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MINISTRY OF INTERNAL AFFAIRS
HISTORIC PRESERVATION OFFICE

Anthropological Survey of Aur Atoll

Richard V. Williamson and Donna K. Stone

HPO Report 2001/10

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Majuro Atoll, 2001

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Forward

The following monograph is the result of research conducted July 20-27, 2000 at Aur Atoll, Republic of the Marshall Islands. The research consisted of non-intrusive, terrestrial archaeological reconnaissance survey and the collection of oral histories. The project was sponsored by the Republic of the Marshall Islands Historic Preservation Office and funded by the Historic Preservation Fund, National Park Service, Department of the Interior.

Our thanks go to our colleagues at the National Park Service, Paula Falk Creech, Mark Rudo, and David Look for their assistance and guidance. We could not have performed the survey without the assistance of many individuals at the Historic Preservation Office and Alele Museum. Most especially, Hemley Benjamin, Assistant Archaeologist and the individual who assisted the actual survey; Morean Watak, Archaeological Trainee; and Ninbo Frank, Alele video technician who collected the traditional stories. We would also like to thank Clary Makroro, the Deputy HPO; Benice Joash, Executive Director at Alele; and Terry Mote, Alele's Historic Preservation Specialist. Our further thanks go to the Minister of Internal Affairs and Chairman of the RMI Advisory Council for Historic Preservation, the Hon. Nidel Loak, as well as the Secretary of Internal Affairs and Historic Preservation Officer, Mr. Frederick deBrum. Finally, our deepest thanks goes to the people of Aur Atoll and all those who helped make this research possible.

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Richard V. Williamson
Donna K. Stone
Majuro Atoll, Marshall Islands
March 2001

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I. Introduction

This report represents the results of archaeological and anthropological research conducted on Aur Atoll, Marshall Islands from July 20-27, 2000 by the Historic Preservation Office, Majuro, Marshall Islands. All field documents, including completed site survey forms, field notes, maps, and photographs are housed at Historic Preservation Office, Majuro Atoll, Republic of the Marshall Islands. No artifacts or food remains were collected. The US National Park Service Historic Preservation Fund grant provided funding.

1.1 Project Objectives

The purpose of the survey was two-fold. The first was to identify, record, and evaluate the historic, prehistoric, and traditional sites located on the atoll in accordance with the survey and inventory program area of the Historic Preservation Office. The second was to educate the inhabitants of the atoll on the importance of protecting and preserving the sites that the team identified. As such, the Historic Preservation Office made every effort to include the local population, their elected officials, and traditional chiefs and landowners in every step of the research. Local informants and guides were used throughout the research and formal and informal lectures covering the activities of HPO staff were conducted at the schools, town halls, and churches.

1.2 Evaluation of Research Design and Methods Used

A) “Non-intrusive” reconnaissance survey

The research conducted was a “non-intrusive” reconnaissance survey. The team did not remove any artifacts and/or food remains. The sites were identified through either a walking survey or from knowledge of local guides. The sites were recorded using a Geographical Position System (GPS) unit and that data was entered into ArcView Geographical Information System (GIS) software to generate maps. Information for Site Survey Forms was entered into the GPS unit in the field and was transferred into the database software that is contained in the ArcView program. Slide photographs as well as digital photos of all sites were taken. All notes, survey forms, GPS data, and photographs are housed at the Historic Preservation Office, Majuro Atoll, Republic of the Marshall Islands.

Evaluation was based upon the Republic of the Marshall Islands site significance levels established by the RMI Historic Preservation legislation of 1992. Determining the definition of significance varies if the site is prehistoric, historic, or traditional. All traditional sites are determined as significant. Prehistoric or historic sites can be evaluated as being “very significant,” “significant,” “less significant,” “insignificant,” or “undetermined significant” [RMI Historic Preservation Legislation, Regulations Governing Land Modification Activities, Section 6.]

A Prehistoric site was considered “very significant” if it met at least one of the Marshall Islands’ formal criteria:

- (i) the resource is the only one of its kind known on the atoll concerned; or
- (ii) the resource is part of an ensemble of sites, even if the individual sites as such would not be considered to be very significant; or
- (iii) the resource is rich in cultural artifacts and undisturbed by construction activities; or
- (iv) the resource is particularly well preserved; or
- (v) the resource is connected with oral traditions important beyond the limits of the individual atoll on which the resource is located.

A Prehistoric site was considered “significant” if it met at least one of the Marshall Islands’ formal criteria:

- (i) the resource is the only one of its kind known on the islet concerned; or
- (ii) the resource is rich in cultural artifacts and undisturbed by construction activities; or
- (iii) the resource is well preserved; or
- (iv) the resource is connected with oral traditions.

An historic site was considered “very significant” if it met at least one of the Marshall Islands’ formal criteria:

- (i) the resource is the only one of its kind known in the Republic; or
- (ii) the resource is part of an ensemble of sites, even if the individual sites as such would not be considered to be very significant; or
- (iii) the resource is considered to be a prime example of the workmanship of a particular architect, builder or craftsman; or
- (iv) the resource is rich in cultural artifacts and undisturbed by construction activities; or
- (v) the resource is particularly well preserved and shows little or no alterations to the original appearance of the structure; or
- (vi) the resource is connected with historic events or persons or oral traditions important beyond the limits of the individual atoll on which the resource is located.

An historic site was considered “significant” if it met at least one of the Marshall Islands’ formal criteria:

- (i) the resource is the only one of its kind known on the atoll concerned; or
- (ii) the resource is considered to be a good example of the workmanship of a particular architect, builder or craftsman; or
- (iii) the resource is rich in cultural artifacts and relatively undisturbed by construction activities; or
- (iv) the resource is well preserved and shows only limited alterations to the appearance of the original structure; or
- (v) the resource is connected with historic events or persons or oral traditions important for the individual atoll on which the resource is located.

As the survey was designed to be non-intrusive, no test excavations were conducted and no artifacts were collected. The purpose of the survey was purely to identify and record the sites in order to allow evaluation of each site's significance level, which will be used to establish eligibility for inclusion on the RMI National Register. Future researchers can use this information in assessing which sites are deemed significant enough to warrant further research, analysis, interpretation, and/or protection and restoration. The survey followed the standards and guidelines of the grantor, the United States Department of Interior National Park Service Historic Preservation Fund.

B) Nomenclature

In assigning sites, the system used in the Marshall Islands includes three two-letter abbreviations and then a site number. The first abbreviation identifies the site as located in the Marshall Islands (MI), the second is the atoll, Aur (AU), the third the islet, Aur (AU). Therefore the site MI-AU-AU-001 is the first site identified on the islet of Aur in the Aur Atoll.

C) Survey Equipment and Team Members

The following equipment was used in the survey:

- 1 Trimble GPS unit with Pathfinder Office 2.02 software
- ArcView 3.0a GIS software
- 1 Sony Mavica MVC-FD83 digital camera
- 1 Canon EOS Rebel 2000 SLR camera with slide film
- 2 5m metal tape measures
- 1 30m cloth tape measure
- 1 roll of flagging tape
- Notebooks, pens and pencils
- 1 compass

Field team members included Staff Archaeologist, Richard Williamson; Assistant Archaeologist, Hemley Benjamin; Archaeological Trainee, Morean Watak; and Video Technician Ninbo Frank. Donna K. Stone, Staff Ethnographer, provided the historical background.

D) Informants/Guides

Fieldwork relied heavily on informants and guides. The informants provided information on the location and history of sites, while the guides, if not the informants themselves, lead the team to the sites. Key-informants¹ were the elders of the community, who as custom dictates were also the government leaders, and so were the most knowledgeable about atoll history. They provided a never exhausting pool of knowledge to be further investigated ethnographically. Since precisely locating sites on the various islets was problematic the use of guides was essential. Information was

¹ Ethnographically defined as individuals who have been interviewed intensively or over an extensive period of time for the purpose of providing a relatively complete ethnographic description of the social and cultural patterns of the group. In the present case "key-informant" refers to those individuals who provided general and specific information on almost every site investigated.

obtained in casual meetings throughout the duration of the fieldwork; no formal questionnaire was developed.

E) Survey Methods

The survey did not include the total landmass of each islet visited. When informants or guides could not lead the team to the potential sites on the islets the following method was applied. The crew was distributed at five to eight meter intervals and surveyed the islets from north to south or east to west. Areas of the extremely dense vegetation were not surveyed due to the lack of appropriate clearing tools (machetes). When a site was noted, a site number was assigned, a GPS position was taken, the area was photographed, and site survey forms were filled out. In areas of dense vegetation, the GPS position was sometimes taken several meters away from the site itself.

1.3 Limitations of Research

Although the purpose of the survey was to identify potentially significant sites, it must be remembered that the survey was non-intrusive. Shovel test pits were not conducted and given time and money constraints, much of the survey relied heavily upon the local informants and their knowledge of historic sites. The survey attempted to be as extensive as possible, but included no follow-up intensive research. As such, this report should be considered preliminary and only includes those sites readily identified either visibly or with the aid of an informant. Given previous research in the Marshall Islands that has included either shovel test pits or more intensive excavations, it is apparent that prehistoric archaeological sites in this type of non-intrusive reconnaissance survey will be highly underrepresented. This is especially true in the Marshall Islands where the lack of durable artifacts such as ceramics is lacking.

A further limitation was encountered with the generation of maps using the GPS unit and ArcView GIS software. Problems encountered were two-fold. First, it was impossible to remove the selective availability that the US Department of Defense uses to “scramble” GPS coordinates, thus giving some error in the recording of exact locations of the sites. Second, the digitized map of the Marshall Islands used by the HPO is one that was originally made by the Japanese during their administration of the Republic. The map was updated by the U.S. during the Trust Territory of the Pacific Islands administration, but still prone to many errors. While most of these errors were external, there were instances of internal inaccuracies. Unfortunately, this was still the most up-to-date map available at the time of the research. However, in recording the GPS readings in the field, the GPS unit that was used did allow for the recording of a series of readings (120 points were recorded) that averaged out to one reading per site. This should remove some of the inaccuracy caused by the selective availability. Regarding the maps, as the data is stored electronically in ArcView GIS software, when an updated map of the Marshall Islands is available, the new digitized map can be replaced for the older version. For the purpose of this report, the maps cannot give much more than a “general” location of each site. However, in the section describing the sites, the GPS coordinates for each site are provided.

1.4 Previous Research

The lack of previous research conducted was one, if not the main, criteria for the selection of Aur Atoll. In accordance to the Historic Preservation Office's survey and inventory program area, Aur Atoll was selected to be surveyed by the HPO staff.

The first scientific exploration of the Marshalls was conducted by the Russian, Otto von Kotzebue in 1816-17 and 1824. It is during this time that first significant contact between Europeans and the Marshallese was made. Von Kotzebue and his crew spent several months in the Ratak islands in 1817 and 1824, specifically Wotje, Maloelap, and Aur Atolls. Kotzebue described the biology, animals, and plants of the atoll as well as ethnography (Kotzebue 1821, 1830; Chamisso 1986).

The comprehensive study carried out under the leadership of Paul H. Rosendahl (1979, 1987) during March-June 1977 included Aur and Tabal Islet on Aur Atoll. That expedition, which became known as the "Louis L. Kelton-Bishop Museum Expedition to Eastern Micronesia," covered parts of Majuro, Mili, Arno, Aur, Maloelap, Wotje, Likiep, Wotho, Lae, Namu, Ailinglaplap, and Ebon Atoll, as well as, Lib Island in the Marshall Islands. Two sites were recorded on Aur, Aur. These consisting of surface artifacts and shell middens. One hundred and six artifacts were recovered. Two sites were also recorded on Tabal, Aur, similar to those found on Aur, Aur. Eighty-six artifacts were recovered on Tabal (Rosendahl 1987).

Previous researchers of other Marshall Island atolls have included general overviews of the history and prehistory of the Marshall Islands. Some of the better overviews include Beardsley's 1994 report (1994: 1-28) and the Historic Preservation Plan United States Army Kwajalein Atoll (1996).

1.5 A Brief History of the Marshall Islands

The people of the Marshall Islands refer to their parallel-chained archipelago as *Aelon Kein*, "these atolls." According to folklore, the first discoverers and settlers of the Islands were a handful of wayfarers seeking an uninhabited autonomous area where they could live (Hart 1992). What little we know about early Marshallese comes from oral history and early accounts by explorers.

Marshallese autonomy was threatened as early as 1526 when the first of eight known Spanish ships passed through the area. The first recorded sighting, probably Bokak Atoll, was made by Alonso de Salazar, commanding the *Santa Maria de la Victoria*, but no contact was made (Levesque 1992a, Sharp 1960). In 1529 contact was made by Alvaro de Saavedra of the *Florida* which laid anchor to take on provisions at Eniwetak or Bikini and stayed for eight days. He also discovered Utirik, Taka, Ujelang, and made landings at Rongelap and Ailinginae. The Spanish flagship *Santiago* and five other ships in the expedition under Ruy Lopez de Villalobos is credited for the western discovery of Wotje, Erikub, Maloelap, Likiep, Kwajalein, Lae, Ujae, and Wotho, landings were made on some of the islands. (Levesque 1992a, Sharp 1960).

In 1565, Alonso de Arellano of the Legaspi expedition sighted Likiep, Kwajalein, and an island thought to be Lib (Sharp 1960) while Legaspi himself is credited with sighting Mejit, Ailuk, and Jemo. Some trading was done at Mejit. The following year the mutineer Lope Martin commanding the *San Jeronimo* made several sightings and was eventually stranded in the Marshalls, probably on Ujelang. Two years later the Spanish ships *Los Reyes* and *Todos Santos*, under Alvaro de Mendana went ashore at what is probably Ujelang. Namu was also thought to be sighted. (Levesque 1992b)

Fifty seven years passed before another vessel is reported to pass through the Marshalls. The Dutch ship *Eendracht* and ten other vessels of the Nassau Fleet, commanded by Admiral Gheen Schapenham sighted Bokak (Hezel 1979). In spite of Spain's annexation of the Marshall Islands in 1686, the Spanish established no trading posts, trade routes, or left any lasting influence.

In 1767 Captain Samuel Wallis of the British ship *Dolphin* sighted what is thought to be Rongerik and Rongelap (Sharp 1960, Hezel 1979). Even though the Spanish were the first known westerners to see the Marshall Islands credit is given to Captain William Marshall, commander of the *Scarborough*, who together with Thomas Gilbert of the *Charlotte* for the discovery or more appropriately, the rediscovery of the Marshall Islands in 1788. Marshall and Gilbert mapped these island groups and traded with the various atolls. They are the first westerners to sight Mili, Arno, Majuro, Aur, and Nadidik (Sharp 1960). They also sighted the previously discovered Wotje, Erikub, Maloelap, and Ailuk.

Captain Henry Bond aboard the British merchantman vessel *Royal Admiral* sighted Namorik and Namu in 1792. Two years later The British ship *Walpole*, under the command of Captain Thomas Butler sighted Eniwetak. Thomas Dennet was the first westerner to sight Kili as well as reporting on Ailinglapalap, Lib, and doing some trading on Namu in 1797. Other vessels sailed through the area including the British ship *Hunter*, the British brig *Nautilus*, the ship *Ann & Hope* of Providence, *Ocean*, *Herald*, and *HMS Cornwallis*, to name a few. These ships sighted atolls and islands that had been previously reported but did not stop and trade. Jaluit was sighted by the *Rolla* in 1803 and again in 1808 by Captain Patterson of the British merchant brig *Elizabeth* both of which landed and did some trading (Sharp 1960, Hezel 1979, 1983).

The first scientific exploration of the Marshalls was conducted by a Russian, Otto von Kotzebue, in 1816-17 and 1824. It is during this time that first significant contact between Europeans and the Marshallese was made. Von Kotzebue and his crew spent several months in the Ratak islands in 1817 and 1824, specifically Wotje, Maloelap, and Aur Atolls (Kotzebue 1821, 1830; Chamisso 1986).

The account left by this expedition provides the first early ethnographic material, including an interesting description of how Kotzebue was urged to help Lomade defeat Latete, a powerful southern Ratak *Irooj*, and become *Irooj* of all Ratak. Although Kotzebue declined the offer his influence was noted. Traditional warfare practices began to change soon after Kotzebue's first visit. Metal hatchets given as gifts were attached to wooden poles. Lomade's troops used these new weapons to defeat the powerful Majuro

Irooj and establish control over the Ratak Chain (Erdland 1914, Kramer and Nevermann 1938).

Other ethnographic observations come from Lay and Hussey (1828) who survived the *Globe* mutiny at Mili Atoll and Paulding (1831) a U.S. Navy lieutenant who helped to retrieve Lay and Hussey. These early observers published accounts which give us an insight to traditional personal appearance, manners, food, dwellings, and in a lesser extent, facets of political and social organization reflecting traditional practices.

The prospects of profitable trade lured the German entrepreneurs into the Marshalls in the latter part of the 19th century. Subsequent contact with Europeans gradually increased as whalers concentrated their activities. They were hunting to provide lamp oil to meet European and American demand. With the disruptive and intolerant whalers, as well as the English blackbirders in search of cheap labor to work the mines and plantations in the New World and Australia, encounters turned hostile. Numerous ships were attacked by the Marshallese and the crews killed; brutal retaliations followed. The mood of contact in the first half of the 19th century was one of confrontation (Hezel 1979, 1983; Dye 1987)

The treacherous reefs, small number of whales, and the new methods of distillation of kerosene from crude oil soon put the whalers out of business. The blackbirders, however, continued their raids until the 1870's.

In 1857 two American missionaries from the American Board of Commissioners for Foreign Missions, Congregationalists from the New England area, succeeded in setting up operations on Ebon (where as recently as 1852 a ship from San Francisco had been attacked and the entire crew killed) (Hezel 1979). The Marshallese *Irooj* opposed the missionaries and the establishment of new congregations throughout the 1860s because it eroded their power. This loss of power was somewhat alleviated by establishment of permanent trading stations as the demand for copra rapidly increased. The chiefly power base gradually shifted from control over the land to control over the trade between the Marshallese and foreigners (Dye 1987). Ebon remained the mission center, from which occasional trips were made throughout the southern atolls, until 1880, when the station was moved to Kosrae in the eastern Carolines.

Changes in the Marshallese way of life had been rapid and extensive. The dominant contact with the outside world had been through missionaries sent or trained by the American Board. Yet virtually no ethnographic description is to be found among the voluminous records kept by the missionaries. Instead, they were "not only indifferent, but supremely scornful of the religious beliefs [of the Marshallese]. They tried to extinguish them completely and destroy every trace of them" (Knappe 1888). The ethnography summarized by the Germans, Erdland (1914) and Kramer and Nevermann (1938), coincided with major structural changes in Marshallese way of life. Writing in about 1905, the German ethnographer and priest Erdland commented, "the present generation no longer has any exact knowledge of the inner coherence of the ancient traditions" (1914:307).

Other factors also influenced these changes. The copra trade dates from about 1860 in the Marshalls and American, Australian, and German firms often had resident

traders on the various atolls. Beachcombers added to the resident white population, often filling the role of trader as well.

European political empires reached into the Pacific in the 1880s and German traders were exercising increasing influence in the Marshalls. In 1885, the Marshall Islands became a protectorate of Germany, as “the Marshall islands were not under the sovereignty of any civilized state” (Pauwels 1936). During the German era, which lasted until 1914, the atolls were visited regularly by traders, missionaries, and administrative officials. Administration of the area was carried out by the German trading company, Jaluit *Gesellschaft*. This firm, which resulted from a merger of companies active in the area, Robertson and Hearnheim, and *Deutsches Handels- und Plantagen-Gesellschaft* (D.H.P.G.) (formerly Johann Godeffroy und Sohn), had exclusive trading rights in the Marshalls. Despite complaints about this monopoly by the Australian firm, Burns, Philip and Co., the New Zealand company, Henderson and MacFarlane, and others, the German government continued to act on the advice of the Jaluit *Gesellschaft* until 1902 when it assumed direct administration of Micronesia (Hezel 1983).

This form of administration, with primarily an economic focus, had little impact on the health and educational level of the Marshallese. In this regard, the missionaries were of greater importance. Select groups of Marshallese were educated in the German language to serve as interpreters and the services of a doctor were available on occasion. Copra was the main product of the Marshalls and production was stimulated by taxes assessed through the traditional leaders as well as through the availability of Western goods. This form of indirect rule strengthened the traditional political organization of the Marshallese, while the German administration dealt mostly with conflicts between foreigners and the *Irooj* (Hiery 1995).

Warfare between the islands *Irooj* was eliminated, an act which froze the relative social positions of the *Irooj* and their *jowi* (clan) and created a condition of inflexibility in the social system; in addition it allowed increased trading and missionary activity and thus contributed to more rapid cultural change (Spoehr 1949). German ethnographers were active in this period and it is largely through their efforts, especially in the many volumes published on Micronesia by the German South Sea Expedition of 1908-1910, that much is known of the traditional way of life (Kramer and Nevermann 1938 is a result of this expedition).

In 1914, at the conclusion of World War I, the Marshalls were taken from Germany by Japan. They shifted to a system of direct rule through a set of community officials and greatly expanded the administrative staff. Traders of other nationalities were excluded and the Japanese attempted to expand copra production. Protestant and Catholic missionary activity was allowed to continue unhampered, and in general the Marshallese appear to have gotten on well with the Japanese (Spoehr 1949). The Japanese did conduct ethnographic research, however most of this material has yet to be translated into English.

The Japanese military, through the South Seas Defense Corps, governed the Marshalls until 1918. From 1918 until 1920, a combined civilian and military government was in charge. In 1920 Japan was awarded Micronesia as a Class ‘C’ mandate by the League of Nations. The terms of the mandate were upheld until 1933

when Japan withdrew from the League of Nations (although they continued to submit annual reports through 1937). After 1933, the Japanese considered the Marshalls and the rest of their Micronesian mandate, an integral part of the Japanese Empire (Peattie 1988).

During the Japanese era, the administration had several goals; the economic development of Micronesia, the use of the islands as an immigrant settlement for Japan's rapidly increasing population, the Japanization of the islanders through education, language training, and enforced cultural change, and eventually, the use of the islands for military bases in anticipation of World War II (Peattie 1988).

For the Marshallese, improvements in health and sanitation were minimal. The "availability of adequate medical care was directly related to one's ability to pay" and despite a sliding fee scale, "the poorer and generally unhealthier native received less care" (Shuster 1978).

Education was also segregated and of differential quality. Ethnic Japanese were offered a school system identical to the one in Japan; while the Marshallese received three years of primary education consisting mostly of Japanese language instruction and ethics classes, with an additional two years for the more promising students (Hezel 1995).

The Japanese administration also attempted to make a number of changes in the Marshallese social and political organization. They appointed non-*Irooj* Marshallese leaders, which was contrary to the existing political structure, thus weakening the position of the traditional leader (Bryan 1972). The Japanese also attempted to change the Marshallese social organization of matrilineality to conform to the Japanese system of patrilineality, more like their own system, with little success.

In early 1930s, Japan began to construct fortifications on Kwajalein, Eniwetak, Jaluit, Wotje, Mili, and Maloelap. Marshallese were conscripted to labor on these buildings and were resettled (Peattie 1988). World War II started in 1941. In 1944, U.S. forces concentrated on gaining supremacy in the Pacific. Kwajalein, Majuro, and Eniwetak were captured within one month. All of the other atolls except Wotje, Maloelap, Mili, and Jaluit were checked for Japanese in the next two months. In those bypassed atolls, the Marshallese escaped or were removed under cover of night and resettled temporarily on Majuro, Arno, or Aur atolls (Smith 1955). The U.S. fortified Eniwetak and Kwajalein atolls as military bases.

After World War II, the United States took over trusteeship of the Marshall Islands. Beginning with Spoehr's work on village life in Majuro (1949), ethnographers have concentrated on community studies. The primary sources are Mason (1947, 1954) whose focus is economic organization; Kiste (1967, 1974) who deals with resettlement issues; and Davenport (1952, 1953) and Chambers (1969, 1972) concentrating on oral traditions.

1.6 Important Historical Events for Aur Atoll

~500 BC - 2000 BC The first Micronesian navigators arrive in the Marshalls, calling the atolls *Aelon Kein Ad* (our islands). Dates and origins of the settlers are still uncertain. Relatively little is known about the prehistory of the people. They are thought, like other Pacific Islanders, to have originated in Southeast Asia and to have established themselves on their scattered islands centuries before

European voyagers reached this area. Early accounts depict Marshallese society as having much in common with other Micronesian Islands, such as the Carolines. Chieftainship was strong and material culture, given the paucity of natural resources, was relatively advanced. Early Marshallese were regarded as superb canoe builders and sailors.

- 1494 The Treaty of Tordesillas cedes ownership of all of Micronesia to Spain.
- 1527 Three ships under Alvaro de Saavedra, sent from Mexico to seek news in the Moluccas of the Magellan and Loaisa expeditions are among the Marshalls (Sharp 1960, Levesque 1992a).
- 1788 On 28 June the the British transport ships *Scarborough* (Captain John Marshall) and *Charlotte* (Captain Thomas Gilbert) sight Aur while proceeding to China from Botany Bay. They also encounter Mili, Arno, Majuro, Maloelap, Erikub and Wotje Atolls. The name Marshall Islands is later applied to the group as a whole by Russian hydrographer A. J. Krusenstern (Sharp 1960).
- 1800s Wotje, Utirik, Mejit, Maloelap were allied with Aur and *Iroojlaplap* Lomade against Arno and Majuro. Lomade inherited his position as *Irooj* from his great-great-grandmother Litarau matrilineally through Legerinoa, Leom, and Limidjoa (Kramer and Nevermann 1938).
- 1817 On 4 January, the Russian brig *Rurick*, commanded by Lt. Otto von Kotzebue, sailed into Wotje lagoon. On 8 January, Kotzebue took ashore seeds and yams, chickens, and goats. He named this bit of land Goat Island. He meets Rarick, the captain of a Marshallese canoe, who greets him (Rarick is a local of Wotje, Wotje Atoll). Kotzebue makes friends with Lagediack (a navigator) who draws maps of Wotje, Erikub, Ailuk, Utirik, Bikar, Likiep, Maloelap, Aur, Majuro, Arno, and Mili (Chamisso 1986).
- 1817 On 23 February, the Russian brig *Rurick* and tender *Nadesha*, commanded by Lt. Otto von Kotzebue lay off Aur for three days. Found two natives of Woleai, Yap ashore. Russians refused an invitation to join a military expedition against Majuro but gave the people iron weapons (Chamisso 1986).
- 1817 Kotzebue met up with *Iroojlaplap* Lomade and was told he was about 30 years old; he was a native of Arno who had gained his power by murdering all of the *Irooj* of Aur, Maloelap, and Utirik (Chamisso 1986). The Ratak islands that did not belong to Lomade (Majuro, Arno, and Mille), belonged at that time to the *Irooj* Latete, against whom Lomade was waging war (Kramer and Nevermann 1938).
- 1817 Lomade, the *Iroojlaplap* over Aur, Maloelap, and Wotje, desired to attack his enemies of Majuro, Arno, and Mili under Latete. Captain von Kotzebue gave him some lances and grappling hooks, for which he received in return six bundles of preserved pandanus. The new weapons put an end to the war in six days. Of the several hundred persons engaged only five had fallen. When Kotzebue visited the second time in 1824, he found Wotje was again at war, occasioned by disputes among the chiefs, whose armed forces the common people had to join (Finsch 1893).

- 1817 The *Rurick* re-entered the Marshalls on Oct. 30 at Wotje. Kotzebue was disappointed to discover that *Irooj* Lebenbit of Aur had come to Wotje, and taken most of the donated iron and goats. A few months later, *Iroojlaplap* Lomade had come and had taken the rest (Chamisso 1986).
- 1817 31 October, Rarick and most of the male inhabitants of Wotje had accompanied Lomade to make war upon the islanders of Arno (Chamisso 1986).
- 1820 American whalers seeking food and water begin visiting the Marshall Islands. Some of these occasionally leave men ashore who become beachcombers and, later, traders (Hezel 1983).
- 1823 *Iroojlaplap* Lomade Juen, of the *jowi* Rimwejoo, conquers all the islands of the Ratak Chain and ultimately conquers Kwajalein, Lae, Ujae, Wotho, Rongelap, Bikini, Eniwetak, and Ujelang in the Ralik (Kramer and Nevermann 1938, RMI Ministry of Education 1996).
- 1825 On 11 December 1825 the US naval schooner, *Dolphin*, under the command of John Percival, on a mission to apprehend the mutineers from the *Globe* touched at Aur (Hezel 1979).
- 1840 Kaibuke had become the second-highest chief of the southern Ralik after he married the daughter of the paramount chief. Kaibuke was feared on account of his attacks on foreign ships. He attacked Kili and Jaluit and brought them under his rule (Kramer and Nevermann 1938).
- 1842 Kaiboke Lobadeo of Ebon assumes power as the *Iroojlaplap* of the southern part of the Ralik chain (Kramer and Nevermann 1938, RMI Ministry of Education 1996).
- 1851 70 people of Ebon (including Kaiboke's brother) are killed when an American whale ship fires on their canoes in revenge for a trader's murder. Kaiboke swears to kill all whites in revenge for his brother's murder by the whalers (Erdland 1914).
- 1857 Rev. Hiram Bingham, Jr. of the American Board of Commissioners for Foreign Missions (ABCFM) creates missionary outpost on Ebon. Kaiboke supports their work (Hezel 1983).
- 1860 The population of Aur is 1000 (Bryan 1972).
- 1860s American and Hawaiian Protestant missionaries arrive at the Marshalls, sent by the Hawaiian Evangelical Association, an auxiliary of the American Board of Commissioners for Foreign Missions. About this time, *J. C. Godeffroy und Sohn*, of Samoa, establishes trading stations on Mili, Aur, Jaluit, Ebon, and Namorik. A few years later, two other German companies, Hensheim & Co. and A. Capelle & Co., are also in business. Copra is their principal interest (Hezel 1983). Capelle is the first to teach Marshallese how to make copra (Finch 1893).
- 1863 Kaiboke dies of typhoid fever (Kramer and Nevermann 1938).

- 1867 The trading brig *Blossom* of Honolulu, commanded by Ben Pease visited Aur where Pease put ashore two traders, Dick Hamilton and John Hughes, and took on beche-de-mer (Hezel 1979).
- 1867 Dick Hamilton, an Australian is put ashore on Aur as a trader by *Blossom*. He worked for Ben Pease on Aur for a few months, but was taken off the island by a trade vessel after he and another white trader, Hughes, were poisoned by the people of Aur.
- 1867 John Hughes was the chief officer on Ben Pease's vessel *Blossom*. He was stationed on Aur in that year to work as a trading agent for Pease. He was sixty years old at that time. Hughes was robbed of his possessions and his trade goods by the people, who also poisoned him. Hughes died on Aur in 1868.
- 1867 An unnamed trading schooner puts in at Aur in November or December. Islanders planned to cut off the vessel and related their intentions to a trader on the island, but he informed the captain and escaped on the schooner (Hezel 1979).
- 1867 September, Ben Pease's merchant ship *Anne* visits Aur (Hezel 1979).
- 1867 September, merchant ship, *Malolo*, under the command of G.A.Bridges, visits Aur and puts two traders ashore (Hezel 1979).
- 1868 Ben Pease visited Majuro and picked up a trader who reported that the natives of Aur had poisoned another of Pease's traders. Pease visited Aur in the brig *Waterlily* where islanders attacked one of the ship's boats. The crew allegedly killed six natives and all canoes and houses on the island destroyed (Hezel 1979).
- 1870 After Kaiboke death, Kabua (Lebon) a *leadakkad* of Rongelap, becomes *Irooj* when he marries Limokoa, the widow of the Kaiboke of Ebon (Kramer and Neverman 1938, Erdland 1914).
- 1876 Loeak and Kabua fight about who should be *Iroojlaplap*. Loeak chases Kabua from Ebon (Kramer and Nevermann 1938).
- 1877 March, the British merchant ship, *Vision* under the command of Morton visits Aur (Hezel 1979).
- 1877 April, the British merchant ship, *Fortune*, under the command of Murray, visits Aur (Hezel 1979).
- 1878 Germany enters into a treaty with inhabitants of the Ralik Chain, granting special trade privileges. Kabua (Lebon) presents himself to the German government as the *Iroojlaplap*. Kabua, Lagajimi, Nelu, Loeak and Launa all sign the treaty (Kramer and Nevermann 1938)
- 1878 The population of Aur is 100 (Krämer & Nevermann1938).
- 1878 September 17-19, the American merchant ship *Morning Star III*, under the command of Isaiah Bray, visits Aur (Hezel 1979).

- 1880 Loeak goes to Jaluit from Ebon to challenge Kabua in battle. After a bloodless fight, Loeak returns to Ebon (Kramer and Nevermann 1938).
- 1880 The population of Aur is 1000 (Spennemann 2000).
- 1883 The British warship HMS *Espiegle* under the command of Cyprian Bridge made peace between warring chiefs on Aur and on Majuro (Hezel 1979).
- 1883 The American mission *Morning Star III*, under the command of George Graland, visits Aur (Hezel 1979).
- 1885 Under mediation of Pope Leo XIII, German government annexes the Marshalls.
- 1885 Loeke is the dominant chief in southern Ralik. Murjil, *Irooj* of Aur, controls northern Ratak. In northern Ralik and southern Ratak, individual atolls are in most instances ruled by independent, local *Irooj* (Kramer and Nevermann 1938).
- 1885 The chiefs of Maloelap and Aur, Murjil and Lebaia (Lebukin) sign a treaty with the Germans on 25 October on board H.M. cruiser *Nautilus* in Aur lagoon (Hezel 1979).
- 1886 By agreement with Great Britain, the Marshall Islands became a German protectorate.
- 1886 The population of Aur is 500 (Anonymous 1886).
- 1887 The German Jaluit Company (Jaluit *Gesellschaft*), an entity entrusted with governance of the Marshalls. It buys out two foreign competitors based in San Francisco and Auckland. However, Burns, Philp & Co. of Sydney, which has been trading in the Marshalls for some years, continues to do so and remains until World War I (Hezel 1995).
- 1893 The Jaluit Company operates trading stations on Aur, Namorik, Kili, Likiep, Ailuk, Mejit, and Rongelap. The island of Kili is now the property of the Jaluit Company, which has laid out coconut plantations (Langhans 1898).
- 1893 Mission station established on Aur (Bryan 1972).
- 1898 The *Irooj* of the Ratak Islands, with the exception of the *Iroojlaplap*, Murjil of Maloelap, command authority only over the islands of a single atoll and have no ships. Murjil claims possession of Aur, Wotje, Ailuk, and Utirik, (Germany Reichstag, [1898-99] 1900).
- 1905 The population of Aur is approximately 320 (Spennemann 2000).
- 1905 A tropical storm hits Aur (Spennemann and Marshner 1994-2000).
- 1906 Aur's population is 300 (Bryan 1972).
- 1910 Kabua dies (Kramer and Nevermann 1938).
- 1910 The population of Aur is 314 (Spennemann 2000).
- 1912 The population of Aur is 323 (Spennemann 2000).
- 1914 The Marshalls are captured from Germany by Japan.

- 1920 Marshall Islands are mandated to Japan by the League of Nations, together with the other occupied islands. The group is administered as a separate district. The Marshallese are given little voice in their own government, but the copra industry is left in their hands. But copra has to be exported to Japan at a price fixed by the Japanese (Hezel 1995).
- 1921 The Japanese take over the copra industry from the Germans, replacing the Jaluit *Gesellschaft* with *Nanyo Boeki Kaisha* (Peattie 1988).
- 1930 The population of Aur is 253 (Spennemann 2000).
- 1934 Japan withdraws from the League, but retains possession of the Marshalls. Fortification of the Marshall Islands begins as Japan prepares for war. The Japanese military begins building airstrips, power plants, and bunkers on Wotje, Eniwetak, Jaluit, Milli, Maloelap, and Kwajalein (Peattie 1988).
- 1935 Aur's population is 279 (Bryan 1972).
- 1936 The population of Aur is less than 500 (Spennemann 2000).
- 1939 World War II begins in Europe.
- 1939 A tropical storm hits Aur (Spennemann and Marshner 1994-2000).
- 1944 26 January, twelve P-40's, meeting B-25's over Aur Atoll, join the battle, claiming over ten destroyed; the B-25's claim 5 shot down; several more are destroyed on the ground or while taking off during the bombing raid.
- 1944 29 January, as a US invasion force approaches the Marshall Islands, B-24's, attacking from bases in the Gilbert Islands, maintain day and night attacks (both multiple-plane missions and single-plane attacks at intervals) against Maloelap, Jaluit, Aur, and Wotje Atolls, Marshall Islands.
- 1944 17 April, a force of 199 Marines embark from Majuro with the mission of reconnoitering Erikub and Aur Atolls. No enemy was found on either atoll (Heinl 1954).
- 1945 End of World War II grants effective control of the Marshalls to the U.S.
- 1945 The population of Aur is 388 (Spennemann 2000).
- 1945 Aur's population is 388 (Bryan 1972).
- 1946 U.S. begins its nuclear testing program in the Marshalls. Bikini atoll is evacuated to Rongerik for first tests under Operation Crossroads. History's fourth atomic explosion, "Able," a 23 kiloton shot was detonated on 1 July 1946 at Bikini Atoll lagoon. Residents of Eniwetak are temporarily moved to Meck Island in Kwajalein Atoll and Rongelap. The Rongelap and Wotho people are moved to Lae Atoll for the duration of the Bikini tests (Deines et al. 1990).
- 1947 The Marshall Islands become part of the United States Trust Territory of the Pacific Islands (TTPI) following three years of American military administration.
- 1948 The population of Aur is 399 (Spennemann 2000).

- 1951 US Department of the Interior assumes responsibility within US Government for the TTPI from the Department of the Navy.
- 1952 The first hydrogen device (Operation Ivy) under the US testing program in the Marshalls is fired on Eniwetak on 1 March. The Eniwetak people who live on Ujelang temporarily stay on a U.S. Navy ship. The ship takes them to a point 100 miles farther away from Eniwetak (Deines et al. 1990).
- 1954 US nuclear testing program, under the Castle series, detonates “Bravo,” which at 15 megatons it was the most powerful hydrogen bomb ever tested by the U.S., on Bikini atoll. It was equal to the force of about 750 Hiroshima bombs. Radiation from the test forces evacuation of Marshallese and U.S. Military personnel on Rongelap, Rongerik, Utirik, and Ailinginae.
- 1958 The population of Aur is 241 (Spennemann 2000).
- 1959 Aur's population is 243 (Bryan 1972).
- 1961 Aur's population is 343 (Bryan 1972).
- 1965 The Congress of Micronesia is formed, with representatives from all of the TTPI islands. It is created by the U.S. administration in preparation for greater self-governance by Micronesians.
- 1967 The population of Aur is 361 (Spennemann 2000).
- 1970 Aur's population is 355 (Bryan 1972).
- 1973 The population of Aur is 300 (Spennemann 2000).
- 1979 Amata Kabua is selected as the first president of the Marshall Islands.
- 1979 Government of the Marshall Islands officially established, and country becomes self-governing.
- 1980 The population of Aur is 444 (Spennemann 2000).
- 1982 Official name changed to the Republic of the Marshall Islands (RMI).
- 1983 Amata Kabua selected second time as president.
- 1983 Voters in the RMI approve the Compact of Free Association with the United States.
- 1986 U.S. Congress approves the Compact, resulting in its entry into force. The Compact grants the RMI its sovereignty and provides for aid and US defense of the islands in exchange for continued US military use of the missile testing range at Kwajalein Atoll.
- 1987 In third election, Amata Kabua is selected as president.
- 1988 The population of Aur is 438 (Spennemann 2000).
- 1990 UN Security Council terminates the RMI's Trusteeship status.
- 1990s Settlement of compensation claims as a result of the US nuclear testing in the Marshalls still proceeds, and is associated with various agreements being made as part of the Compact of Free Association package. There are also outstanding

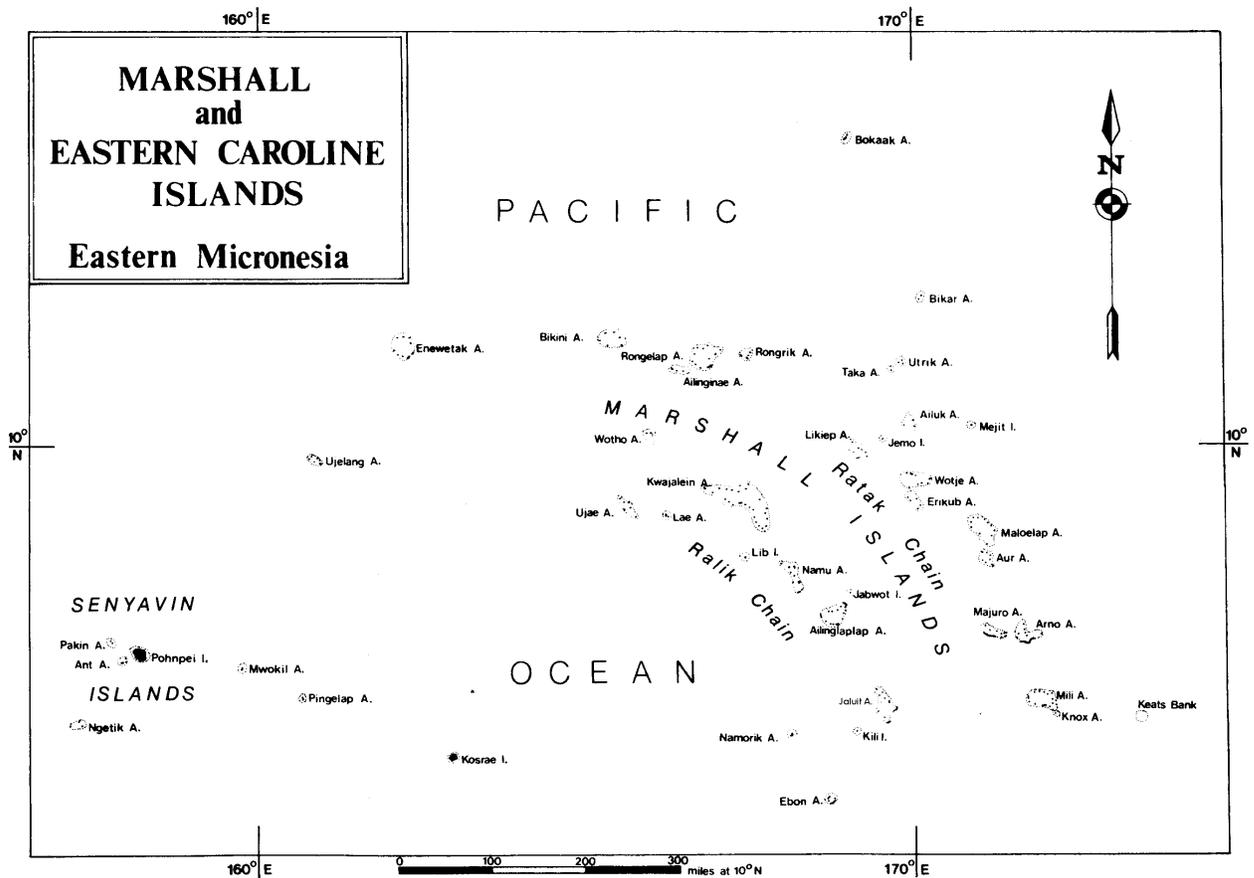
court cases. Almost 5000 Islanders had sought compensation from the Nuclear Claims Tribunal and, up to September 1993, some 380 had been granted compensation totaling about \$14 million, only a quarter of which had been paid (Deines et al. 1990).

- 1991 In fourth election, Amata Kabua is selected as president.
- 1991 RMI joins the United Nations.
- 1991 From November 28 to December 2, a severe tropical storm, which later developed into Typhoon Zelda, moves through Aur (Spennemen and Marschner 1994-2000).
- 1994 The U.S. Department of Energy begins releasing thousands of previously classified nuclear test era documents, many of which confirm the wider extent of the fallout contamination in the Marshall Islands.
- 1996 In fifth election, Amata Kabua is selected as president.
- 1996 Amata Kabua dies.
- 1997 Imata Kabua selected to finish the late Amata Kabua's term.
- 2000 Kessai Hesa Note selected as president.
- 2001 Current Compact of Free Association expires.

II. Environmental Settings

2.1 Physiographic and Biological Setting

Located in the central Pacific between 4° and 14° north latitude and 160° and 173° east longitude, the Republic of the Marshall Islands consists of 29 low-lying coral atolls and five coral islands (Map 1). Twenty-two of the atolls and four of the islands are presently inhabited. The atolls and islands are situated in two almost parallel chain-like formations. The eastern group is the Ratak (Sunrise) Chain and the western is the Ralik (Sunset) Chain. Together these two chains extend about 700 miles (1130 km) north to south and approximately 800 miles (1290 km) east to west. Isolated by ocean, the Republic is more than 2,000 miles (3230 km) from the nearest trading centers, Honolulu and Tokyo. Its nearest neighbors are Kiribati to the south and the Federated States of Micronesia to the west.



Map 1: Republic of the Marshall Islands

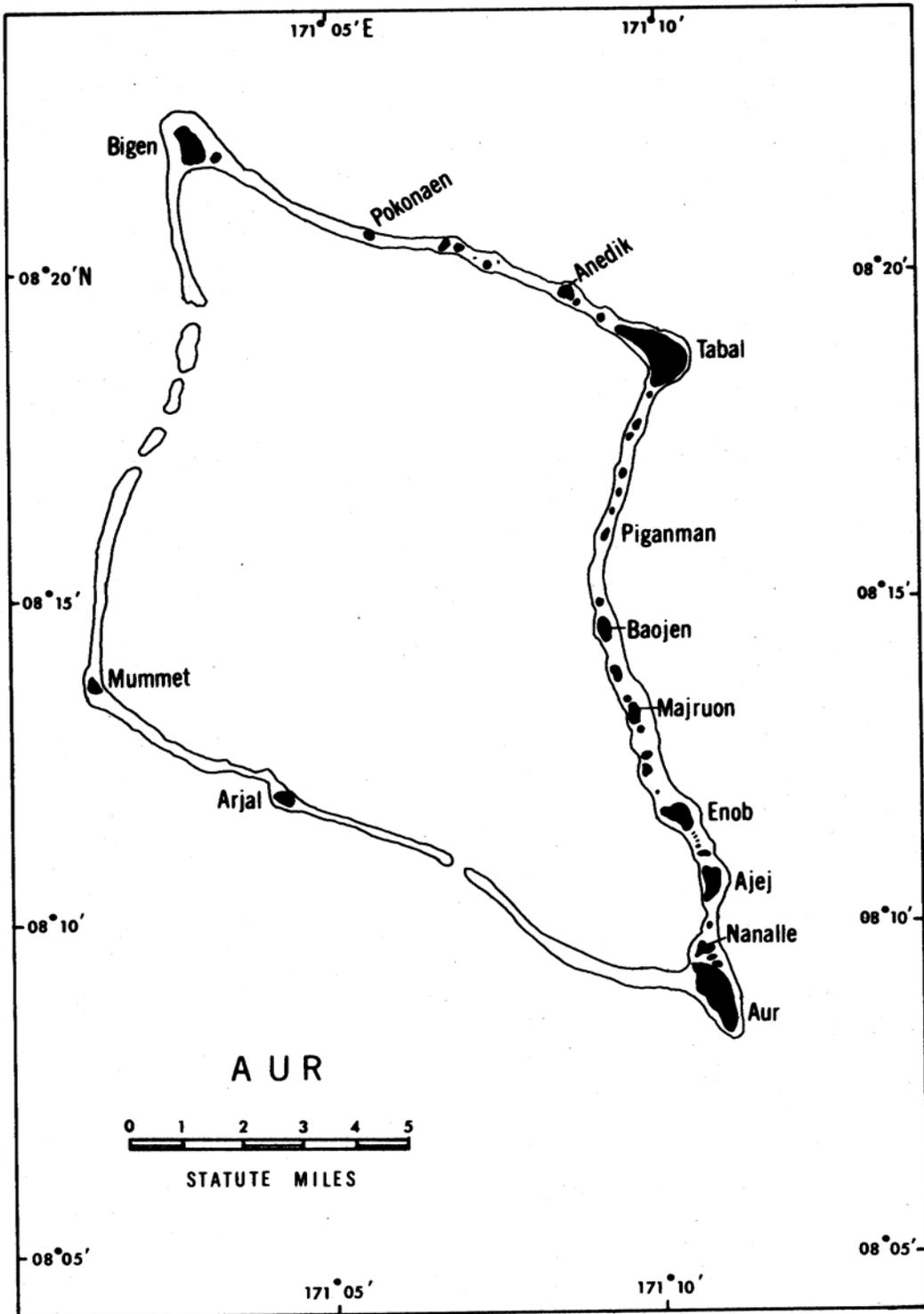
There are approximately 1,225 islets spread across an area of over 750,000 square miles (1.2 million square km). With a total land area of 70 square miles (110 square kilometers), a mean height of 7 feet (2 meters) above sea level, and soils that are nutrient poor, the nation's agricultural base is limited. The marine resource base, however, is extensive. The combined lagoon area totals 4,037 square miles (6511 square km). Coral reefs fringe the atolls and serve as the only defense against the ocean surge. The clearance over the reef in the sections that are covered by water is usually no more than a couple of feet (Permanent Mission of the Republic of the Marshall Islands to the United Nations, 1992).

Generally speaking, an atoll consists of a series of low-lying islets and submerged reefs arranged about a central lagoon, which mixes with the open ocean via one or more channels and/or shallow passes. In the Marshall Islands, the islets composing an atoll usually form an oval shape around a central lagoon of 150 foot (45 m) average depth. The surrounding ocean depth plunges to over 5,000 feet (1525 m) within two miles (3 km), and to 10,000 feet (3050 m) within ten miles (16 km) of the typical atoll (Fosberg 1990; Wiens 1962).

Dye (1987) suggests a probable development history for the Marshall Islands. He states that approximately 70 million years ago the volcanic cores of the Marshall Island atolls erupted forming new volcanic islands. The islands, slowly subsiding but standing above sea level, were colonized by species of reef-building corals, and the process of reef flat construction began (approximately 40 million years ago).

Underwater ocean maps show that there is also an abundance of underwater seamounts, some of which reach almost to the surface, such as Keats Bank east of Mili Atoll. Most of these guyots are aligned along the same axes as the Ralik and Ratak Chains, so that these underwater features as a whole have recently been termed Ralik and Ratak Ridge (Spennemann 1993).

Aur Atoll is part of the Ratak Group of the archipelago of the Marshall Islands (Map 2). It is located 8° 16' north latitude and 171° east longitude. The atoll contains approximately 42 islets. It is about 15 miles long and 9 miles wide. It has a land area of 2.2 square miles and a lagoon area of 92.6 square miles. Its lagoon is deep and it has a continuous reef the length of the eastern side. On this reef are located all but a few of the islets. The main residential islands are Aur, Tabal, Mummet, and Bigen.



Map 2: Aur Atoll.

2.2 Climate

The climate of the Marshall Islands is predominately a trade-wind climate with the trade winds prevailing throughout the year. Minor storms of the easterly wave type are quite common from March to April and October to November. The islands are not generally considered to be in the typhoon belt, but because they are low with small land masses are easily subject to flooding during storms. Tropical storms are rare but do occur as they did in 1905, 1939, and 1991 (Spennemann and Marshner 1994-2000).

The only atoll for which complete weather data exists is Majuro, where a U.S. National Oceanic and Atmospheric Administration Weather Station is located. Annual rainfall varies considerably from north to south; the southern atolls receiving 120-170 inches (300-430 cm), and the northern atolls receiving 40-70 inches (100-175 cm) (NOAA 1989). The highest rainfall generally occurs during the *Anon Rak* season, also known the breadfruit season (June to October). Precipitation is generally of the shower type; however, continuous rain is not uncommon. During the *Anon Ean* season, also known as the pandanus season (January to March), the rainfall decreases with February noted to be the driest month of the year.

One of the outstanding features of the climate is the extremely consistent temperature regime. Daily temperatures recorded for both northern and southern atolls fluctuate between the high seventies and mid eighties with no seasonal variation. The range between the coolest and the warmest months averages less than 1 degree Fahrenheit. Nighttime temperatures are generally 2-4 degrees warmer than the average daily minimum because lowest temperatures usually occur during heavy showers in the daytime. In spite of this, the weather is always hot and humid with the average temperature of 81 degrees Fahrenheit all year around (Permanent Mission of the Republic of the Marshall Islands to the United Nations, 1992).

2.3 Vegetation

There is no written record of the original vegetation of the Marshall Islands. The precise date when plants first occur in the Marshall Island atolls is still debated (Dye 1987). It is possible that 44 species of plants, including various herbaceous species, shrubs, and trees, drifted to the southern Marshalls before the arrival of man (Hatheway 1953). The early inhabitants probably altered the vegetation of the atolls by introducing new species. During the twentieth century, coconut plantations developed by the German, Japanese, and American administrations replaced most of the original vegetation of many atolls (Fosberg 1990). Today as much as 60 per cent of the nation's land area is covered with coconut (*Cocos nucifera*) (OPS 1991).

Many areas not dedicated to coconut plantations have been put to other uses such as cultivation of taro and other plants. Species that have been introduced are reliant on the presence of humans for propagation (Fosberg 1990).

The vegetation that grows on the Marshall Islands include mixed broadleaf forest composed of a small number of tree species (*Tournefortia argentea*, *Guettarda speciosa*,

Pisonia grandis, *Pandanus tectorius*, *Allophylus timoriensis*, *Cordia subcordata*, *Hernandia Sonora*); a few shrubs (*Scaevola sericea*, *Suriana maritima*, *Pemphis acidula*, *Tournefortia*); and a layer of ground cover consisting of several species (*Lepturus repens*, *Thuarea involuta*, *Fimbristylis cymosa*, *Polypodium scolopendria*). Several mono-specific forests occur in the Marshall Islands (*Neisosperma*, *Pisonia grandis*, *Tournefortia argentea*) (Fosberg 1990). Shrubs such as *Pemphis acidula*, *Suriana maritima*, and *Scaevola sericea* typically grow along shorelines while herbaceous plants occur mainly under forests. Limited strands of mangroves (*Bruguiera*) occur larger islands of the wet southern atolls (Stemmerman 1981) and are found in swampy areas containing brackish water on several of the Cultivated plants (*Musa*, *Cocos nucifera*, *Artocarpus altilis*, *Cyrtosperma chamissonis*, *Pandanus tectoris*) are commonly found on the inhabited islets of the Marshalls. These various plants serve as wind breakers, salt spray repellents, food, and are used by locals for weaving and medicinal purposes.

The vegetation of Aur consists of some remnants of native vegetation, *Pisonia*, *Neisosperma*, as well as *Bruguiera gymnorhiza* stands (RMIEPA n.d.).

2.4 Sea Level Changes

Due to being so low in elevation, the recent sea level rise caused by global warming or “greenhouse effect” is a critical threat to the Marshall Islands. The rising of the sea during the last two decades has devastated the low-lying atolls economically and culturally. It is estimated that the normal trend for sea level rise has been approximately 1.3 inch to 3 inch increase over the span of 100 years. However, it is figured that within the next 50 years there will be a 1.7 inch increase alone. As predicted by scientists (global warming red alert), the islands of the Marshalls is among the Pacific nations that will be affected by the rising of the sea level within the next fifteen to twenty years. Under normal conditions, coral and the other components of the coral reef can maintain a healthy landmass. At present, visibly eroded scrublands are along the coastline and most of the vegetation growing in this area will soon be washed away by the incoming tide. Any archaeological sites that are located within this area will vanish and their significant historical value will be lost to the tides.

For many years, the Marshall Islands Government has been concerned with the issue of global climate change. As the Marshall Islands lie in open ocean, the islands are very close to sea level. The vulnerability to waves and storm surges is, at the best of times, precarious. Although the islands have by no means been completely free from weather extremes, they are more frequently referred to in folklore as "*jolet jen anij*" (gifts from god). The sense that Marshall Islands are a god-given sanctuary away from the harshness of other areas is therefore part of the sociocultural identity of the people. When any variation in the weather hits the Marshall Islands, the effects can be severe. When Typhoon Paka passed through Ailinglaplap in late 1997, food crops were severely hard hit and outside food had to be brought. *El Niño* induced drought that followed caused the entire Marshall Islands to be declared disaster areas, and emergency water making equipment and food supplies were shipped in from outside.

Given the physics of wave formation and the increasing frequency and severity of storms, the Marshall Islands will likely be at even greater risk of total inundation. The

relative safety that the islands have historically provided is now in jeopardy. The impacts are not limited to the Marshalls and its immediate neighbors. The Marshall Islands are often referred to as a "front line state" with regard to the climate change issue. It is important to realize that once the potentially catastrophic effects begin to appear, it is likely too late to prevent further warming that will threaten virtually all of the world's coastal regions (Permanent Mission of the Republic of the Marshall Islands to the United Nations, 1992).

III. Land Tenure

Marshallese society is generally matrilineal and is composed of a number of matrilineal clans (*jowi*). The most important descent group is the lineage (*bwij*). The *bwij* is the matrilineal system in which all land rights are passed down through the mother's side. Therefore, the whole group is descended, mother to daughter, from a common ancestor or a *jowi* (clan). There were at least forty-four clans spread over the atolls and though it no one remembers how members of a *jowi* were related by blood, members considered themselves related. The lineage head (*alap*), usually the eldest male of the senior line of the lineage, is steward of the lineage land holdings.

With slightly less than 70 square miles of land in the entire archipelago and prime settlement areas being extremely limited, land has long been the most highly prized possession in the Marshall Islands and control of land is the central theme of Marshallese culture. The basic land division of the Marshall Islands, *weto*, is a strip that runs from the lagoon to the ocean side of an island. One or more *weto* are held and administered by a matrilineage line. Title is divided and shared by several levels of the society. In the pre-Christian era, the Marshallese social system distinguished between two major classes: *irooj* (chiefs) and *kajur* (commoners). The *irooj* hold title over an island or atoll. Among the *irooj*, the *iroojlaplap* (paramount chief) were the ones with the most power while the *iroojerik* or the lesser chiefs, shared the power and many of the privileges, but to a limited degree. Today, the term *kajur* is not used so often as the class has been divided into the *alap* (land managers) and the *rijerbal* (workers). The *alap* organizes and directs lineage activities and allots lands for use to different descent lines within the lineage. The *alap* and the *drijerbal* (workers) make up the subjects or *kajur* (commoners) and render services to the *Irooj* in exchange for land use. The *Irooj* managed the land in a way that not only provided themselves with food but also provided for the *kajur* (*alaps* and *drijerbals*). The *kajur* in return cultivated the land, harvested the waters surrounding the atoll, and performed *ekkan* (tributes) to the *irooj*. The procedure is a cycle that has been repeating for hundreds of years. The common members of a lineage have land rights, although the *alap* and *drijerbal* change land ownership. The *Iroojlaplap* is the only individual with permanent land rights, unless defeated in war.

Historically, one *Iroojlaplap* (paramount chief) was able to extend his control over most of the Ralik Chain (except Eniwetak and Ujelang). Periodically the *Irooj* visited these islands to collect tribute. The Ralik Chain was subsequently divided into two districts, one including Namu and the north islands, the other Jabat, Ailinglaplap, and the islands south. Although all of these islands were owned by the *Iroojlaplap* he rarely visited those further north than Kwajalein and Ujae because they were isolated and somewhat impoverished (Alikire 1977). Within the northern atolls, stratification was less elaborate in comparison to those in the south.

Ratak was likewise structured but far less centralized. The whole chain was never integrated under a single *Iroojlaplap*, although the *Iroojlaplap* of Maloelap was able to put the islands to the north (except for Mejit) under his rule. Majuro and Arno broke away from this union, however, and again became independent political entities. The Ralik and Maloelap associations were unstable and varied in size as local lesser *Irooj*

tested the strength of their islands against that of the *Iroojlaplap*. This trend toward instability encouraged the *Iroojlaplap* to move his residence from island to island to make his control evident to the local lesser *Irooj*.

In the early 1800s, *Irooj* Lomade Juen, of the clan RiMwejoor and an *Irooj* on Aur, conquered all the islands of the Ratak from Mili in the south to Wake Island in the far north. Over one hundred large, swift outrigger canoes transported him and his warriors to the various islands to fight. After he conquered the Ratak Chain, he sailed for Taongi and Wake Islands to gather birds and turtle, which were dried and stored in preparation for sailing to Ralik and fighting the *Irooj* of these islands. He made a brief stop in Utirik on his return from Taongi and Wake Island and while there, Capt. Kotzebue on the ship *Rurik* arrived. They became friends and spent much time together. Lomade told Kotzebue he was a native of Arno who had gained his power by murdering all of the *irooj* of Aur, Maloelap, and Utirik (Chamisso 1986). When Kotzebue left, Lomade sailed for the Ralik islands and ultimately conquered Kwajalein, Lae, Ujae, Wotho, Rongelap, Bikini, Enewetak, and Ujelang. He held his power and influence until his death, when his younger brothers took over. They were unable to maintain power over such a vast area, and eventually lost power in the Ralik Chain, but held on in the Ratak Chain. Today, Lomade's descendants are the *irooj* of the Ratak Chain.

Lomade inherited his position as *Irooj* from his great-great-grandmother Litarau matrilineally through Legerinoa, Leom, and Limidjoa. The following subchiefs were subject to Lomade: Rarik on Wotje; Sauraur, Rarik's father; Tigatedien on Aur; Langemui on Ailuk; Wongusagelig on Likiep; and Labeloa, Labadini, and Lebeuliet on Maloelap. The Ratak islands that did not belong to Lomade, Majuro, Arno, and Mili, belonged at that time to the *Irooj* Lathethe, against whom Lomade was waging war. At the time of the annexation of the Ratak group by the German government, Mujil of Maloelap was the most influential *Irooj* (Kramer and Nevermann 1938).

Today, traditional rights of land tenure are unequivocally preserved in the Constitution, and the traditional requirement of consensus decision making, in which all persons with land rights to a certain *weto* must agree on questions of land transfer is retained.

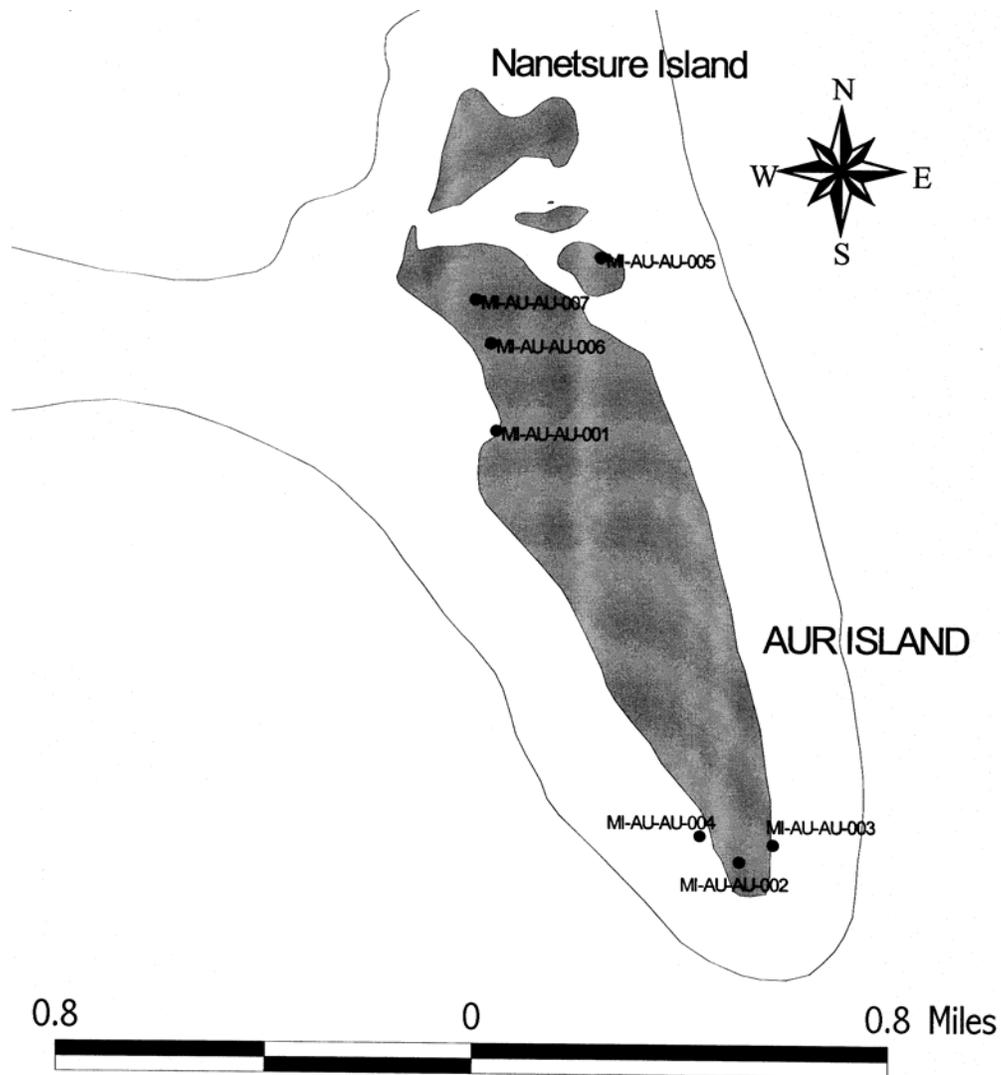
The traditional land tenure system confounds Western-style efforts of historic preservation. Public or government land is non-existent and private landowners are accustomed to exercising ultimate control over land use and access, and are therefore unaccepting of regulations which might restrict the usage of their property (Williamson 2001).

IV Field Investigation

Thirteen prehistoric, historic, and traditional sites were documented during the field investigations at Aur Atoll. Sites were recorded at the islands of Aur, Ennopu, Tabal and Mejruon. Other sites may be located at the islands of Bigen, Mummet, and Arjal, however at the time of the field investigations there was very little gasoline on the atoll and so the only trip the team could make was between Tabal and Aur Islands and the islands located between them on the eastern side of the atoll (See Section 5).

4.1 Aur, Aur

Seven sites were recorded at Aur Island (Map 3). Four of the sites are traditional, one historic, and two prehistoric.



Map 3: Sites located on Aur Island, Aur Atoll.

Site MI-AU-AU-001 (Marshall Islands-Aur Atoll-Aur Island -Site No.)

GPS Coordinates N: 8° 08' 47.65"

E: 171° 10' 13.76"

This is a traditional site, located on the *weto*, Ejeo, is a rock on the reef in the ocean called Lidebdebju (Photo 1). It is believed that the people of Ratak chain originated through this woman. Lidebdebju, supposedly bore the first Ratak chiefs, and her sister, Liwetenmour, who is also a rock in Namu, bore the first Ralik chiefs. See Section 6.1 for associated traditional story.

This traditional site is determined “significant.”



Photo 1: Traditional Site, Lidebdebju

Site MI-AU-AU 002

GPS Coordinates N: 8° 08' 3.19"
E: 171° 10' 38.92"

This is a traditional site located on the Jabeno *weto*. It is a breadfruit tree (Photo 2). The related story tells of a woman named Lijanbaru who turned into the breadfruit tree. Under this tree are crabs and breadfruit (Photo 3). The rocks surrounding the tree are used to cook them. See Section 6.2 for associated traditional story.

This traditional site is determined “significant.”



Photo 2: Breadfruit tree, Site MI-AU-AU 002



Photo 3: Crab in rocks of Site MI-AU-AU 002

Site MI-AU-AU 003

GPS Coordinates N: 8° 08' 04.92"

E: 171° 10' 42.55"

This is a historic site also located on the Jabeno *weto*. It is an anchor sitting on the ocean side reef (Photo 4). It is approximately 80cm x 80cm. There is no known story associated with the anchor but it is thought to be from a Spanish Galleon. According to our informants, most of the ship was still there in 1965.

This historic site is determined “less significant.”

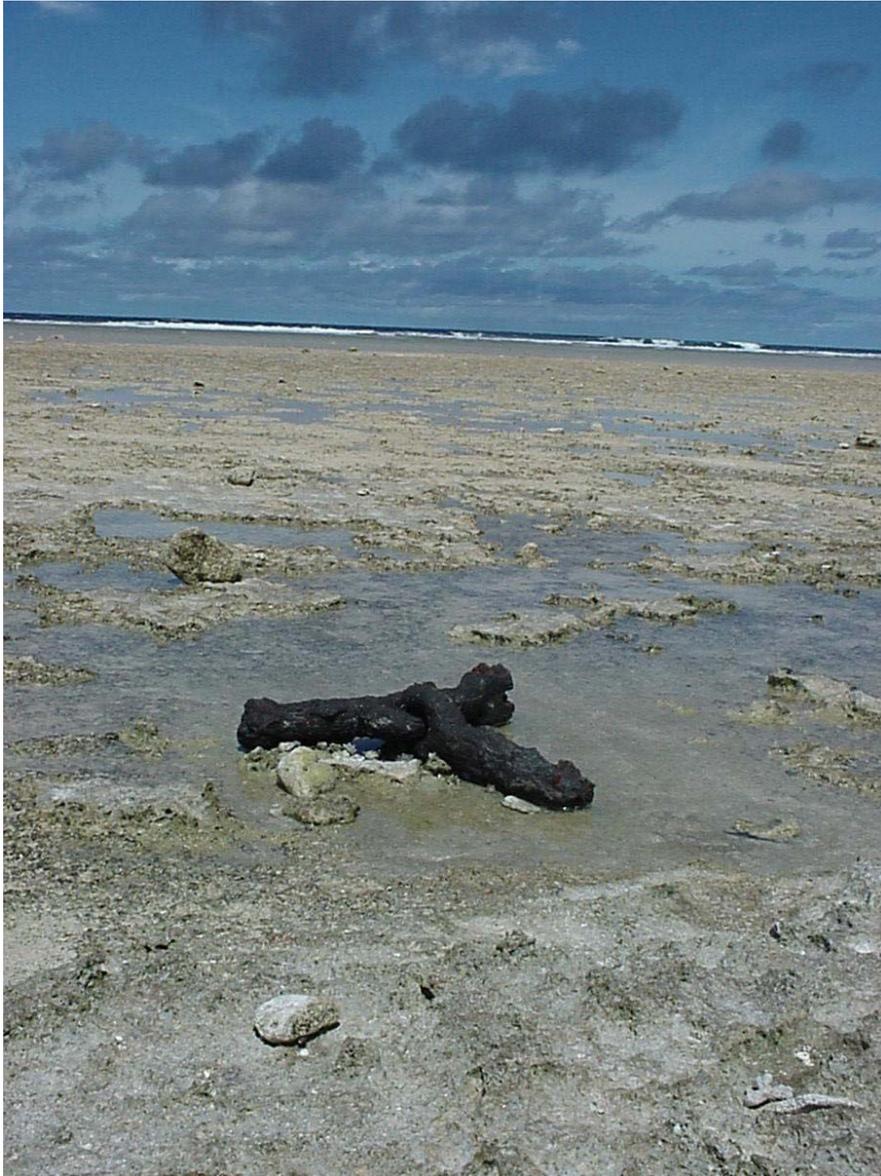


Photo 4: Anchor of Spanish Galleon, Site MI-AU-AU 003

Site MI-AU-AU 004

GPS Coordinates N: 8° 08' 05.83"
E: 171° 10' 35.04"

This is a traditional site located on the Lolimen *weto*. It is a pond on the ocean reef (Photo 5). When there was war between Aur and Arno/Majuro, the *Irooj* performed magic at this site. It is possible that the Traditional story in Section 6.10 refers to this site, however it is not known for sure as the two stories differ. In the story listed in Section 6.10, *Irooj* Jitiam of Majuro was coming to attack Aur and Maloelap Atolls. In that story it was three women from Maloelap who performed the magic instead of the *Irooj*.



Photo 5: Site MI-AU-AU 004

Site MI-AU-AU 005

GPS Coordinates N: 8° 09' 05.65"
E: 171° 10' 24.66"

This is a traditional site is the two islands Enekalik and Enebaj (Photo 6). This story is about the *Irooj*, the *Irooj's* wife, Lojela, and Lono. Lono had magic powers and could change himself from an old man to a young man. When the *Irooj* went fishing he told Lono, the old man, that he should stay with his wife. While Lono and the wife of the *Irooj* were alone, he turned himself into a young man and the wife fell in love with him. They started meeting under a tree. Finally the *Irooj's* magician used his power to discover the affair. He told the *Irooj* who in his anger chopped his wife into pieces. Parts of her body are at the pass between Aur, Aur and the two islands where the *Irooj* and his wife lived (Enebaj) and where Lono lived (Enekalik). The GPS coordinate was taken at the tree where the young Lono and the wife would meet. (See Section 6.4 for the associated traditional story.

This traditional site is determined “significant.”



Photo 6: Site MI-AU-AU 005

Site MI-AU-AU 006

GPS Coordinates N: 8° 08' 56.65"
E: 171° 10' 13.33"

This is a possible prehistoric site on the *weto*, Makwojlang (Photo 7). Over a year ago, a local man found a traditional Pandanas leaf pounder (Photo 8) at this location. The pounder is made of coral and measures approximately 30-40cm. No other information is known at this time and additional investigations will have to occur before a determination of significance can be made.



Photo 7: Site MI-AU-AU 006



Photo 8: Pandanas leaf pounder found at Site MI-AU-AU 006

Site MI-AU-AU 007

GPS Coordinates N: 8° 09' 01.19"
E: 171° 10' 11.69"

This site is a modern trash pit and possible a prehistoric site (Photo 9). This site is located on the *weto*, Koban. A local man found a shell adze at a depth of approximately 1 meter at this location. The adze measures approximately 10cm x 3cm (Photo 10). No other information is known and further investigations will have to occur before determination of significance can be made.



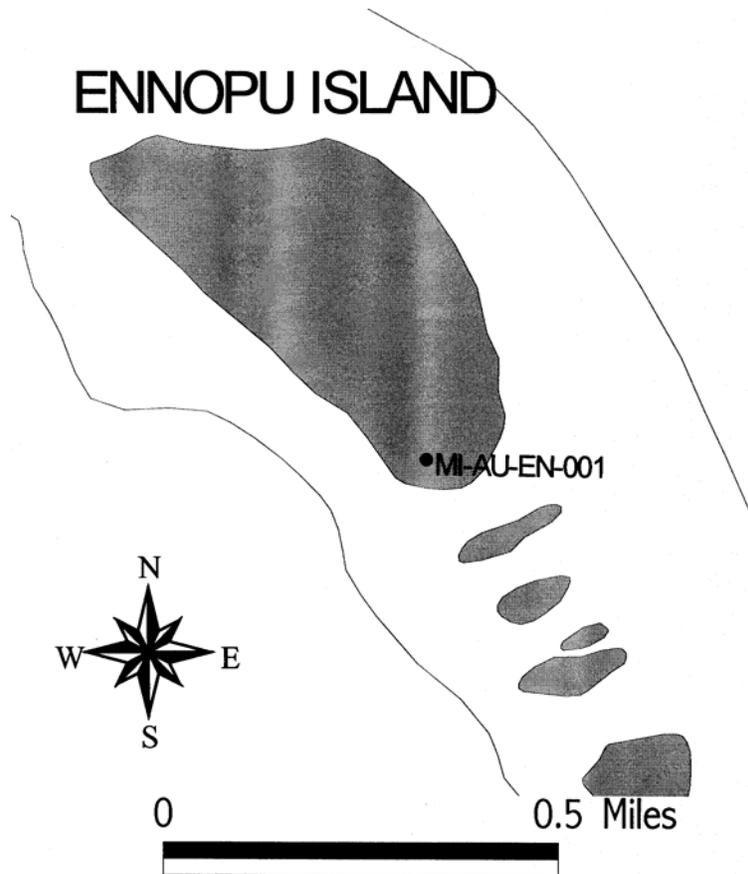
Photo 9: MI-AU-AU 007



Photo 10: Shell Adze found at Site MI-AU-AU 007

4.2 Ennupu, Aur

One traditional site was recorded on Ennupu Island (Map 4).



Map 4: Sites located on Ennupu Island, Aur Atoll

Site MI-AU-EN-001 (Marshall Islands- Aur Atoll- Ennupu Island -Site No.)

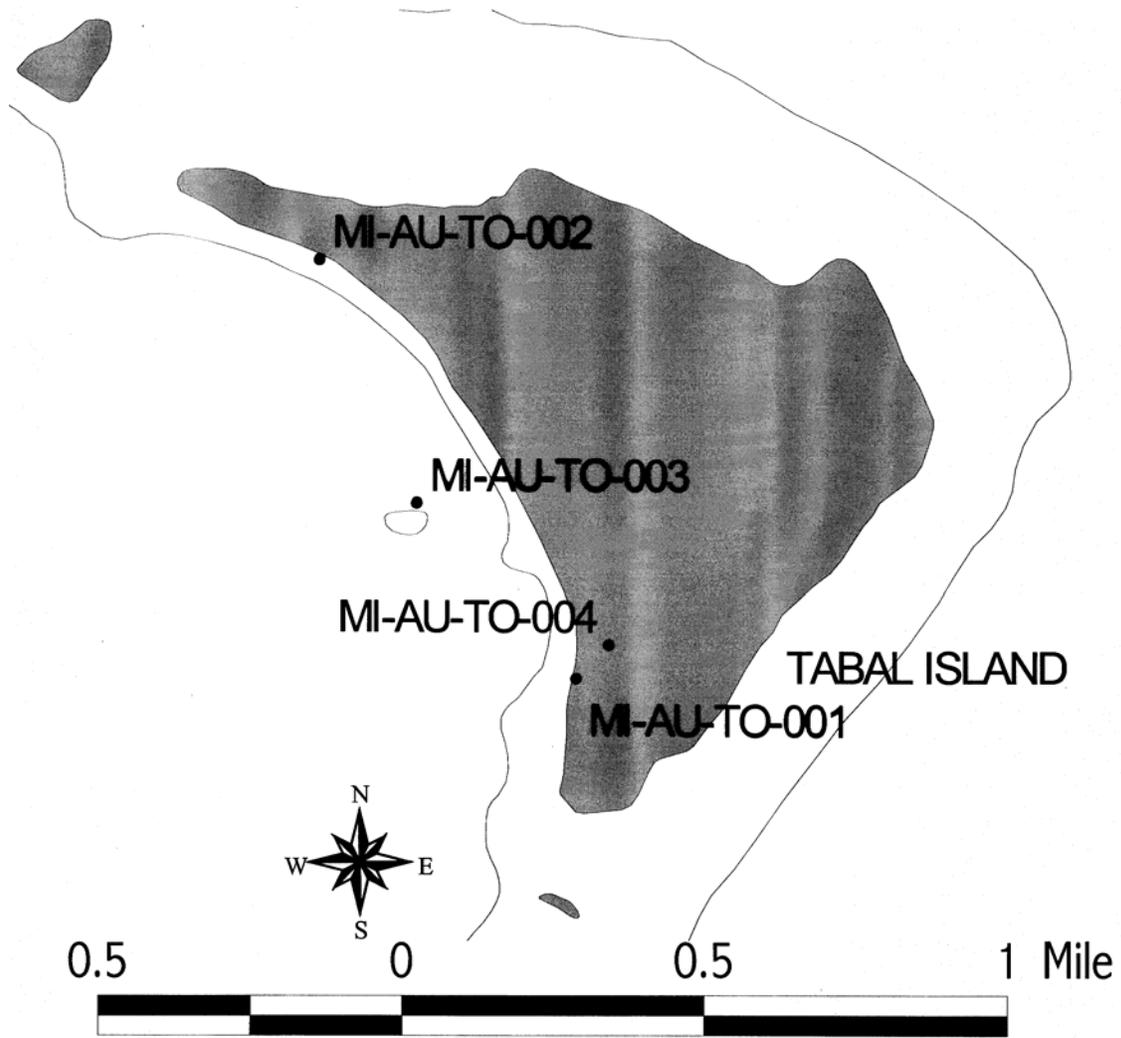
GPS Coordinates N: 8° 10' 53.61"
E: 171° 10' 07.23"

This traditional site associated with Site MI-AU-AU 005. The site is the entire island Enen Bubu (Ennupu), where the *Irooj*'s magician, Meme, performed his divination that allowed him to discover the affair between Lono and the *Irooj*'s wife. The GPS recording was taken on the south end of the island, however the entire island is considered the "site." No photos were taken. See Section 6.3 for associated traditional story.

This traditional site is determined "significant."

4.3 Tabal, Aur

Four traditional sites were recorded on Tabal Island (Map 5).



Map 5: Sites located on Tabal Island, Aur Atoll

Site MI-AU-TO-001 (Marshall Islands- Aur Atoll- Tabal Island -Site No.)

GPS Coordinates N: 8° 18' 08.59"

E: 171° 09' 31.10"

This traditional site is located on Jobanbok *weto* (Photo 11). The associated story tells of an old man and his two daughters. The old man tricked his daughters out of food. Further information may be available in Morean Watak's notes located on file at the RMI HPO.

This traditional site is determined "significant."



Photo 11: Site MI-AU-TO-001

Site MI-AU-TO 002

GPS Coordinates N: 8° 18' 44.64"
E: 171° 09' 08.93"

This traditional site is a rock in the water in the lagoon on Mitnan *weto* (Photo 12). Further information may be available in Morean Watak's notes located on file at the RMI HPO.

This traditional site is determined "significant."



Photo 12: Site MI-AU-TO 002

Site MI-AU-TO 003

GPS Coordinates N: 8° 18' 23.54"
E: 171° 09' 17.47"

This traditional site is located in the lagoon and is associated with MI-AU-TO 004 (Photo 13). This is where the man from Namu was thrown into the lagoon. Further information may be available in Morean Watak's notes located on file at the RMI HPO.

This traditional site is determined "significant."



Photo 13: Site MI-AU-TO 003

Site MI-AU-TO 004

GPS Coordinates N: 8° 18' 11.55"
E: 171° 09' 34.03"

This traditional site, located on the Kitokan *weto*, is associated with MI-AU-TO 003 (Photo 14). There used to be a mound but a typhoon destroyed it. A man from Namu came to fight and lived here. The locals fought him and threw him into the lagoon at the site above. Further information may be available in Morean Watak's notes located on file at the RMI HPO.

This traditional site is determined "significant."



Photo 14: Site MI-AU-TO 004

4.4 Mejrulon, Aur

One traditional site was recorded at Mejrulon Island.

Site MI-AU-ME-001 (Marshall Islands-Aur Atoll- Mejrulon Island -Site No.)

This traditional site are rocks between the two islands Bolkejokded and Mejrulon (Map 2). These rocks were thrown by Toltolben from Majuro in an act of war. *Irooj* Jobi fought off the *Irooj* from Majuro. The rocks were thrown but since they landed on the reef they did not hurt anyone at Aur Atoll. See Section 6.6 and 6.7 for associated traditional stories. Further information may be available in Morean Watak's notes located on file at the RMI HPO.

This traditional site is determined "significant." Note: This site was passed during a trip between the islands Aur and Tabal. There was a heavy rainstorm and so neither photos nor a GPS reading could be taken.

V. Management Plan

Cultural Resource Management (CRM) in the Republic of the Marshall Islands, while becoming an important part of archaeological work, is still in its infancy. CRM is based on the realization that cultural resources are nonrenewable and that prudent care must be taken to utilize these resources efficiently. While the immediate goal of the HPO survey was to identify the sites of Aur Atoll, the long-term goal should be the education of the local and national population on the importance of preservation of these sites. While the Historic Preservation Legislation of 1992 has codified CRM into law, the cultural traditions of the Marshall Islands, namely the lack of public lands and the importance of land rights to private landowners, makes the practice of CRM difficult to legislate. And while the Act has established that developers are responsible for the costs involved in conducting archaeological investigations prior to the commencement of construction, there is no precedent case for developers being prosecuted due to violations of that law. Therefore, education is still the most important tool that the HPO can use in site management and preservation.

5.1 Long range recommendations

The traditional, historic, and prehistoric sites on Aur Atoll are valuable resources. As such, they warrant an active preservation effort. The best strategy for the HPO seems to be raising public awareness and to actively involve local governments in their preservation efforts. Those preservation efforts should also be directed towards possible sources of income for outer island residents through tourism.

As the majority of sites recorded at Aur were traditional sites, ten of the 13, the long term goals should include preserving these sites and recording, in-depth, the associated stories. Unlike atolls in which World War II sites may attract tourism, Aur's tourism potential lies in its traditional Marshallese hospitality and history. An active effort of preserving this history is important.

5.2 Short range recommendations

As stated in Section 4, during the investigations the entire atoll was low on gasoline. This situation forced the team to decide which areas of the atoll were to be surveyed as only one boat trip was possible. The islands of Aur and Tabal and the eastern islets in between were selected. Thus the entire northern and western islands of the atoll were not surveyed. A future survey of those islands, specifically Bigen, Mummet, and Arjal, must still be completed.

In addition, the possible prehistoric sites, MI-AU-AU-006 and 007, should be investigated further so a determination of significance can be made. For stabilization efforts, only one historic site, MI-AU-AU-003, was recorded; and since it was

determined “less significant,” future stabilization efforts are not necessarily recommended.

VI Traditional Oral History

Prior to the introduction of a written language, Marshallese cultural was largely an oral society where information was maintained through oral traditions. Elder generations passed down beliefs, values, and philosophies by telling stories and chants to the younger generations. Many places in the Marshall Islands which have special cultural significance offer a wealth of folklore associated with their pasts.

McArthur (1995) states that while islanders can usually recall the name and basic events of the demigod of their atoll, very few can identify the names and stories of those from other atolls with the exception of Loktanur and Jebro for Ailinglaplap, Limejokeded, Jemeliut, and Letao of Majuro and the female Lijenenbwe of Namu. Loktanur, Limejokedad, and Lijenenbwe are said to be sisters. Lijenenbwe was the 'mother' of Liwetenmour. Liwetenmour was believed to have remained at Namu, in the form of a basalt rock, until a missionary had her cast into the sea. Some accounts suggest that she had originally come from the Ratak Chain in the east and that one of her sisters, Lidebdeju, remains as a basalt rock on Aur atoll. The Ijjidik *jowi* were the first descendants of Lijenenbwe to emerge as a clan, and that later the Erroja *jowi* became dominant. Johnson and Johnson (1980) include a story in their collection that claims that the Ralik and Ratak chains were people from basalt pillars, one for each chain of islands. Liwetenmour, a pillar in Namu, supposedly bore the first Ralik chief, and her sister Lirebdeju, on Aur Atoll, the first Ratak chiefs.

The themes of Marshallese stories are universal: good versus evil; heroism and success of the underdog; the repercussions for children of disobedience; family respect; and sibling and peer rivalry. They are flavored with demons, ghosts, giants, and personified fish and animals. Supportable historical fact is often combined with mythology in the same story.

There is a growing awareness among the Marshallese people of the important roles their oral traditions play in preserving Marshallese cultural identity. In all of the stories, morality prevails, and acceptable behavior and traits of character are exemplified so that they may be passed on from old to young, past to present, and hopefully from generation to generation.

There are many variations in the creation accounts. Regardless, the different versions introduce key characters important to Marshallese cosmology. According to Erdland's sources, the Ralik version of creation begins with a being Lowa (or Loa) who lived on the sea. An extensive, low table reef in the south and a swamp in the north bordered the sea. Lowa spoke to the sea, 'See your island reef' and the reef formation appeared. Then he said, 'See your sand' and the earth appeared on the reef. Again, he spoke: 'See your plants' and plants were growing. Again, he spoke, 'See your birds' and they appeared. One of the birds, a white gull, flew up and, while circling, spread out the sky, like a spider weaving its web between two bushes. When Lowa finally said: 'See your human beings' four human beings appeared, one in each direction: Irojrilik, in the west; (LoKomraan) Lakameran (Daymaker) in the east; (Lorak) Rerek in the south,

Lajiminanmen (Lajbuineamuen or Lalikian) in the north.

Then a boil grew on the leg of Lowa, from which, when it burst open, emerged Wulleb and Limdunani. Limdunani gave birth to two male beings: Lanej (Master of the Heights), and Lewoj (Master of the Middle of the Island).

Wulleb and his sister's children sat down one day on a stalk of arrowroot. Which, growing up to the vault of the sky, enabled them to ascend. Their peaceful companionship, however, was of short duration. Soon the brothers plotted to kill their uncle, and Wulleb, Lanej, and Lewoj waged war in the dome of the sky. After they had observed each other mistrustfully for several nights, Wulleb's retina tore, and he fell down from the dome of the sky on Imroj. Thus, matrilinearity begins.

When he sighed aloud as the result of his fall, Irojirilik awoke, came to him, and spoke: 'Well, this is Wulleb, and he has fallen from the sky!' Wulleb answered: 'My nephews and I watched one another by night; then when my retina tore, I fell down.' Irojirilik then spoke, 'Let us go into the hut.' They went into it and three months passed.

When Wulleb had spent some time with Irojirilik, a large and extremely painful boil developed on the extensor side of his leg. After it became ripe it broke open, two little boys issued from it, the elder of whom was called Jemeliwut, and the younger Letao.

Wulleb sent them to Lijebake (Tortoise woman) on Bikar Island in order to get magical tortoise shell from her. Lijebake – who, with her granddaughter Lijwei, had come from the Gilbert Islands – gave Letao a magical potion, which he drank despite all his disgust. By doing so, he became a crafty hero who not only conquered several atolls, but also embittered the life of his brother, Jemeliwut that the latter settled on Majuro Atoll, married there, and finally changed into a silver tree. Letao went everywhere seeking adventure and met sudden death in the Gilbert Islands.

According to Reymond (1899) in *Das Weltall*, the Ratak version of creation starts with two serpents (or worms), the male was called Wulleb and the female, Lejman (Woman Rock). They developed into human form in a shell. To make a larger world, Wulleb lifted the arch of the shell, using a stick to expand it to the present height of the sky and width of the oceans.

From a boil on Wulleb's forehead emerged Lewoj and Lanej, who were sent to the sky by Wulleb in order to put up the stars. Lejman also had two female offspring, Lino (tidalwave) and Ni (coconut).

Then Wullip collected in a coconut shell the blood from a cut on his leg, and from this blood came Letao (one with the white eyebrow, the powerful, the crafty, the favored one) and Jemelud (father of the rainbow). They went out to conquer. Prior to the conquest of the islands they had already ascended to the vault of heaven in order to defeat their older brothers. That their ascent in the north was successful is clearly shown by the fact that the Northern Hemisphere is less inhabited (studded with stars) by far than the Southern Hemisphere. A bird flew to tell one of the sky gods their plans to defeat their brothers. This god captured Letao's small son, set him impossible tasks, which the son accomplished, then lowering himself to earth on a thread. Letao had settled on Mejit. Bikar was formed by a rock which Letao threw at the bird which had come to spy on him.

For clarification, from the Ralik chain the cosmological genealogy is as follows:

		Lowā		
	Wulleb			Limdunaniĵ
Jemaliwut	Letao		Laneĵ	Lewoj

From the Ratak chain the cosmogonic genealogy is as follows:

	Wulleb			Lejman
Jemaliwut	Letao	Laneĵ	Lewoj	Lino
				Ni

Other accounts add information, some contradictory. According to Knappe the first being was Wulleb who lived with his wife on the invisible island of Eb. One day a tree grew from Wulleb's head, split his skull, and out came Letao and Jemeliut. Letao quarreled with his father and went away, flying through the air with a basket of earth some of which spilled through a hole, so that the islands came into existence in the sea. Then Letao planted the land, created land and sea animals, and married his mother. Then the bird Babuk came with the female sexual organ in his beak. Letao hid it. Lejman found it and put it on. Neither wore clothes at this time but Lejman became ashamed and took two mats as covering (beginning of clothing). From their union came the first people. In this version, Letao is credited with creating the animals and plants. According to Knappe (1888) the woman wasn't ashamed at her nakedness but because she had an incestuous relationship with her son.

Davenport's version states that Lowa sent a man who put all the islands in a basket and arranged them, first the Carolines, then the two chains of the Marshalls, Namorik was dropped out of order. The basket was eventually thrown down and became Kili.

In other writings, there are claims that it was Iroijjdrikrik who married the woman Lijebake of Bikar (Kramer and Nevermann (1938). Erdland (1914) tells of a story in which Jemeliut has an aunt, Limejokeded, who after stealing bananas and being caught by her Jemeliut becomes an ogress and gives birth to mosquitoes, flies, mudfish, and the warrior Toltoliben.

Davenport's version states that Lowa sent a man who put all the islands in a basket and arranged them, first the Carolines, then the two chains of the Marshalls, Namorik was dropped out of order. The basket was eventually thrown down and became Kili.

In several versions, Lowa sent two men to Ailinglaplap to tattoo all the living creatures, thus giving them colors and markings (Davenport 1953, Chambers 1969, Buckingham 1949). Lowa sent two men down to Bikini with measurements for the first canoe (Buckingham 1949, Davenport 1953). A woman bore a son and a coconut. At his request, she buried the coconut, which grew into the first coconut tree. Again, at his request she husked a coconut and the husks floated to Iroijirilik, who made sennit with them. The sennit was taken by a bird and flew into the air with the rope making a net and

widening and raising the sky, holding it up. Rain is water separated into drops falling through the net (Kramer and Neverman 1938, Buckingham 1949, Chambers 1969). Everyone went to Namu to honor Liwatonmour, founder of the *Irooj jowi*. From this gathering came all *jowi*, with *Irooj* as the highest (Chambers 1969).

There are many other stories, which explain the origin of the sailing canoe (Liktanur and her son's canoe race) (Kramer and Neverman 1938, Erdland 1914, Buckingham 1949, Davenport 1953), the origin of navigation (Buckingham 1949), origins of animals, breadfruit (Mackenzie 1960), and taro (Bikajle 1960).

According to Erdland (1914), Aur means, "narrow hut entrance". Kramer (1938) states that the name probably comes from the island of the Carolines, Aur, Truk. The atoll was very important, so much so that around 1850 the *Iroojlaplap* lived there. Also there is a *jowi*, Raur, from which the chiefs of Mejit stem (Erdland 1914).

6.1 The Story of Lidebdeju

On the island of Aur in Aur Atoll there lived a woman called Lidebdeju. Lidebdeju was younger than (her sister) Liwetenmour who had been living at Namu where she was adopted by an old man named Laimajaj. When her father, Laimajaj, died Lidebdeju wanted to visit and bring her sister a fish called *Lojebjeb* (Grouper) which appears at in the channels at Aur during the months of October, November and December. Lidebdeju was turned into a rock.²

6.2 The Story of Lajanbaru

At the northern part of Aur, Aur, there lived an old woman named Lijanbaru who turned into a *mejwaan*, a breadfruit tree with nuts. This tree is on the *weto* called Jabina. It's a big breadfruit tree and it has been on this *weto* from ages because it one of the *Koklal*, or story of Aur. Under this tree, there are crabs for her to eat and these crabs never disappear. Also there are rocks for her to cook with.³

6.3 The Story of Lono

This story is about Lono, the *Irooj* and Lojela, the *Irooj's* wife. These people lived on Aur, on the *weto* called Maabab. At the beginning of this story, the *Irooj* called all his men on Aur to go fishing, a traditional fishing technique called *bobo*. When they came, a man named Lono was among them. Lono had power like a magician. He could change himself from an old man to a young man and many other strange things. After they were told by the *Irooj* to go *bobo*, or fishing, they men went and prepare their *pelee* (torch made from dried fronds). This fishing technique is done at night only. Lono went with them. He was walking with his two walking sticks. He ask the men to give him some fronds so he can help them making the torches and by the time the men were ready to go out fishing, he says, "What about me, I'm going with you, *Irooj*".

² Langinbo Frank recorded story and provided the English translation. See Site MI-AU-AU-001.

³ Langinbo Frank recorded story and provided the English translation. See Site MI-AU-AU-002.

“No, no, no you’re an old man. You stay with Lojela (the *Irooj*’s wife) and the other women while we go out fishing and wait” the *Irooj* responded.

While the *Irooj* and his men were gone, Lojela and Lono stayed at the *Irooj*’s house with Lojela’s friends and handmaids. Lono changed himself into to a young man and when Lojela looked up, she was surprised, there was no old man. She asked herself, how come there is no old man but a young and very handsome man. Then she says,

“Ah, where you come from? Where is the old man that was there?”

The young man replied “Ah, oh, I’m here”.

She looked at him, wondering at this transformation; all of a sudden, she felt something happen in her heart. Then she got up from where she is sitting and left because she couldn’t believe the young man who claimed to be Lono. When Lojela had left, Lono immediately he jumped into to her place and sits at it. He knows the place will be still warm so he can do his sorcery or black magic to make Lojela think more about him all the times. He chants:

Jokonam, jokonam, jokna, jokna, joknan mij, joknan mij
Am eo ebed ilim, Ao ebed ilim
Liene edrik, na, na, na, na, mak mak

When he finishes the chant he knows that Lojela is thinking about him at that moment, then he goes to Lojela and says, “I have a question for you.”

Lojela says, “Try it.”

Lono asks “Is it okay with you if I talk with you?”

Lojela says, “I have thought about that since the time I first saw you.”

He applied his sorcery to Lojela so that she can always remember him. After he finished applying his sorcery, he knows that Lojela has a stronger feeling toward him, then he says to her “I have a question for you.”

She says, “Go ahead and try.”

He says, “Is it okay with you if I talk to you?”

“Perhaps your wishes reflect the wishes I have been feeling toward you since the first time I saw you.” This is where their relationship started.

The bond between them grew with time. Lojela longed to spend more time with Lono. She started to makes excuses to find time to spend with Lono.

One day she pretended to be sick. She went inside the house and covered herself with the sleeping mat and began to groan. She kept groaning and soon the *Irooj* started to worry about his wife. He tells his wife’s women to go and see what is wrong with his wife.

The women go to Lojela and she tells them that she wants to eat flying fish from the ocean side of Atamle, an island near the eastern side of the pass at Aur. When the *Irooj* hears this, he calls his men to prepare *belle* (torches) so they can go during the night and *bobo*, fish for flying fish. When the *Irooj* and the men leave, Lojela prepares to go and meet Lono. When the men return they give the fish to Lojela. She takes it and sticks

one of her fingers thru the fish's eye and pulls it out and eats it. When she is done she turns back into the house and covers herself with the sleeping mat again, feeling satisfied because she had found a way for her and Lono to meet.

Two or three days later, she pretends to be sick again. She goes inside the house and covers herself and start groaning again. Again, the *Irooj* tells her women to go and see what is wrong with. The women approach Lojela and she tells them that she craves eat *Mole* (rabbit fish) from Unin La En, a place for *Alele* (a traditional fishing technique). This time the place the men are going is further out from where they went to the first time. The *Irooj* calls his men again and they go fish for the fish his wife wants to eat. When Lojela knows that the men were gone, she gets up and takes shower and puts coconut's oil on her body to go and see Lono. They go to their meeting place under a *Konlat*, a plant that grows on the beach with leaves bright yellowish-green at the western ocean side of an island next to Aur, Aur, called Jabweno. When she knows that the *Irooj* and the men are about to arrive, she goes back to the house.

After a while, her feelings toward Lono get stronger and she gets sick again. She groans louder this time, and the *Irooj* is so worried.

“Ah, oh” he says “you go and see what is wrong with Lojela.”

The women go and ask her and she replies, “I don't know, but I crave to eat fish from Kobar.”

Kobar is the name of the *Ale En* (chief's provision) at Bikien, the farthest island from Aur.

“I really want to eat *bwilak* (surgeonfish) from the *Ale En*.” Lojela insists.

The *Irooj* calls his men and tells them to prepare their fishing gear. When they were ready, they sail out to look for the *bwilak* his wife wants from the *Ale En*. They sail east and when they reach the island called Erub one of the men jumps out and goes ashore near the cape at the eastern end of the island.

The man is named Meme. He is the *Irooj*'s magician. Once ashore he goes to the place where two old women are staying and eats food with them. When he finishes eating, he says good-bye to them and starts walking homeward (west) toward Aur.

A thought comes to him to use his magic to find the reason why Lojela eats so little of the fish she is craving and crying for. He continues walking to Aur and just when he reaches the island named Enen Bubu, he starts his divination to find which direction is the best to walk. Now, he chants, “*Eman Ke Bwe'En Ao Etal Bunin Rakin No Ilik*”, his divination tell him not to walk in that direction. “*Eman Ke Bwe'en Ao Etal Bunin Raken No Ilik*” he repeats, and once again the divination tells him not to walk in that direction. Finally he crys “*Eman Ke Sween Ao Etal Iolpen Meje im Ene Tolok*”. His divination is successful and the answer is yes.

Meme takes the direction from his divination and walks in the middle of the passes and islands toward Aur. Just when he is getting to Aur when he looks and sees Lona and Lojela. Lono and Lojela are at their meeting place under the *Konnat*, they do not know that they are being watched. Meme hides from them and returns to Aur to await the arrival of the *Irooj* and his men.

When the *Irooj* and the men arrive, Meme goes to greet them first. Then, he says to them, “I have news for you” and starts explaining what he has found out to the *Irooj*.

The *Irooj* goes inside his house and takes his axe and begins to sharpen it. He was very angry and sad. When he finishes sharpening his axe, he goes to his wife and says:

“All these times you said you were sick and you wanted to eat those special fish, you were lying and have been making excuses so you can have time with Lono.”

He picked up his axe and then chopped his wife into pieces. Parts of her body are at the pass between Aur, Aur and the two islands where the *Irooj* and his wife live and where Lono lived.⁴

6.4 *Lerikinmeletelet and Lerikinmoletelon, (Kramer and Nevermann version)*

Two women, *Lerikinmeletelet* and *Lerikinmoletelon*, lived on Aur. The first had a son *Jebokerei*; she said to her sister, “Look after my son, I shall get food.” But the latter bit off the boy’s finger and cooked it. The mother smelled the dish in the bush. She came and asked, “What is that smell?” The boy was crying. The sister answered, “I killed a *jakar* bird and am now cooking it.” Then the mother asked again, “Why does the boy cry so much?” The sister answered, “He is very hungry. Why don’t you give him something to eat?” She gave him food without noticing the loss of the finger. So it went for days. Each day the foster mother bit off a finger of the boy without the mother noticing it. When only the thumb was left, the mother saw the mutilated hand for the first time and said, “Why did you not tell me that the boy is ill? She did not suspect the brutality of the sister. The boy finally died crying. Then the mother cried, “Why did you care for him so badly? I think you killed him.” However, she did not find out about it (Kramer and Nevermann 1938: 277-78).

6.5 *Lerikinmelelele and Lerikinmoletelong (Downing et al version)*

Two women, *Lerikinmelelele* and *Lerikinmoletelong*, lived on Aur. The first had a son, *Jebokerei*; she said to her sister “Look after my boy; I want to fetch food.” But the other one bit off the boy’s finger and cooked it. The mother smelled the dish in the bushes. She came and asked, “What kind of a smell is that?” As the boy cried the sister answered “I killed a *jekad* bird, and am cooking it now.”

Then the mother asked again “Why is the boy crying so much?” And the sister answered “He is very hungry; do give him something to eat.” Then she fed him except that she did not notice the loss of the finger. It went on this way for days. Each day the guardian bit off one of the boy’s fingers without the mother noticing it.

It was only when just the thumb was present that the mother saw the mutilated hand, and said “Why didn’t you tell me that the boy is ill?” She did not suspect her sister’s brutality. Finally, the boy died wailing. Then the mother shouted, “Why did you

⁴ Langinbo Frank recorded story and provided the English translation. See Sites MI-AU-AU 005, MI-AU-EN-001.

take so little attention?” I think you killed him.” But she did not find out for certain (Downing et al 1992).

6.6 *Jemeliut and Toltoliben (Kramer and Nevermann version)*

Toltoliben was a younger brother of Letao and Jemeliut. Ben was a great hero and always wanted to fight. Ben stood in Kemor, Majuro, and belligerently threw stones northward toward Aiangi on the reef, where there was land in former times. This caused the land to break up and many people died. The stones jumped again like geysers and fell on Aur, where they can still be seen on the reef. The frightened people said to Jemeliut, “Ben is too strong, no one can master him”.

“Well,” he said, “make a large boat!” When it was finished, he sailed to Aur with Ben in order to be able to observe everything. Ben soon started to kill people there. Then he took the land. Then he went to Maloelap, where he acted in the same way, and on to Wotje, Ailuk, Utirik, and Mejit. At each atoll, Toltoliben killed people and took their land. Then he sailed to Bikar where there were only birds. He killed them with his club but so many birds came that the canoe filled with their bodies and it was soon full. But more and more birds came and flew around the boat, and he had to kill all of them. Nevertheless, more and more came, until the boat sank. Ben called to his brother who was lying in the lee outrigger, to help him.

Jemeliut came out of the deckhouse and chanted to the birds, waving a coconut frond. Then the birds all flew away. He said to his brother, “You are so strong in a fight. Why can you not banish the birds?” Thus, the power of Jemeliut is shown. He was the victor, the hero. (Kramer and Nevermann 1938:247-48)⁵

6.7 *Jemeliut and Toltoliben (Downing et al version)*

The mischievous man-god Letao and the wise *Irooj* Jemeliut had a younger brother, Ben. He grew so large and strong that people talked about him everywhere. His name was Toltoliben, or “big mountain Ben”.

He was proud of his strong body and went around looking for battles. He was the *ritoranae*, the champion, and there were many songs about his deeds.

In those times, the people of the different atolls of the Marshall Islands were often at war with each other over the rights to land. The fighters used spears, daggers, and stone slings. They also used a club that had a long row of sharp teeth of the giant shark. One stroke of that club could rip an enemy’s body open. Ben knew how to use all the weapons well.

One day, he stood at Kimor, a place in Arno Atoll. He threw stones with his sling, far away, a hundred miles or more, to Aenen, a place in Aur Island. He picked up large rocks and molded them in his strong hands before throwing them. He sang loudly, and his song was something like this:

“I, Ben, the great Champion,
Standing on the lagoon side of Kimor,

⁵ See Site MI-AU-ME-001

I throw stones westward, whee-ee-ee!
Stones and stones and stones,
Enough to turn Aur upside down.
I kill!
There's no retreat when Ben attacks. No retreat!
Even though thousands line up against me.
I am Ben, the Champion. I kill!"

The part of Aur where the stones fell was good land then, but it broke to pieces and sand. Many people died. The stones splashed the sea water high into the sky. As they fell, they built up a great reef. After that, when Ben went to fight and take land, men went in canoes to watch him.

People said to Ben's brother, *Irooj* Jemeliut of Majuro Atoll "You are great, oh *Irooj*, but your young brother, Toltoliben, is even greater. He's so strong that no one can beat him in anything. It's the greatest thing in the world to have a strong body."

"Do you think so?" said Jemeliut. "Well, perhaps there are powers that are even stronger. Make a canoe, large enough to hold dozens of men."

The men made the large canoe. Then they sailed over to Aur Atoll and watched Ben fight. He killed many men and took the island. Then he sailed around and did the same thing in the other atolls of the Marshall Islands, first Maloelap, then Wotje, then Ailuk, then Utirik, and then Mejit. He took them all for his family and clan.

"Why don't you capture Bikar Atoll too?" asked his brother Jemeliut.

"That will be easy" said the Champion. "Nobody lives there. I can take it, just by landing there".

They all sailed away to Bikar Atoll, in the north. It was a place where no people lived. On it were thousands of sea birds.

The other canoes of the fleet stayed beyond the reef. Only his brother, *Irooj* Jemeliut, went near the shore with Ben in the great canoe.

Suddenly, a great number of large sea birds flew out and attacked the mighty champion as he stood in the boat. He tried to fight them off. He struck at them with his great club, killings hundreds. Their dead bodies fell all around him in the canoe. Hundreds more came, large and small, and Ben killed them all.

That went on and on. More and more birds attacked him, and he killed more and more. At last, the canoe became so loaded with dead birds that it began to sink.

Still the birds came, in thick clouds that hid the sun. On they came, more and more, and still more and more. The noise of their wings and their cries were like thunder. Ben fought and fought. The birds flew at his head and face and eyes, until he was covered with blood and his eyes began to close.

His friends, watching, felt sorry for him, but they were afraid of the birds and did not go to help him. Finally, Ben called to his brother, Jemeliut the *Irooj*, who was under shelter in the canoe.

“Help me, help me, brother!” cried Ben. “The canoe is sinking. I can’t get rid of these terrible birds. Come and help me. Save me with your wisdom!”

Jemeliut came up and stood beside his young brother, who fell down beside him, almost dead. He held up a palm leaf, waved it, and spoke to the birds “Peace, peace!” he said. “I, Jemeliut, am here. Go away. It is Jemeliut who speaks.”

The birds flew away, like a dark river running to the sky, until they were gone.

Jemeliut turned to his brother. “Is it possible that you, who can fight so well with weapons, cannot drive away a few birds?” he said. “There are better things than weapons, my brother, for winning battles.”

And so the people saw that Jemeliut was the true *dri anjo*, the leader, the champion. He had the strength of the mind, the heart, and the spirit. He had the magic of peace. It was stronger than the power of club and spear and sling. The people of Majuro were lucky to have such an *Irooj*.

The stones that Toltoliben threw are still there. They are rounded, like balls, just as Ben molded them, long ago. They lie upon the reef in a row. Anyone can see how well Ben knew the distance and planned the fall of the stones (Downing et al 1992).⁶

6.8 Lanjamo and the two female demons (Kramer and Nevermann version)

Once two female demons lived on Jemo, Lijenolir and Neiolir. The woman Lijebake lived on Aur. She had a son Lanjamo, whom she sent to Jemo. No one else could go there, because it was taboo. The boy performed a magic chant called *kejebagege*. He partitioned the island, reserving a part for the demons and a part for humans. Thus, he won the island for the people (Kramer and Nevermann 1938: 277).

I am Lijebake,
I wake up,
I sing this taboo.
Taboo hinders walking, afterward good;
You stand there,
Because you are *anij*
I am only a human being,
Your land is that side,
My land is this side.

6.9 The origin of Taro (Downing et al version)

Iaraj, or taro, was first introduced into the Marshall Islands from heaven when two brothers descended to earth each carrying a full basket of taro.

The first brother visited the island of Namu where a woman by the name of Liwetenmour lived. His brother joined him. They wished to present the taro to the woman as a gift but she spurned them and their gifts. They then decided to look elsewhere.

⁶ See Site MI-AU-ME-001

Finally they came to Majuro where they planted the taro, and thus Majuro was the first place in both the Ralik and Ratak chains of the Marshall Islands to grow taro.

The younger brother later moved to Aur and introduced taro there (Downing et al 1992).

6.10 Irooj Jitiam's attack on Aur (Alele Files)

Irooj Long ago, *Irooj* Jitiam of Majuro set sail with his large fleet of sailing canoes and hundreds of warriors for the islands to the north. His intent was to attack Aur and Maloelap Atolls in order to establish total power over the northern Ratak islands. The people of Aur and Maloelap knew of his planned attack and they prepared for war.

In the meantime, three women of Maloelap, well versed in sorcery and supernatural powers, proceeded to the ocean side of the island and performed magic rituals to change the weather and thus disrupt *Irooj* Jitiam's attack on their island.

As *Irooj* Jitiam and his warriors sailed between Aur and Maloelap atolls, suddenly the ocean raged with fury and they found themselves in the middle of a tremendous storm. Soon all canoes lost their course, capsized and the men were lost to the sea. Thus, did the magical powers of these three women protect their islands (Alele files)⁷

6.11 Booj Toonmur (Alele Files)

Long ago, there was to be a large battle between the northern and southern islands of the Ratak Chain. The battle was to be fought on Aur Atoll and the name of the battle was *Toonmur*. A man named Lokolo married to a high *Lerooj* whose sons were the *Irooj* fighting from the southern islands went to Aur in Aur Atoll and stopped his sons from fighting. Then he went to another island in the same atoll, Tobal, and convinced the opposing side not to fight.

Lokolo was a commoner, but because he was married to a *Lerooj* and was famous for his bravery, he was highly respected and all the *irooj* abided by his request. If this battle had been fought, it would have permanently divided the Ratak Chain into two continually opposing factions. Lokolo's wisdom and bravery brought peace instead of division. The phrase, *Booj Toonmur*, used in times of war means to bring together all fighting factions and to make peace. (Alele Files)

6.12 Traditional ekjab

The language of the Marshall Islands has four different words to indicate spiritual beings: *jetob*, *anij*, *ekjab*, and *noneip*. The meanings of these are not clear. Knappe (1888) states that a *jetob* is a spirit who had existed somewhere in the universe and to whom one attributes particular supernatural qualities and abilities. An *anij* is an invisible being, which can both help and harm people. An *ekjab* is embodied in natural objects; a tree, a plant, a stone, a reef, an animal, etc. A *noneip* lives by themselves on certain islands of the Marshalls and are invisible to ordinary mortals. Knappe (1888) lists these *ekjab* from Aur.

⁷ See Site MI-AU-AU 004

- Lidebdebjū, a basalt stone on Aur Island. He states this is a sacred stone and no one dare touch it. It doesn't mention that she was the mother of the *Irooj* of the Ratak as mentioned in other sources (Johnson & Johnson 1985).⁸
- Gamumut, a large crab on Mamut Island
- Larejildak, a *kangl* tree on Aredjil Island
- Ladjeli, a coral stone on Aur that is as tall as a man, has the figure of a torso, but without legs or arms. This *ekjab* watched to see that persons who are not tattooed did not catch flying fish. If such people ventured out then Ladjeli brought a storm. It is possible that Ladjeli is Lojela from traditional story 6
- Luinoa, a large shark in the Aur lagoon. To see him is an omen of disaster and death; usually many people die in the atoll.

⁸ See Section 6.10 and Site MI-AU-AU 001

VII. Summary and Conclusions

As mentioned in the introduction, the objectives of the present project were very clear and focused on site survey and inventory and education. The present work at the HPO is focusing on surveys of all the atolls within the Republic in order to produce a complete site inventory and National Register. Unfortunately, given the limitations of a reconnaissance survey it must be remembered that only visible historic and traditional sites were recorded. A more intensive survey and possibly limited test excavations are still required (See Section 5).

Part I of this report acquainted the reader with the research design, scope of work, and methodology involved in solving the pre-stated problems. It gave information on previously conducted research, a brief history of the Marshall Islands, and important historical events relating to Aur.

Part II described the environmental setting of Aur. Typhoons can drastically alter the landscape of low lying atolls in the Pacific. Sea level changes pose additional threats to atoll environments. It is predicted that the global warming trend will have a tremendous impact on atoll communities within the next century. Information provided on vegetation and soil types provided clues to the likelihood of areas primarily used for agriculture.

Part III discussed land tenure and subsistence strategies. This is important for evaluating the significance of sites concerning their standing in time and space. How certain areas may provide a better chance of recovering subsurface material in future intensive excavations.

Part IV reported the results of the field investigations. A total of thirteen sites were recorded on Aur Island, ten of them being traditional. Seven sites were recorded on Aur Island, one at Ennopu, four at Tabal, and one at Mejruon. The islands of Bigen, Mummet, and Arjal still require investigations.

Part V listed possible long-term and short-term management plans for the preservation of the sites on Aur Atoll.

Part VI lists the traditional stories associated with Aur Atoll.

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