rights, as well as customary harvesting methods. Importantly, Nuttall describes the impacts of previous climate change—particularly ca. AD 1000 and during the Little Ice Age, AD 1550–1850. Nuttall fears, however, that the today’s Inuit have fewer options than Arctic peoples had previously.

Nobuhiro Kishigami and James Savelle are to be commended for assembling such a diverse, yet coherent volume that deals with the sustainability and management of marine resources. The volume is well-organized, -edited, and -illustrated, and it would provide an excellent focus for university courses related to economic development, maritime anthropology, and environmental studies.

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