

Preface

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This volume contains a total of eleven papers which constitute a diverse but generally coherent collection on past and present marine resource use in the Indo-Pacific region, within a human-ecological perspective. The geographical focus extends from Eastern Asia, mainly Japan and Insular Southeast Asia (especially the Philippines) to the tropical Pacific (Micronesia, Melanesia, and Polynesia) with geographically outlying papers on sites in coastal Tanzania (Indian Ocean) and coastal California (North Pacific).

Most of these papers were originally presented during the session entitled “Historical Ecology and Marine Resource Use in the Indo-Pacific Region” at the 19th IPPA (Indo-Pacific Prehistory Association) Congress held in Hanoi, Vietnam in 2009, which the editors of this volume organised. Our main purpose in organising this session was to discuss and reconsider the unique position of archaeology in providing a long-term perspective on past marine ecosystems and human ecodynamics in the Indo-Pacific region.

Although historic sources provide information on recent centuries, archaeology can provide longer-term understandings of pre-industrial marine exploitation in the Indo-Pacific region. Archaeological data can provide valuable baseline data for evaluating contemporary ecological trends. With this understanding, we invited papers on current technical, methodological, and theoretical studies on a variety of topics such as fish and shell analyses, prehistoric fishing, ethno-archaeology, or even traditional and modern fishing in the Indo-Pacific region. A total of fourteen papers were presented during the IPPA Congress session. Among these papers, nine papers are contributed and included in this volume, with the addition of three more papers (by Braje et al., Hashimura, and Segi) that were planned for the session, but could not be presented in Hanoi. We are pleased to include these papers in this volume.

The volume divided into four parts based on the paper topics and temporal foci. Part 1 contains five papers that discuss prehistoric-to-historic marine resource use in the Indo-Pacific Region, based on recent excavations and archaeological analyses in Micronesia, Polynesia, the North Pacific coast, and the Indian Ocean.

Richard Olmo argues that archaeological fish bone analyses in the tropical Pacific have rarely provided information below the family level, and this has not only constrained researchers’ interpretations of prehistoric behaviour, but has also introduced substantial inaccuracies. To explore and provide a method to allow those interpretations to be enriched, he mainly uses fisheries data compiled by the Guam Division of Aquatics and Wildlife Resources and attempts to reconstruct prehistoric inshore fishing by the Chamorro in Guam, Mariana Islands. His discussion, which focuses on habitation and catch data for major inshore fish families in each species level, provides us with useful information and insight to analyse excavated fish remains and reconstruct past fishing activities in a tropical context.

Judith Amesbury also discusses marine resource use in the Mariana Islands, but she targets the exploitation of pelagic fish species such as *mahimahi* (dolphinfish) and marlin from prehistoric to modern times. In the Marianas, pelagic fishing continued throughout the 3,000-year long Prehistoric Period (ca. 1500 BC to AD 1521) and for nearly 150 years after European Contact in 1521. Based on archaeological data and historical documents, she discusses why the Chamorro

people actively engaged in pelagic fishing from initial colonisation, but stopped around AD 1750. Apparently, the availability of boats after World War II brought about a renaissance in pelagic fishing in the Marianas after a hiatus of almost two centuries.

The atoll inhabitants of Tokelau, Polynesia have a more continuous record of offshore fishing and the exploitation of pelagic resources. Rintaro Ono and David Addison discuss ancient to present marine resource use on Atafu Atoll in Tokelau, based on their excavation and ethno-ecological research conducted in 2009 and 2010. Their excavations on Atafu confirm that the atoll has been inhabited at least 600 years, and the early inhabitants depended heavily on marine resources, particularly fish and sea turtle (as well as seabird). Their analysis of the excavated fish remains also reveals that the past islanders actively exploited both inshore and pelagic species, mainly Scarids (parrotfish), Serranids (groupers), Scombrids (tunas), and Carangids (trevally or scads). This pattern is very similar to recent and modern Atafu fishing, which is patterned in part by traditional marine-conservation measures. Integrating the archaeological and ethno-ecological information suggests the possibility that marine conservation measures have played an important part in marine resource exploitation on Atafu since prehistoric times.

In the North Pacific, marine mammals and shellfish have continually been an important protein resource for humans. Todd Braje, Jon Erlandson and Torben C. Rick discuss the case of historic marine resource use in California. Their analysis of a 10,000 year record of shellfish size changes from archaeological sites on California's San Miguel Island documented a millennial-scale pattern of mean size reductions in red abalone (*H. rufescens*) and California mussel (*Mytilus californianus*) shells from archaeological sites, likely from increased human predation pressure. Their archaeological and ecological data also suggest that sea otter hunting, which began at least 9000 years ago in the Santa Barbara Channel waters, reduced otter densities and increased the productivity of near-shore abalone, sea urchin (*Strongylocentrotus* spp.), and other shellfish populations. By comparing the excavated shells from 19th-century midden on San Miguel Island to prehistoric red abalone shell, they suggest that sea otter populations were locally reduced during the Mid-Holocene, allowing abalones to reach unprecedented size and abundance.

The last paper in Part 1 is by Annalisa C. Christie and explores the social context of maritime exploitation along the east African coast in the 12th-18th centuries AD, based on her archaeological research from the Mafia Archipelago, Tanzania. She evaluates the social context of maritime exploitation within the Mafia Archipelago by examining the faunal assemblages recovered during recent excavations at the site of Kua Ruins on Juani Island within a maritime anthropological framework in order to elucidate the influence of social status on resource accessibility, and to evaluate changing patterns of resource exploitation over time. As the site is situated within the Mafia Island Marine Park (MIMP), her study has the potential to inform marine resource management strategies by providing a historical perspective on the influence of the sea on the socio-cultural organisation of maritime interactions including resource exploitation.

Part 2 includes two papers, both of which focus on the use of specific marine species such as baler shell (*Melo* spp.) in the Philippines (Vitales's paper), and *mahimahi* (dolphinfish) in Japan and the Pacific (Hashimura's paper).

Baler shell (*Melo* spp.) has a long history of exploitation in the Indo-Pacific region. This shell species is usually excavated from contexts associated with shell middens along coastal or near-coastal archaeological sites, particularly in Australia and Insular Southeast Asia. In the Philippines, baler shell remains also form a ubiquitous presence in the archaeological record, particularly during the Neolithic and the Metal Age, and Timothy Vitales explores and discusses the significance of their presence in these sites. His analysis of the baler shell assemblage in Ille cave and rockshelter site in northern Palawan, western Philippines reveals that these shells seem

to be collected primarily not for subsistence, but rather, for the production of artefacts (shell scoops), which is also observed in other Philippine sites. Such implications are also discussed in an effort to understand the role of baler shells in the bigger picture of marine shell exploitation in Indo-Pacific prehistory.

As discussed by Amesbury's paper in this volume, *mahimahi* (dolphinfish) has been an important pelagic species as a subsistence and cultural resource in the Pacific since prehistoric times. The historical and cultural importance of *mahimahi* is also recognised in Eastern Asia including Japan. Osamu Hashimura's paper reports the regional distribution of the *Tsuke* method (a kind of Fish Aggregative Device) as a major *mahimahi* fishing techniques and highlights the cultural use of the *mahimahi* in contemporary Japan. He also discusses transitions in *mahimahi* fishing from prehistoric through to modern times. After reviewing the distribution of *mahimahi* uses in food and culture in Eastern Asia, Hawai'i and Costa Rica, Hashimura discusses *mahimahi* and human interactions from the past to the present.

Part 3 presents two case studies about the relationship between marine use and material culture in the western Pacific.

Akira Goto reports the historical evidence for adaptation and development of an outrigger canoe fishing gear complex on Hachijo-jima Island in the Bonin (or Ogasawara) Islands, Japan. The Bonin Islands consist of 30 islands to the north of the Mariana Islands. In prehistoric times, the Bonin Islands may have been settled from the Marianas, as indicated by excavated polished stones adze forms. Although the islands were abandoned by the 1st millennium AD, they were re-colonised from Hawai'i in 1830, introducing Hawaiian material culture including the single-outrigger canoe. Soon after this, Japanese people also started to immigrate to the Bonin Islands. Now, the islands are part of Japan and are inhabited by the Japanese, yet the modern fishing boats in the islands still continue to take the form of single outriggers. Some other fishing gear and materials also show Oceanic influences. Goto discusses this hybridised marine exploitation culture in the islands.

Takashi Tsuji discusses the basket trapping of moray eels in the Mactan Islands in the central Visayas Region of the Philippines. Using the individual tracing method and on-board investigations, he clarifies the state of moray trap fishing and the relationship between the technique of using the fish traps and its ecological and environmental impacts, focusing particularly on the bamboo moray trap. He also discusses the structure of the trap, the usage of the trapping grounds, time allocation, and the productivity of the trap. In addition, references are made to contemporary changes in moray trapping techniques and the environment surrounding these five activities. Although the use of fish traps is broadly recognised throughout the world, detailed observational studies on fish traps and moray trap fishing activities in the Philippines or elsewhere in the region are few. Tsuji's ethno-ecological study provides significant data on the trap fishing and exploitation of moray eels in the Indo-Pacific.

The last part of this volume, Part 4 consists of two papers which discuss modern marine resource use and management in the Pacific and Island Southeast Asia.

Marine resources were an important protein source for the initial settlers of the islands of Remote Oceania where indigenous terrestrial animals were scarce. Traditional subsistence of this region consisted of horticulture and the intensive utilisation of marine resources. However, in some parts of the Pacific, subsistence activities have changed in recent times as imported foods such as tinned fish and corned beef have become more important as protein sources. In light of these changes in diet and marine use, Kazuhiro Suda discusses the use of marine resources on Ha'ano Island in Tonga, Polynesia. He reports that subsistence fishing is still the main source of animal protein. The introduction of outboard motorboats and modern fishing gear such as nylon nets and lines

are changing Ha'ano fishing from a pattern of self-consumption and reciprocal exchange to wage working or commercial fishing. The case of Ha'ano Island tentatively shows that, in the face of economic globalisation and modernisation, the role of marine resources has rapidly changed, even on such a remote island as Ha'ano.

The paper by Shio Segi examines the informal territoriality over fishing grounds claimed by local small-scale fishers in south-eastern Cebu Island in the Philippines. Models based on self-sustaining site-specific territorial arrangements which are embedded in local cultural and socio-economic contexts have been proposed as one key alternative approach for coastal resource management. Given that there are only very limited studies on such arrangements in the Philippines, he focuses on how informal territoriality over local waters is operated, rationalised, and related to the formal fisheries and coastal resource management framework. Drawing upon the case of territorial claims in bottom-set gillnet fishing in coastal waters and multiple hook-and-line fishing in offshore waters, he demonstrates that longstanding continuity, localness, and social status are key concepts for fishers in justifying their claims. He also argues that the fishers' territoriality emerged out of necessity to protect their livelihoods through avoiding risks and preserving the resources for their own use rather than that of outsiders. Segi contends that in-depth research into local territoriality with multifaceted approaches to the social and political environment is necessary for designing meaningful and realistic forms of co-management.

The eleven papers in this volume indicate the wide range of topics that researchers are exploring in the Indo-Pacific region. These range from prehistoric marine resource use and its temporal changes, to analytical issues for zoo-archaeological and ethno-archaeological studies on shell and fish remains, to past and modern use of specific marine species and their cultural significance, to historical and contemporary relationships between marine resource use and maritime material culture, and to contemporary marine resource use and issues of contemporary resource management.

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