

THE KWAJALEIN HOURGLASS

WELCOME ISSUE

FALL 2017



F I T O C E A N

REPUBLIC OF THE MARSHALL ISLANDS

M A R S H A L L I S L A N D S

A N D S STATE OF KOSRAE

14 MILES (22.5 KILOMETERS)

663 MILES (1067 KILOMETERS)

178 MILES (287 KILOMETERS)

883 MILES (1400 KILOMETERS)

375 MILES (604 KILOMETERS)

274 MILES (441 KILOMETERS)

14 MILES (22.5 KILOMETERS)

15 MILES (24 KILOMETERS)

INDIVIDUAL 222 MILES (358 KILOMETERS)

Design: Jordan Vinson

WELCOME TO KWAJALEIN ATOLL



Kwajalein



Roi-Namur



GT 221 mission

Did you ever want to relax in a beach chair and watch one of the Air Force Global Strike Command's Minuteman III intercontinental ballistic missiles re-enter the Earth's atmosphere? Ever want to go sailing to uninhabited tropical islands to do some camping and stare at night skies not washed out in light pollution? Ever want to learn more about the WWII Pacific Theater and walk in the footsteps of American and Japanese warriors while living amid a historic battlefield? Ever desire becoming part of a tight community where folks from all walks of life—from doctors, plumbers and helicopter pilots, to firefighters, carpenters and physicists—go to the same barbeques and play sports together year-round? How about the idea of clocking out of work at 4:30 p.m. and descending to 60 feet of water during a scuba dive only a half hour later? Like manta rays the size of picnic tables? Love the concept of no vehicle traffic and no long commutes to work? Do you love to ride bikes, watch vibrant sunsets over the Pacific Ocean and live in a warm, windy climate?

Great. Welcome to U.S. Army Garrison-Kwajalein Atoll. You're going to love it here.

Enclosed in the following pages are explainers, guides, photographs, trivia and more, all of which can be used as a reference in your immediate future as a Kwajalein or Roi-Namur resident. Need to know where to dispose of propane or large batteries? Want to know the easiest way to get a Marshallese driver's license? Need to learn the cultural norms you should follow when you visit Ebeye, Enniburr and other outer islands and atolls? What are the available sports leagues on the garrison, and when do the seasons come around? How did this atoll form? How can you get to Roi? And how do you get supplies to throw a kickin' catered birthday party at the beach?

Read on for these answers and more.

NOTE: While most content featured in this issue is more geared to garrison newcomers, many of which come during this time of year, there is plenty of information for our many long-time residents. Please send any comments, questions or concerns to usarmy.bucholz.311-sig-cmd.mbx.hourglass@mail.mil

THE KWAJALEIN HOURGLASS

The Kwajalein Hourglass is named for the insignia of the U.S. Army 7th Infantry Division, which liberated the island from the forces of Imperial Japan on Feb. 4, 1944.

The Kwajalein Hourglass is an authorized publication for military personnel, federal employees, contractor workers and their families assigned to U.S. Army Garrison-Kwajalein Atoll. Contents of the Hourglass are not necessarily official views of, or endorsed by, the

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A 165 MILLION YEAR JOURNEY

JORDAN VINSON

If you recently moved to Kwajalein Atoll, you now live and work amid one of the planet's largest lagoons, encircled by one of the planet's largest coral atolls. Lying at the heart of the Ralik Chain (the western, or "sunset," chain) of the Marshall Islands, Kwajalein Atoll sits at a point roughly equidistant to Honolulu, Japan and northeast Australia. It's at least a 2,000-mile swim to the nearest significant landmass, which in our case happens to be Australia. You're at eight degrees and some change, or about 500 miles north of the equator.

The atoll itself, like all 29 atolls comprising the RMI, is what remains of a shield volcano that once extended from the top of the Pacific Plate at the floor of the ocean up through the surface of the ocean. Born out of volcanic eruptions occurring thousands of feet below the Pacific Plate between 165 and 76 million years ago, this seamount grew and grew. Finally, when it peaked out of the surface of the ocean, it became an island, reaching the first transformative stage of atoll formation.

Exactly how far it extended above the water's surface is hard to say. Did this island look like a mountain, like Mauna Kea in Hawaii, which tips the charts in the Pacific Ocean at more than 13,000 feet in height? Or did it resemble current-day Kosrae or Pohnpei, both of which reach just over 2,000 feet in height?

"We really just do not know," says Dr. Curt Storlazzi, a research geologist and oceanography with the USGS' Pacific Coastal and Marine Science Center. "Because the base of the atoll is 50-80 kilometers across, it could have been really big. We just don't really know."

Regardless of how high the island stuck out of the water in its pre-atoll state, it provided a large base close to the water's surface for coral to latch onto and grow. That surface proximity is important. It is one of the most essential requirements for coral growth, providing cozy, nutrient-rich real estate close enough to the water's surface to allow the coral animals to pull in energy from the sun, sustain themselves, grow and reproduce.

When did coral reefs first begin forming around this volcanic island? Dr. James Hein, a long-time USGS scientist specializing in marine mineral deposits, does have an answer: roughly 56 million years ago. From that point onward, individual coral colonies began to form along the perimeter of the island and grow into ever-greater colonies, eventually merging together

around the island perimeter into a contiguous mass of coral animals, which we call a fringing reef. This is the second major transformational stage in atoll formation. According to the National Oceanic and Atmospheric Administration, it can take 10,000 years for a fringing reef to form around an island. If those conditions remain favorable, the reef will continue expanding throughout the next 100,000 years, the agency states.

Contrasting with the expansion of the reef along its perimeter, the island landmass eventually began to undergo its own transformation. As the Pacific Plate slowly crawled across the Earth's mantle, the position of the large Kwajalein volcanic island became more and more distant from its source of volcanism (aka a hot spot). It was this hot spot that had spewed the magma out of the planet's mantle, through the lithosphere and into the ocean to form the volcanic seamount and island, says Storlazzi. The greater the distance from the hot spot, the more the local region of the Pacific Plate sank. And the more it sank, the more the volcanic island subsided downward and receded away from the reef around it.

As this large island subsided, a veritable moat of seawater filled the growing gap between the landmass and the reef, forming a barrier reef, the third major transformative step in the atoll formation process.

Fast forward until the landmass subsides completely below the ocean, and you're left with a thin necklace of coral reef. This is an atoll, the final step in the process.

An obvious question does come up at this point: If the volcanic landmass subsides over time, why hasn't the coral reef subsided along with it, pulling it below the ocean's surface?

Actually, it has—sort of. What one has to remember is that a coral reef is vastly different from a volcanic seamount, chiefly in the fact that the reef is a conglomeration of living lifeforms. In an island's case, if geologic forces pull it below the water or erode it away to the surface, that landmass has no choice but to go along for the ride. A reef, on the other hand, consists of millions and millions of coral animals, which may reproduce and continually grow, building on top of one another in an attempt to remain at the surface where the sun's energy is strongest. Because it's a living entity, the coral reef making up Kwajalein Atoll was able to react to its changing depth in the water over time. The rocks, sand and other stuff making up the volcanic island simply could not.

Currently, the seamount formerly comprising this island reaches a height that is only about 200 feet below sea level. Atop it lie layers of very old, dead coral colonies, which have subsided below about 160 feet, the greatest depth at which coral typically can survive. Atop those dead colonies lie the living coral colonies that have yet to subside below the rough 160-foot kill point. As the seamount continues to subside, bringing the coral along with it, new coral colonies continue to grow near the ocean surface, piling up on top of dead reef sections subsiding below. The process continues today.



Active Volcano



Fringing Reef



Barrier Reef



Atoll



The Kiernan Re-entry Measurement Site radars on Roi-Namur.

ISLAND PARADISE FOR MISSILE DEFENSE

EXTERNAL REPORT

An adaptation of C. Todd Lopez's "Island Paradise for Missile Defense," originally published in 2011.

For the full article, please visit: https://www.army.mil/article/52269/Kwajalein_Part_1/

If Kwajalein Atoll is just two things, at least from the perspective of the Americans who work here, it is both paradise and target. The coral sand beaches and crystal clear blue water make it easy to see why it might be a paradise, at least for those who like to swim, dive or lay out in the sun.

But the U.S. military presence at U.S. Army Garrison-Kwajalein Atoll is meant to support the Ronald Reagan Ballistic Missile Defense Test Site, part of the Department of Defense Major Range and Test Facility Base.

It's in a middle-of-nowhere location, about 600 miles north of the equator, making it a valuable asset for missile testing. The sparse population, surrounded by the vast Pacific Ocean, makes Kwajalein an attractive place for weapons developers to test their missiles and rockets. In addition to missile testing, RTS also tracks objects in space, tracks new foreign rocket and missile launches, participates in technology development and hosts commercial and governmental space launch facilities.

"Our primary mission here is missile testing," an RTS official said. "Because of our location, we can support all manner of missile tests with varying shots like the ICBMs off the west coast of North America, intermediate range shots from

the Pacific Missile Range Facility in Hawaii, and shorter-range things from Wake Island and even neighboring atolls if it is necessary."

What actually happens is that a customer, like the Air Force, will launch a missile, such as an ICBM, at Kwajalein. The customer has expectations as to what that missile will do during flight, how fast it will fly, when it will arrive and where it will land.

"For most of the operational tests, they are interested in how accurate the weapons system is," said the RTS official. "Did it come down where we aimed it? They sort of tell us pretty accurately where it's coming down. But they don't tell us exactly. We measure as precisely as we can where it came down and give that information back to them. It's their job to make that final determination: How accurate was the system."

"We're not only collecting those telemetry data on these missions, but in the case of RTS, very precise radar data and also optics data as those things scream through the atmosphere at about six kilometers per second," RTS said, adding that an ICBM can get from California to Kwajalein in about 30 minutes.

"It's important for people analyzing the test to know what's going on, on board the system," the RTS official added. "They need to know those parameters so if something goes wrong they can use that data as diagnostic information for what went wrong."

Kwajalein Atoll is geared up with sensors, radars, cameras and other tracking equipment that can be used to follow the incoming projectile from Vandenberg Air Force Base, California, for example, and then report back to that customer

how their missile performed. Information gathered at RTS includes missile telemetry, radar information and even visuals of the missile re-entering the atmosphere and hitting its target.

Included in the equipment on Kwajalein, Roi-Namur and the other islands in the atoll that RTS has instrumented, is the Kiernan Re-Entry Measurement Site, composed of the ALTAIR VHF/UHF system, the TRADEX L-/S- band system, the MMW Ka-Band system, and the ALCOR C-Band system.

To many, KREMS is the heart and soul of the range. Systems like ALTAIR and TRADEX are tracking systems, RTS said, can see deep into space, tracking things in geosynchronous orbit. Systems like the MMW and ALCOR are less powerful but have more resolution.

"We have a kind of complementary capability here," said RTS. "We have this deep-space tracking or long-range of tracking with our big beam, high-powered radar. And then we have this complementary capability where we can image targets to get extremely high-fidelity information."

Other RTS sensors in use at RTS are optical devices that capture imagery of missiles as they move toward the island chain.

"In the past we [had] these ballistic cameras that actually had a film plate on the back of them," the RTS official said. "All of these cameras are electronic digital systems now, so we can collect data in a timely fashion and get it off the island to our customers more quickly and more reliably than we were able to."

It's not just ICBMs that are launched at Kwajalein; it's other missiles too. Some land in the lagoon, some in the ocean to the left or right of the atoll. Others hit land, such as on Illeginni. You can get the best location readings where the missile actually hits the ground, at the bottom of the sizeable crater they make, RTS said.

"They will actually go out with a global positioning system receiver and figure out where the middle of that is and that's where it hit," said RTS. "So we can track it with radar and we can track it with optics, but no kidding, if you really want to know where that thing hit, you go out to the hole in the ground with a GPS."

In addition to serving as an ICBM target, RTS also launches missiles from a facility on Meck Island. The launch site, about 30 miles north of Kwajalein, is where the DOD launches targets as part of the Ground-Based Midcourse Defense System, as well as theater defense interceptors and targets for short-range and medium-range missile defense testing.

"We support the Missile Defense Agency and the Ballistic Missile Defense System: Patriot, THAAD [Terminal High Altitude Area Defense]. And we man the Ground-based Midcourse Defense System, which is in Vandenberg AFB and also Fort Greeley, [Alaska]," the RTS official said. "The Army has a big piece in providing missile defense."

The missile defense system, RTS said, is designed to take out missiles from rogue countries.

"The better you can make that system, the better the country is protected," said the RTS official.

Part of developing that GMD system involved launching "enemy" missiles toward the atoll, and then having a missile launched from Meck intercept and destroy them. Now, Kwajalein is launching the "enemy" missiles toward the U.S. In turn, interceptors are launched from the U.S. to destroy them.

"We've turned the tables," RTS said. "We're not the target anymore. We're launching at California, and they are protecting themselves."

The location of Kwajalein makes it a safe place to launch missiles at and from, the official said.

"Our location has a distinct advantage when you talk about conducting high speed missile testing," RTS said. "We don't have major population centers that we have to protect like a CONUS-based range does."

The population of the Marshall Islands, which includes Kwajalein Atoll, is about 66,000 and is spread over about 750,000 square miles. On the atoll, the population is under 16,000, most of which is located on Ebeye, about two miles north of Kwajalein. During launches toward Kwajalein Atoll, islands lying in a specific area known as the mid-atoll corridor (an area most likely to encounter an incoming missile) are made off limits to those who might otherwise be there.

"What that means for us is you can have a customer test the full capabilities of his weapons system without a lot of safety constraints," the RTS official said.

The atoll's location also makes it a great place to keep a look out for things launched by other countries.

"Being west of the International Date Line, it gives us the first look if anyone launches from Asia," said RTS. "We're actually the first blue sensor in the space surveillance network to see any new foreign launches."

Tracking objects in space, like satellites and missile launches from other countries, is another RTS mission. And they've got the equipment here to track

just about anything.

Space tracking equipment, like the ALTAIR and TRADEX systems, allows RTS technicians to detect launches from Asia, as well as perform their space monitoring mission.

"We track objects in deep space, mid-Earth orbit and also low-Earth orbit," RTS said, adding that the instrumentation they have on Roi-Namur is capable of tracking all orbital regimes.

RTS tracks some 50,000 objects a year through space, including foreign and domestic satellites and other objects as small as 10 centimeters.

America's satellites in space may be vulnerable to foreign influence, and those satellites must be equipped with countermeasures to ward off such attacks. The team at RTS helps develop those countermeasures by probing domestic technology in space using known foreign nation signals and frequencies.

"Because of the unique capabilities of our instrumentation here, we are able to replicate some of the frequencies and waveforms that our adversaries have," said the RTS official. "We could use those replications to provide some interesting information on some of the friendly satellites that we have up in space right now. So we can beam up a frequency that the Russians use, for example, and see how that satellite reacts to that waveform. So we use that to test countermeasures."

RTS does more than work with missiles; it is also involved in technology development. It plays a role in developing the Hypersonic Test Vehicle, for instance, which may one day replace ICBMs.

"It's a hypersonic glide body that can actually go exo-atmospheric and endo-atmospheric," RTS said. "You can actually control the flight of a hypersonic vehicle. It's very difficult for an adversary to hit, and also for an adversary to track."

The team at RTS has also hosted commercial launches from companies like SpaceX and Orbital Sciences (now named Orbital ATK).

The location of Kwajalein, near the equator, means it takes less fuel—which means less money—to get objects into space.

"We're doing a lot of important national-level work out here that most don't realize is going on," the RTS official said. "Testing and evaluating acquisition programs of national prominence or doing space operations to ensure we have assured access to space assets: That's the main reason we're out here."



An ICBM-class target is readied to launch from Meck for the May 30, 2017 FTG-15 test of the Ground-based Midcourse Defense System. TOP PHOTO: An unarmed Minuteman III warhead re-enters the atmosphere during a GT mission in September 2016.

A HISTORY OF THE BASE AND ITS MISSILE DEFENSE MISSION

JORDAN VINSON

This timeline provides a bit of historical context about USAG-KA, RTS and the anti-ballistic missile mission conducted on the atoll. Three main streams of history are represented here: 1) non-mission history, consisting mostly of infrastructure development; 2) mission history, consisting of key milestones in anti-ballistic missile development and testing on the atoll; and 3) the political events and technological advancements that drove the mission through time. Of course, this guide is not meant to answer all questions one might have regarding dates and figures of the evolution of the base and the range's mission over time. It's merely a good starting point. For more exhaustive histories, check the sources listed at the end of the timeline. **Please note, this timeline is a reflection only of the author's thoughts and research—not the U.S. Army's. Any comments or corrections are welcome at jordan.m.vinson3.ctr@mail.mil or usarmy.bucholz.311-sig-cmd.mbx.hourglass@mail.mil**



Post-Flintlock destruction on the islands.

Feb. 1944. Operation Flintlock. The 4th Marines, 7th Infantry and Navy defeat Japanese defenders at Kwajalein Atoll and elsewhere in Marshall Islands.

1945. The Army contracts Bell Telephone Laboratories to begin research into using missiles as anti-aircraft weapons. The pace of development will move slowly until the Soviets show their might in the Space Race theater of the Cold War.

1945. Kwajalein, Ebeye and some satellite islands serve as a U.S. naval base. In July 1945, the Kwajalein Daily News service is replaced by a newspaper with no name. Through a naming contest, the newspaper receives the title "The Hour Glass," in honor of the 7th Infantry's actions the previous year on the atoll. The name later changes to the "Kwajalein Hourglass."

1946. The Navy and the War Department select Bikini Atoll and Enewetak Atoll as sites for the nation's nuclear testing program. Kwajalein is to serve as a logistics hub for the tests. The Crossroads tests occur in July. Testing will occur in this area over the course of the next 16 years as part of the Pacific Proving Ground.



Crossroads "Able" test

July 1, 1946. Operation Crossroads "Able" atomic bomb occurs at Bikini.

1946. Roi-Namur is shuttered, left to the jungle elements. It becomes, to a large degree, a ghost town.

1947. After WWII, Allied powers assign to the U.S. the United Nations Trust Territory of the Pacific Islands, which encompasses Micronesia. Official American trustee involvement in the Marshall Islands begins in 1947.

NIKE AJAX 1949. Soviets test their first nuke and

unveil their TU-4 long-range bomber, capable of penetrating the continental United States. The Army now prioritizes development of a missile-based AA system. The radar/command and control system the Army eventually settles on is named Nike, and its missile is named Ajax, or Nike I. Note: This system does not get tested at Kwajalein; missile testing here does not begin for another decade.



Kwajalein air terminal, early 1950s

Early 1950s. At this time, especially during Korean War, Kwaj serves as a major trans-Pacific fuel stop, in addition to serving as the logistics hub for nuclear testing up north.

1950-1956. A major infrastructure buildup occurs on Kwajalein: "Old Housing," the adult pool, the Kwajalein Hospital, the now-condemned air traffic control tower, the Yokwe Yuk Club building, the Zamperini Dining Facility building, etc. The Navy base is converted into a replica of middle class suburban America.



"Old Housing," built by Navy Seabees on Kwajalein

Sept. 19, 1950. A nighttime aircraft crash occurs off Kwajalein, killing 26 Navy medical personnel shortly after the plane takes off to support the Korean War effort. It becomes the single greatest loss of military nurses in American history.

1952. SAR Pass is cut into the reef south of Enewubj (Carlson) to allow for quicker emergency responses to emergencies ocean-side.

1952. Even before the NIKE I/Ajax missile system is deployed, the Pentagon asks Bell Labs to fit nuclear warheads onto the missile to allow for greater aircraft kill ratios. A modified and longer range Ajax is devised in the coming years. It is called Nike II, aka Hercules, and will be tested extensively at White Sands Missile Range, New Mexico.

March 1, 1954. The Castle Bravo test occurs.

1954. After years of development and testing at White Sands, NIKE I/Ajax is deployed as America's first missile-based short-range, anti-aircraft system. Within four years, nearly 200 Ajax batteries would be deployed around urban, industrial and military sites throughout the nation. Development of the nuclear-armed Hercules missile version continues.

By 1955, both U.S. and USSR are deep in development of their respective ICBM programs.

Spring of 1955. Army asks Bell Labs to start a forward-looking 18-month study of the feasibility of using missiles to destroy incoming ICBMs. The seed of America's ABM mission is planted.

February 1957. After favorable studies into the ABM prospect, Bell Labs/Western Electric receives the contract to develop an ABM system. The system would be named NIKE ZEUS. It would use the Zeus missile, the successor to Hercules in the NIKE family.

May 15, 1957. USSR successfully tests its first ICBM, the R7 Semyorka and begins a string of 12 flight test over the next six months. ICBM attacks are now officially added to the nuclear threat list at the Pentagon. Soviet rocketry advancements places more pressure on Bell Labs and the Army to devise a deployable ABM system.

Oct. 4, 1957. Sputnik is launched into orbit, increasing pressure on American ABM effort.

1958. Secretary of Defense Neil McElroy creates the Advanced Research Projects Agency (now named DARPA) and tasks it with overseeing all U.S. missile development. The agency would have an important role at Kwajalein Atoll in coming years.

1958. Hercules is officially deployed as the Army's primary AA weapon, replacing the M51 Skysweeper AA gun.



NIKE HERCULES

1958. The Kwajalein Scuba Club forms.

1958. At Kwajalein Atoll, the Navy is considering closing the naval base. The base, which had been used heavily as a mid-ocean fuel stop for about 10 years, now has less importance: Aircraft have longer flight ranges, eliminating mid-Pacific fuel stops. Moreover, nuclear testing at Bikini and Enewetak begins to taper off.

By 1958, Bell Labs has drawn out the entirety of the NIKE-ZEUS ABM system. They just need a place test it. The Army can test components of the system at White Sands in low-altitude tests, but its entire configuration cannot be fully tested there—especially against ICBM targets, which cannot fly at White Sands.

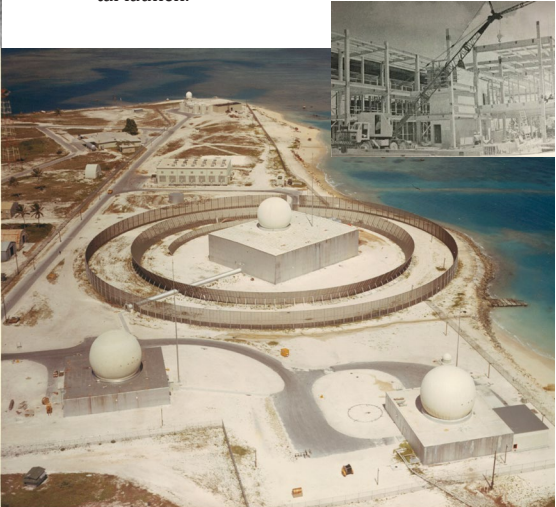
Late 1958-early 1959. Army searches for loca-

tion to test the system and discovers Kwajalein Atoll. Major benefit of the atoll: its perfect location and distance from Vandenberg Air Force Base to allow ICBM launches from California to the atoll for NIKE-ZEUS anti-ICBM intercept testing. The Transport Company of Texas wins the base operations/logistics contract to run the base. Naval Station Kwajalein is renamed Pacific Missile Range Facility, Kwajalein, and the Navy remains the administrator.

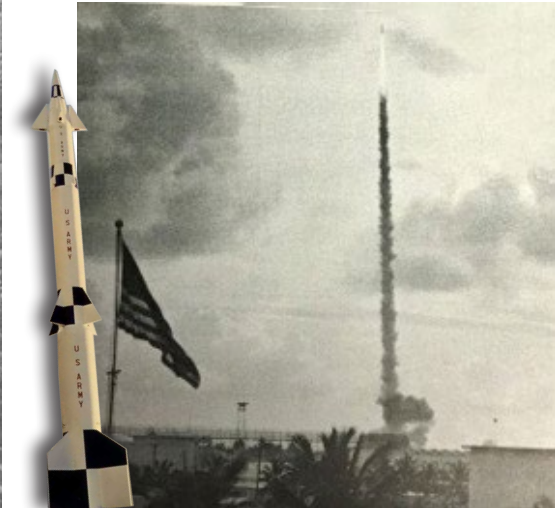
1959. ARPA selects Roi-Namur as a site to build a suite of large radars for the agency's Project Press studies, which are designed to study re-entry characteristics of the planned ICBMs launches from California to Kwajalein Atoll as part of NIKE-ZEUS system testing. Roi-Namur's 1946-1959 ghost town status ends, and the island receives infrastructure upgrades in the coming years.

1959-1962. The Army Core of Engineers and the Pacific Martin Zachry Company convert Kwaj into a full-scale NIKE-ZEUS test range. Notable additions to island include Mount Olympus, the Zeus Acquisition Radar and the NIKE-ZEUS Discrimination Radar (pictured below). Other infrastructure upgrades during this time include: Reef, Coral and Sands BQs; the Ocean View Club; Roi's Jackaroo Club; the George Seitz Elementary School; the Lone Palm Golf Course, the name of which changes to Holmberg Fairways in 1963.

Dec. 14, 1961. The first Zeus missile fires from Mount Olympus on Kwaj as part of a developmental launch.



Featured: the recently-completed Zeus Discrimination Radar. Upper right: the radar system under construction.



Featured: Early Zeus launch from Mount Olympus, Kwaj. Left: the NIKE ZEUS ABM missile.



The first Bell Telephone Labs families arrive on Kwajalein in 1960-1961.

Oct. 1962. Cuban Missile Crisis takes place.

By summer of 1962, the entire NIKE-ZEUS radar and missile ABM system has been installed on Kwaj and switched on. Full-scope, live-fire ICBM intercept testing begins June 26, 1962.

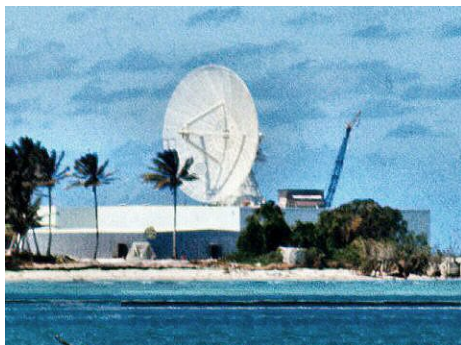
Dec. 12, 1962. Bell Labs and Army score the world's first successful ICBM intercept, using a Zeus launched from Kwaj against a target launched from Vandenberg. Over the next 11 months, a total of 13 NIKE-ZEUS intercept tests occur from Kwaj, using Zeus missiles against Air Force Atlas and Titan ICBMs.

1963. The Nike Flying Club gets off the ground at Kwajalein.

1963. Global Associates takes over the logistics/base operations contract at the base.

1963. The influx of newcomers during Nike-Zeus years had placed strain on Kwaj housing. In response, landfills are added to the island for more housing space. In 1963, more than 250 trailers are placed on landfill area.

1963. ARPA's first Project Press radar, TRADEX (Tracking and Discrimination Experiment) switches online. The radar will be used in extensive ICBM re-entry studies in the coming years.



TRADEX, newly built and ready to begin tracking.

1963-1964. Preliminary anti-satellite tests with modified Zeus missiles had occur at White Sands in 1962 with further testing taking place at Kwajalein in 1963. On May 24, 1963, the Army and Bell Labs fire the first successful satellite intercept and demonstration, against an Air Force Agena D satellite. Through end of 1964, Bell Labs and the Army are put on anti-satellite strike readiness, with nuclear warheads made available in case of real defensive operations. Fortunately, no orders came from the Army. "After 1964, we were relieved of this 'ready' requirement and were once more able to concentrate fully on the normal R&D test program," Bell Labs reports later in 1975.

1964. The Army assumes responsibility of running

the base. The base is renamed the Kwajalein Test Site.

1963-1965. The 1963 NIKE-ZEUS intercept testing series has performed well, but by the 1963-1964 timeframe it is clear the system cannot defend against large salvos of Soviet ICBMs—an increasing threat as the arms race continues. The Zeus missile is up to the task, but not the radars, computers and communications. Were NIKE-ZEUS to be deployed nation-wide to protect against heavy Soviet nuclear attacks, the cost would be astronomical. Secretary of Defense Robert McNamara pulls funding for the system's deployment. Zeus non-intercept flight tests continue at Kwajalein through 1965.

After the cancellation of NIKE-ZEUS and **until early 1965,** Army planners and the legions of contracted scientists at Bell Labs, RCA and elsewhere grapple with task of defending against sophisticated, heavy Soviet salvos. To do so, new technology enters the ABM environment.

- Phased array radar in the form of the Multifunction Array Radar and the Missile Site Radar
- Improved computers and large-throughput data processors
- A new short-range, superfast ABM missile named Sprint



The super-fast short-range NIKE-X-era Sprint ABM missile.

Sept. 25, 1964. The Army Materiel Command awards what is then the largest single contract in Army history. Western Electric Company receives a \$309,664,200 contract to fund research, development and testing of an evolving ABM system using this technology. Using these new technologies, a new family of proposed ABM configuration is drawn up during this timeframe: NIKE-X. In its original configuration, the concept calls for nationwide blanket protection of industrial/urban areas, key defense points and U.S. ICBM fields from heavy USSR attacks that might come in the 1970s. However, like NIKE-ZEUS, such a plan—even using the improved technology—would cost too much. Other configurations of the system are explored.

Beginning in early 1965, the original heavy-defense NIKE-X plan begins to shift to a lighter defense configuration. Key to the shift away from a blanket CONUS defense is cost. But also a major factor is the introduction of non-Soviet nuclear threats with smaller, less sophisticated attack capabilities.

Oct. 10, 1964. China detonates its first nuclear device, joining the nuclear power ranks alongside the U.S., USSR, UK and France. This impacts the U.S. nuclear defense strategy: "We've been focusing solely on sophisticated attacks from Russia. What about smaller, less predictable nations with nuclear-tipped ICBMs?" These wild card nations become known as "Nth" countries.

The lighter NIKE-X/Nth Country configuration plan exists from early 1965 to Jan. 1967. Central to Nth Country is keeping costs down by employing a system that simply uses less hardware: fewer missile launch sites, fewer radars and fewer computers. What is required are missiles and radars with greater ranges. Thus, new tech enters the environment:

- Perimeter Acquisition Radar is drawn up in blueprints in 1965.
- In Jan. 1965, Bell Labs finishes study that concludes an extended-range version of the Zeus missile would be feasible in a scaled-down, lighter ABM defense. It would later get the name Spartan and would undergo flight testing at Kwajalein Atoll in the coming years.
- The Sprint missile remains in development and gets its first flight test at White Sands in November 1965.

March 1965. The last flight test of the Zeus missile occurs at Kwajalein. A three-year ABM missile launch hiatus begins. Army Reentry Measurements Program studies continue, involving ICBM launches from Vandenberg AFB to Kwajalein Atoll with reentry and discrimination studies performed by the Project Press TRADEX radar on Roi-Namur.

In the mid-1960s, Army planners order the conversion of Meck Island into a secondary missile launch site. Construction there begins on everything from a runway and power plant to a Spartan and Sprint missile launch complex and a Missile Site Radar, denoted MSR II.



Meck under construction (top); Missile Site Radar II nearing completion at Meck (below).

By October 1965, Army and Bell Labs have sketched out a deployable, ready-for-construction configuration of the Nth Country concept that could defend against light nuclear ICBM attacks. Configuration components are scaled down from Nike-X. Instead of MARS, the system would use cheaper missile site radars—12 total throughout the country—and include 4 perimeter acquisition radars and several interceptor launch sites with 20 long-range Spartans each.

However, at this time, Defense Secretary McNamara still opposes deployment of an ABM system. He continues to support the long-standing U.S. nuclear defense that has existed in the form of a strong offense: assuring American superiority in ICBMs stockpiles per the doctrine of Mutually Assured Destruction.

1966. The Roi-Namur Dolphins Scuba Club forms.

June 17, 1967. China explodes its first thermonuclear device.

By early July 1967, under Pentagon direction, Bell Labs and Western Electric conclude a six-month study into yet another alternative NIKE-X deployment configuration. It aims to combine elements of the costly NIKE-X heavy defense of 1963 and the lighter, scaled-down area defense of Nth Country concept. This alternative configuration could defend against light, unsophisticated ICBM attacks, Chinese attacks against urban/industrial areas and attacks against America's offensive Minuteman ICBM fields.

Following the June 1967 thermonuclear test by China, McNamara announces Sept. 28, 1967 he would support deployment of the alternative system. The Army is given 4 ½ years to reorient the entirety of its ABM efforts into development and deployment of the NIKE-X-I/67 configuration using: 6 PARs, 17 enhanced MSRs, 480 Spartans and 455 Sprints. In October 1967, the configuration is given an official deployment name: Sentinel.



Caribou aircraft, a local favorite during its time, is the transport vehicle of choice for commuters to Meck.

By the end of 1967, the majority of the mission infrastructure construction is completed at Meck or wrapping up. Caribou airplanes arrive on the atoll to shuttle engineers and scientists from their homes on Kwaj to work on Meck. However, missile launches will not occur at Meck until April 1970. Developmental launches will take place first at Mount Olympus on Kwaj after the launch complex's missile silos are extended to allow space for the larger Spartan missile.

1968. "Silver City" is finished at the north end of Kwaj, providing more housing for the blooming contractor community on the base.



"Silver City"

March 30, 1968. The first developmental Spartan missile flight test from Kwajalein occurs: KT-1. A total of 15 Spartan launches occur from Kwajalein between this March 1968 and Dec. 15, 1969 during this initial test series. Of note: One test, the June 4, 1969 KT-9 launch, falters and falls back onto Kwajalein. No one is injured. Testing will soon move to Meck.

1968. Manufacturers are ready to begin building the Sentinel system components on a large scale, but events this year blindfold the system. U.S. Intelligence points to a slower advancement of China's nuclear capability than earlier reported. America's involvement in the Vietnam War peaks this year, siphoning money and support away from the ABM program. Also, there is public criticism of deploying nuclear-armed Spartan and Sprint missiles just outside their cities. Deployment stalls.

1968. The base is renamed the Kwajalein Missile Range.



Spartan launch from Kwajalein Atoll.

1968-1969. ALTAIR and ALCOR radars are constructed on Roi-Namur. In 1969, the ARPA's Project Press radars on Roi-Namur are renamed the Kiernan Re-entry Measurements Site. Rigorous studies of ICBM re-entry characteristics continues, with the KREMS radars leading the way.

1969. Deployment of Sentinel remains stalled; however, the Nixon White House rekindles support for deploying an ABM system. The Army and Bell Labs planners now devise a slightly modified approach from Sentinel that removes urban/industrial defense elements and focuses defense on the nation's Minuteman ICBM fields. The configuration would utilize the exact same tech as Sentinel but on a smaller scale, using 12 ABM sites. It would be called Safeguard, and the plan would be to construct the ABM sites in waves, instead of all at once.

July 20, 1969. Kwaj and Roi residents listen to the Apollo 11 moon landing via radio.

The Dec. 15, 1969 KT-15 Spartan launch is the final ABM launch from Kwajalein. All missile testing transfers to Meck and Illeginni.

Early 1970. The Safeguard Meck System Test Program Initiates, involving Spartan and Sprint missiles in an overlapping environment. This year, the first Safeguard System intercept of an ICBM occurs at Kwajalein Atoll. From 1970 to 1975, a long series of Spartan and Sprint interceptor flight tests occur from Meck and Illeginni. Like the Zeus launches from Kwajalein, the Safeguard Meck System Test Program is an ideal testing ground, as it allows Bell Labs scientists and engineers to gather crucial data from within near-tactical, live-fire environments not provided at White Sands or elsewhere in CONUS. The new MSR on Meck, along with TRADEX and the new ALTAIR and ALCOR radars on Roi-Namur, contribute to the tests. All told, 34 Sprints launch from Meck and Illeginni during this time frame, succeeding the 42 tests at White Sands. And 20 Spartan launches take place at Meck during this time.



Safeguard M1-9 Interceptor Mission, Oct. 28, 1970: The first Meck launch of the Sprint ABM missile. The first Illeginni-based launch would not take place until 1972.

As the Pentagon moves forward with deploying the Safeguard system, in 1972 and 1974 the U.S. and USSR sign the Anti-Ballistic Missile Treaties. This places ABM limitations on each side, limiting both nations to two ABM sites, each with a limited number of missiles. This agreement, in concert with congressional pressure, force the Army to refocus efforts into deploying only one Safeguard site. It would be located in North Dakota. Construction of a PAR, an MSR, Sprint and Spartan launch sites in North Dakota and the Ballistic Missile Defense Center at Cheyenne Mountain take place through 1974.

June 21, 1974. Army officials designate the North Dakota Safeguard complex as the Stanley R. Mickelsen Safeguard Complex. Delivery of its missile warheads begins in February 1975 after the site receives nuclear mission certification.

April 30, 1975. The Safeguard M2-548 Interceptor Mission marks the end of the Safeguard Meck System Test Program launches from Meck and Illeginni.

Sept. 28, 1975. The Safeguard complex switches online, becoming the nation's first deployed ABM system. Its 70 Sprint and 30 Spartan missiles and the fully-netted system, complete with a PAR and MSR, are online and ready to intercept ICBMs. The site would remain online for only a few months, roughly 136 days. Congress soon votes to defund and close the site, citing costs; Soviet development of ICBMs with multiple independent re-entry vehicles; and limitations placed on the site by the ABM Treaty. The only surviving element of the Safeguard Complex is the PAR, which is repurposed in the later years of the Cold War into a NORAD early warning radar.

Cancellation of the Safeguard Program marks the closure of a long chapter in American ABM development. Bell Labs recedes from ABM development after this point. With the end of the Safeguard Meck System Test Program, the Kwajalein Missile Range's contractor populations begins a downturn.

1975. Television broadcasts become available on Kwajalein. In the same year, Kwajalein's Ocean BQ and Roi's Trade Winds Theater are built. Notably, Roi's famed Jackaroo Club is torn down and replaced by the current-day Outrigger Club.

1977. Until this point all U.S. ABM missiles have incorporated nuclear weapons so as to ensure destruction of ICBM targets. Advances in infrared tech and computers now give the Army the ability to experiment with a revolution in ABM design: hit-to-kill intercepts, which involves smashing interceptors into targets and destroying them with kinetic energy—no nukes needed. America's first foray into hit-to-kill interceptors is called the Homing Overlay Experiment (HOE), which begins early development in the late 1970s.

1979. Iroiqlap Amata Kabua is elected the first president of the Marshall Islands. In the same year, the government of the RMI is established.

1979. The development contract for HOE goes to Lockheed Martin. Development lasts through 1984.

1983. The Millimeter Wave Radar, the fourth KREMS sensor, is built on Roi-Namur.

1983. America's MIRV development reaches its peak with the Peacekeeper ICBM, a multiple re-entry vehicle weapon that can carry up to 10 nuclear warheads. Peacekeeper shots from Vandenberg to Kwajalein Atoll begin in 1983-1984 and demonstrate 6, 8 and 10 re-entries at a time at Kwajalein Missile Range.

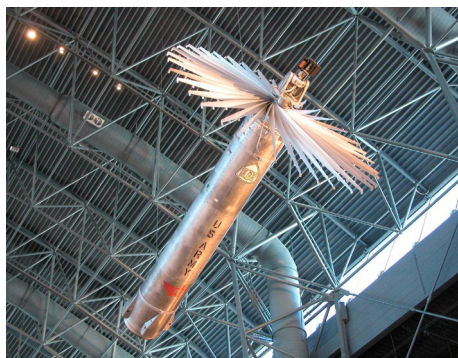


One of the famed Peacekeeper MIRV re-entries at Kwajalein Atoll in the 1980s and 1990s.

1983. Meck is again chosen as the site for live-fire testing of the HOE. HOE's first intercept test, on Feb. 7, 1983, is a failure.

March 23, 1983. Six years into the HOE program, and six weeks after the first HOE failure, newly elected President Reagan announces the start of a post-Safeguard era ABM system harnessing ground- and space-based defenses. Called the Strategic Defense Initiative, it becomes known commonly as Star Wars and envisions a means to create an impenetrable ground- and space-based shield against the heaviest and most sophisticated nuclear attacks against any nation in the world. Many beyond-the-state-of-the-art programs are launched under SDI to engineer an array of space-based offensive and defensive weaponry in orbit, such as Brilliant Pebbles, SDI's flagship space-based element. For the ground-based elements of SDI, kinetic hit-to-kill intercepts are the standard. Nuclear-armed defensive weapons never make a comeback on the ground.

1983. Two more HOE intercept attempts this year from Meck result in failures.



HOE demo vehicle at the National Air and Space Museum.

June 10, 1984. The fourth and final HOE test occurs and is a resounding success, garnering support for Reagan's SDI. On this day a target missile launches from VAFB, and ALCOR acquires and tracks the target 20 minutes into its flight. With a closing speed of 6.1 kilometers per second and at an altitude of more than 100 miles, the HOE blasts from Meck and performs the first hit-to-kill intercept in history.

- The system would never deploy; rather the knowledge gleaned from the long HOE development and testing period would seed further hit-to-kill intercept technology both in the SDI years and after.

1984. One of four existing Air Force command/control GPS sensors is built on Kwajalein.

Strategic Defense Initiative programs plant seeds for today's ballistic missile defense system

In the 1980s, as the SDI effort continues, the space-based programs eventually shut down. But the seed programs for America's four ballistic missile defense system today are planted and nurtured. These four ground-based missile systems all are tested at Kwajalein Atoll to one degree or another in the coming years.

1. The Lightweight Exo-Atmospheric Projectile (LEAP) program is borne out of SDI. Testing through the mid-1990s would give the Navy a world of data and experience in miniaturizing hit-to-kill warheads. LEAP would eventually be adapted for the use in the **Navy's Aegis Standard Missile-3**, which would partake in theater defense testing near RTS in the coming decades. This becomes one element of the current-day four-layer U.S. Ballistic Missile Defense System (BMDS).

2. Also borne out of the SDI years is the High Endo-atmospheric Defense Interceptor (HEDI), another theater-based system. Elements of HEDI and a separate SDI program called the Extended Range Interceptor (ERINT) would come to form what is now known as the **Theater High Altitude Area Defense system (THAAD)**, which would be partake in Missile Defense Agency tests at White Sands, RTS and elsewhere in the coming decades. This becomes a second layer of the current-day BMDS.

3. The **Patriot missile system**, which would deploy in the 1980s in a non-ABM role, would later adopt technology from the ERINT program and adapt capabilities for short-range and tactical ballistic missile defense.

4. A fourth program, the Exoatmospheric Reentry Interceptor System (ERIS), would in the SDI years become the most proven kinetic ABM system capable of destroying incoming ICBMs—something the three theater programs are unable to do. Its first flight test takes place at Meck Jan. 28, 1991 and fails. A second Meck launch on March 13, 1992—again involving an ICBM launched from Vandenberg—is successful, becoming America's first hit-to-kill intercept against an ICBM since the HOE tests from Meck. As time progresses, ERIS evolves into the **Ground-based Missile Defense (GMD)** system (after a name change from 'National Missile Defense' in the early 1990s). It becomes the most high-profile ballistic missile defense element of the country's BMDS.

1986. America and the RMI enter into the first Compact of Free Association.

1988. "New Housing" is constructed on Kwajalein.

Early 1990s. The end of the Reagan era, the collapse of the Soviet Union, the coming and going of the Bush presidency and the start of the Clinton presidency all drive the Pentagon away from a heavy global missile defense approach, to a leaner, more theater-based approach.

Jan. 28, 1991. The first ERIS test launches from Meck.

March 13, 1992. The second ERIS test launches from Meck. In the coming year, ERIS will adapt



The ERIS vehicle, prepared to launch at Meck.



Amata Kabua

into today's GMD (formerly titled NMD).

1992. The causeway linking Ebeye to South Loi, North Loi, Little Shell, Big Shell and Gugeegue is completed.

1995. Tropics BQ is built.

1996. Amata Kabua passes away.

By the mid-1990s, THAAD is under development and undergoing early flight testing at White Sands. In the latter 1990s, the Aegis SM-3 has begun flight testing from the Navy's Aegis ships. Meanwhile, the Patriot missile program, having been pressed into an initial ad hoc ABM role during the Gulf War, integrates into its system a brand-new kinetic hit-to-kill missile built specifically for ABM defense. The Patriot Advanced Capability-3 missile undergoes live-fire testing through the mid- and late 1990s at White Sands. Finally, by 1999, NMD/GMD—the nation's anti-ICBM program—begins intercept flight testing. Unlike the three theater-based systems, which undergo developmental testing primarily at White Sands and the Pacific Missile Range Facility in Hawaii, NMD/GMD testing—from day 1 to current day—takes place mostly at Kwajalein Atoll and Vandenberg Air Force Base.

Oct. 2, 1999. The first intercept test of NMD/GMD takes place. It involves an early Ground-Based Interceptor launched from Meck against a target warhead launched from Vandenberg. The intercept is successful. "The screaming went on for five minutes," KMR site manager for NMD Jim Hill says of the control room on Meck in an Hourglass interview. "Everyone was just ecstatic." This would mark the start of nearly three dozen individual tests (and counting) of today's Ground-based Midcourse Defense system, many of them involving interceptor or target launches from Meck.

after, Congress abandons plans to cut more than \$1 billion from the \$8.3 billion budget the Bush administration had set aside for missile defense that year. The effects of 9/11 and the beginning of the George W. Bush presidency marks a shift toward aggressive deployment of the GMD and continued support of the three theater defense systems.

2000s. GMD testing at Kwajalein Atoll continues.



March 2002. The IFT-8 test of GMD is a success, giving the program three intercepts in a row. "Hat Trick" is the headline in the Hourglass.

2001. Patriot PAC-3 systems begin deployment.

2003. Compact II begins.

July 22, 2004. The first GMD Ground-Based Interceptor is lowered into its silo at Fort Greely, Alaska.

Sept. 20, 2004. MDA officially deploys the GMD system in a limited defense capability at Fort Greely. Testing of the system continues at Kwajalein Atoll and Vandenberg over the following years.

2006. The Aegis SM-3 is certified for deployment as part of the Navy's Aegis missile defense system, using the production version SM-3 Block IA.

May 28, 2008. The first THAAD battery is activated at Fort Bliss, Texas.

2006-2009. SpaceX sets up a residency at Kwajalein Atoll, conducting the company's first full-scale orbital launches from Omelek Island, just north of Meck. The first three launches fail: March 24, 2006; March 21, 2007; Aug. 3, 2008. Finally, on Sept. 28, 2008, SpaceX achieves its first successful Falcon 1 launch. The following year, on July 24, 2009, the company launches a Malaysian imaging satellite into orbit from Omelek. Having proved itself at Kwajalein Atoll, SpaceX moves its launch activities back to CONUS.



SpaceX launches a Falcon 1 from Omelek Island.

2009. The Obama presidency marks a deviation from Bush era plans. Instead of building GMD interceptor and radar sites as a NATO defense in Europe, the U.S. will adapt the proven Aegis BMD system and its SM-3 missile for use on the continent. Called the European Phased Adaptive Approach, the program calls for development of a land-based version of the Aegis BMD system, with missile and radar sites in Romania and Poland.

By 2011, America's three theater missile defense system have matured to the point which MDA is ready to begin overlaying the systems in the same tests. In April 2011, FTM-15 marks the start of these large-scale test at Kwajalein Atoll. The test involves a target missile launched from Meck, the THAAD system's AN/TPY-2 radar at Wake Island, an Aegis destroyer with an SM-3 missile and a developing class of early warning missile defense satellites in orbit around Earth. In October 2012, MDA conducts its second sweeping theater-wide test at Kwajalein Atoll. A limited number of these theater tests occur at the test range over the following years.

Meanwhile, GMD testing continues at RTS: **June 22, 2014.** GMD's FTG-06b test occurs and results in a critical success of program.

2015. Lockheed Martin and the Air Force break ground for the Space Fence radar on Kwajalein.

Nov. 2015. The landmark FTO-02 test of THAAD and Aegis systems takes place in vicinity of Kwajalein Atoll and Wake Island.

May 30, 2017. FTG-15 test of GMD occurs, providing the program another critical success helps put MDA on track to field up to 44 GMD interceptors between two launch sites: Fort Greely and Vandenberg Air Force Base.

As of the autumn of 2017, The European Phased Adaptive Approach program construction nears completion, with Aegis Ashore online in Romania and the Aegis Ashore build in Poland close to being ready for duty.

Today, testing of the three overlapping theater missile defense systems continue at Kwajalein Atoll, along with target launches for the maturing national GMD system. The KREMS system at Roi-Namur remains crucial to space tracking, new foreign launch detection and tracking and missile defense tests. Meanwhile, the Air Force's Space Fence radar is positioned to start a new chapter in space debris identification and cataloguing. Lastly, the Air Force Global Strike Command continues to shoot Minuteman III ICBMs at the atoll for its evaluation launch program.

SOURCES

"Seize the High Ground." U.S. Army; "ABM Research and Development at Bell Telephone Laboratories." Bell Labs; "Reflections on a Decade 1960-1970." Bell Labs; "Hitting a Bullet With a Bullet: A History of Ballistic Missile Defense." by Kenneth P. Werrell; Missile Defense Agency news release archive; U.S. National Archives and Records Administration; The Nike Historical Society; Space and Missile Defense Command historical office archives; Press release archives from Lockheed Martin, Raytheon and Boeing; RMI Historical Preservation Office; Government Accountability Office; Office of the Inspector General; "Just Another Day in Paradise: A History of Kwajalein." Bill Remick; KRS Archeology Office; www.gps.gov; Kwajalein Hourglass archives; www.spacex.com; www.astronautix.com; Los Angeles Times archives; Marshallese Cultural Center



IFT-3, Oct. 2, 1999. A Ground-Based Interceptor, part of the Ground-based Midcourse Defense System (formerly called the National Missile Defense) launches from Meck for an intercept of a target launched from Vandenberg.

2001. Dome housing installations start on Kwaj.

2001. Kwajalein Missile Range is renamed the Ronald Reagan Ballistic Missile Defense Test Site.

Sept. 11, 2001. The 9/11 Attacks occur. Shortly

WHAT'S ONE PIECE OF ADVICE YOU'D GIVE TO USAG-KA NEWCOMERS?

Steve Prudence



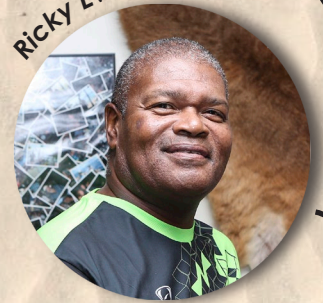
Anticipate Pacific island accommodations with garrison charm. We're all friends on the island. Also, come down to the Kwajalein Yacht Club!

Jan Abrams



Like the Wizard of Oz says, you're not in Kansas anymore. To live on Kwaj you need to be flexible and ride the ups and downs. It's not perfect. Options are limited, but many of you chose to come here; no one forced you. So you need to learn to adapt. Flexibility is strength.

Ricky Everette



Be prepared for slow mail. Give mail about two-three weeks to get here.

Laura Pasquarella-Swain



If you need something, just ask. If I don't have an answer, I'll get one for you. Everyone on Roi is willing to help out and make your experience here as nice as possible. Welcome to Kwajalein Atoll!

Nate Poole



Enjoy every single second you have off work. Enjoy all the activities you can be a part of. Don't sit in your room thinking you don't know anyone or can't meet people here. There are so many friendly people here and so much to do.

Staff Sgt. Christina Barnes



Be flexible and take one day at a time. Living here takes some getting used to. And don't take your beautiful surroundings for granted.

"Chicago Bob" Barker



Be sure to get a souvenir to go with that memory.

Maj. Ben Walker



Make sure you get a comfortable bike, because you will be on it a lot. Be patient: You are on a tropical island in the middle of the Pacific Ocean. Nothing is happening fast here.

Jerry Baxter



If you come to Roi, you need to take the tour of all of the WWII historical sites and relics around the island.

Terry Henson



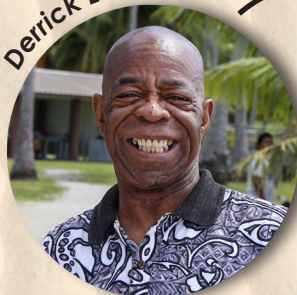
Bring your favorite pillow(s) and blankets with you if you don't intend to buy them here. The rooms are cold and you'll need that extra added comfort and warmth in this new environment, as well as that "feel" of home when you go to bed.

Cari Dellinger



Learn Marshallese and embrace the Marshallese culture. "Jab Kiki in Jiben-ben!"

Detrick Lemmie



Welcome to the beautiful Island where patience is a virtue and enjoyed by all.

COMMUNITY ACTIVITIES



ADULT RECREATION CENTER. The ARC is where you can enjoy billiards, ping pong, a movie room, a computer center with a printing station, a vinyl record room, a decked out kitchen, a game and puzzle room, a band room, an outdoor BBQ and patio area and more. It's a great place to reserve for a party. The center is accessed via a cipher lock, the combination of which you can get from the athletics and facilities coordinator at 51275. To enter the center you must be 19 years of age or older and bring a valid USAG-KA ID. Wi-Fi available.

ROI COMMUNITY CENTER. At Roi's Community Center, in the "C Building," you can enjoy ping pong, movie nights, Wi-Fi, a full kitchen space, a meeting area with a small array of new magazine subscriptions and a comfortable lounging area. You may access the building via cipher lock. Call Roi Community Activities (CA) at 56580 for the code.

HOLMBERG FAIRWAYS. A nine-hole, 18-tee, par 36 course, it is open daily from sunrise to sunset, save for special circumstances like RTS range operations and events like the RustMan Triathlon. You may purchase a membership (up to a year in length) or pay the daily rate; call Kwaj Community Activities at 53331. Many a Kwajalein Golf Association tournament is had on these links each year; don't hesitate to join in the fun if you're a golfer. Roi's counterpart is the **Roi-Namur Golf Course**. To purchase a Roi membership, call Roi CA 56580.

COUNTRY CLUB. After slicing your way through your share of double bogeys on the fairways on Kwaj, head to the Country Club. Home to the famed drinking hole, Bogeys, the Country Club is a nice place to relax after golf and makes a good place to watch football games on the weekend. All patrons must be 21 years of age. Call the CA Office at 53331 to reserve the facility for your own private event. The phone number to the Country Club is 53769.

OCEAN VIEW CLUB. If you don't go to the Ocean View Club at least once to catch some ocean breeze and drinks with friends, you're not doing things right. Inside, the music selection is formidable and the bartenders friendly. Don't miss the club's end-of-the-month birthday bashes, held especially for all customers who celebrate their birthdays in the specified month. You must be 21 years old to enter. The phone number is 52828.

OUTRIGGER. On Roi, head to the Outrigger for a wide array of adult beverages, opportunities to play pool and listen to sweet juke box tunes. Don't miss the Outrigger Snack Bar's choices of food ranging from appetizers and sandwiches to pizza and the famous missile burger. Open every day, but hours fluctuate between weekdays, weekends and holidays. Call the Outrigger Snackbar at 56370 to check the hours.

CORLETT RECREATION CENTER. A small suite of large buildings

clustered together next to the Kwajalein Jr./Sr. High School, the center features a gymnasium, two indoor racquetball courts, a boxing station, several rooms for group exercise classes, a meeting room, a Scout Hut, a religious services room and other multi-purpose rooms. Everything from the RMI Trade Fair and yoga classes to basketball tournaments and workplace training seminars takes place here. To make a reservation of any of the facilities, call 51275. You must be 19 years of age or older to place reservations.

GRACE SHERWOOD LIBRARY. The Library is the most happening library this side of the Ralik Chain, especially on Wednesdays mornings at 10 a.m., when story time rolls around. The facility features thousands of books that cover the gamut, from romance and horror, to children's and non-fiction titles covering tons of themes unique to the people and history of the Marshall Islands and the greater Pacific region. New titles are coming in, and the library is home to several new magazine subscriptions, from Outdoor Magazine and National Geographic, to People, the Oprah Magazine and Field & Stream. Don't have computer access, and you need to update your thousands of Twitter followers? The library has a computer center, with printer, faxing and copying services. Bring your own device, and use the facility's Wi-Fi. While you're at it, rent some DVDs, or if you're into vintage entertainment, take home some Burt Reynolds movies on VHS tapes. Keep your eyes peeled for special annual events like Dr. Seuss' birthday celebration, Roald Dahl Day and the Summer Reading Program.

ROI LIBRARY & GYM. On Roi, head to the Outrigger building to check out the gym and the library. Get the cipher lock codes by calling 56580.

KWAJ HOBBY SHOP. Kwajalein's Hobby Shop/Wood Shop is regarded as the happiest place on Kwaj by the ladies who frequent the place. Home to a wide array of tools and supplies



for doing pottery and ceramics, the facility, located across from the Zamperini Dining Facility, is also where gruff dudes on the island head to slice up hunks of wood with hand power tools and industrial lathes. Stop by or call the shop at 51700 during open hours to sign up and pay for whichever membership best suits your interests. Note: Wood Shop users must attend an orientation class, which is usually held once each month. Call Community Activities at 5-3331 for the schedule.

ROI HOBBY SHOP. Located across from the pool. We offer both a wood shop and a pottery shop. Open 24/7, accessible via cipher lock. Call 56580 for the code.

KWAJ MOVIE THEATERS. Two movie theaters on Kwajalein feature new releases as they are made available to the garrison. The Rich Theater is home to movies rated PG-13 and lower, while flicks rated PG-13 and R are shown at the Yuk Theater. Show times, unless otherwise specified, are as follows. Rich: Saturday and Sunday, 7:30 p.m. Yuk: Sunday and Monday, 7:30 p.m. Call 52700 or check the Community Activities section of the USAG-KA-web intranet site for show listings.

ROI TRADEWINDS THEATER. On Roi, the Trade Winds Theater is located behind Café Roi and is open for flicks every Saturday and Sunday night at 7:30 p.m. Don't forget your popcorn.

KWAJ SMALL BOAT MARINA. The Small Boat Marina is one of the busiest Community Activities facilities on Kwajalein and for a good reason. It's your gateway to an endless wreck diving, snorkeling and sport fishing opportunities in Kwajalein Atoll waters. In addition to a small fleet of B-Boats, the SBM carries sailboats, a ski boat and other water-going equipment, all of which are available to rent. Note: All boaters must take the Kwaj Boater Orientation Class offered by SBM staff; register at the SBM for the next one. The phone number to the Kwaj SBM is 53643.

ROI SMALL BOAT MARINA. On Roi, the Small Boat Marina is your gateway to enjoying Kwajalein Atoll waters. To use the Roi B-Boats, you must take the Roi Boater Orientation Class; register at the Roi SBM for the next one. The phone number to the Roi SBM is 56234.



Library fun



Performance at Roi Outrigger



Ivey Gym

CHILLIN' ON ROI

All beach shacks located on the perimeter of Roi-Namur are open to the community. Here are three of the most popular.

The Gabby Shack

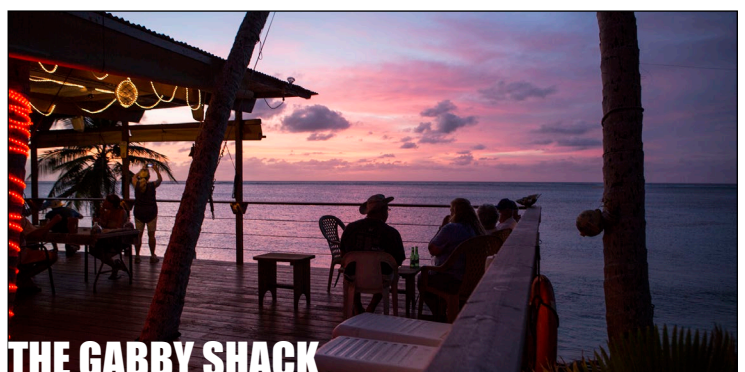
This is hands-down the best place on Roi-Namur to enjoy those cotton candy RMI sunsets. Built decades ago and rehabilitated along the way by several caretakers, the facility is open for visitors 24/7. Stop by whenever you like, prop your feet up and enjoy the view.

The Surf Shack

The Surf Shack is a popular locals' beach area for all to enjoy. It boasts beautiful views, amazing water and a pristine beach fit for snorkeling, kite boarding, kayaking and simply floating and lounging. It's located on the south side of Namur, across from ALTAIR.

The Roi Pavilion

The perfect spot to host a large outdoor party next to the beach on the south side of Roi. Head over anytime, but for large parties, please make a reservation by calling 56580.



THE GABBY SHACK



THE SURE SHACK

FISH, DIVE, DRIVE, SNORKEL

BY JESSICA DAMBRUCH

Get a B-Boat License

The blue and green water surrounding the atoll is calling your name. Shortly after your arrival, earning your license to drive a B-Boat will be at the top of your bucket list. They are the hottest items on the island and always in demand.

To drive a boat, you'll have to survive a crash course in B-Boat 101 with the Small Boat Marina manager. Courses include a three-night classroom session and practical test and are offered on a rotating basis when 40 students have signed up. The course costs \$40.

After completing the course, you join the ranks of fishing enthusiasts, divers, pleasure cruisers, snorkelers—and everyone else on the island vying for a chance to take out one of the island's B-Boats (sign up in advance!).

Learn To Dive

Kwajalein Atoll has some of the best scuba diving in the world for the cheapest membership and classroom prices. It is recommended that new divers contact the Kwajalein Scuba Club for a listing of available instructors and course offerings. A couple of notes: 1) Some instructors are willing to teach kids how to dive, and the minimum age is 10 years with a depth requirement. 2) Do some do some research on the types of gear you want to invest in prior to purchasing online or through on-island shops or individuals. All certified divers

must join the KSC before diving, and all dives must be completed using a buddy system.

Snorkeling/Reefing/Tide Pools

If you aren't ready to "take the plunge" to go diving, many reefing and snorkeling opportunities are available observant nature lovers to acclimate themselves to the wonders of the undersea environment that surrounds our home. At low tide it is possible to walk out on the reef to snorkel and view activity in the tide pools. Reef sections dug out by Japanese and Americans during and after WWII, they now teem with life and, at least during low tide, are as calm as swimming pools.

For reefing during the day, sun protection and gloves are highly recommended. Walk-in ocean-side snorkeling is prohibited (the same is true for diving); but by waiting until low tide, you can walk out on the reef and check out the tide pools. Diving boots or shoes with a thick sole are also recommended for the slippery rocks you will encounter on your adventures in the tide pools.

Fishing 101

Some of the best fish in the world are waiting to be caught at Kwajalein Atoll, and here's the best part: You can take home as much as you catch. And by catch, we're talking ono, tasty yellowfin tuna, mahi mahi, marlin, dog-tooth and aku. As you get started hunting the next great catch, here are a few tips from experienced Kwajalein anglers.

For new pilots, getting to know the local fishing community is important. Visit the small boat marina to find friendly crews, and observe how they operate before going out to purchase gear. To facilitate your entry

into the new community, consider joining the Kwajalein Atoll International Sportfishing Club. Pay a \$25 annual membership fee, and you'll enjoy their monthly meetings, where you get food and drink and are able to connect with likeminded fishing enthusiasts. Throughout the year, the club holds tournaments. Those, along with monthly meetings, are advertised through the Kwajalein Hourglass, the AFN TV roller channel and via email after members join.

There are so many fish in the sea, and they require distinct gear. Eventually you can work multiple poles and hand lines and an assortment of lures, depending on what you want to catch. Later on you'll know whether you want a gaff or a net. For trawling, a 50-80-pound reel with roller guides for the fishing line are best at eight knots.

Plan to purchase two poles and hand lines for boat fishing at eight knots, as well as an assortment of lures according to the catch.

By the way, the Marshall Islands is the world's largest shark preserve. You are not allowed to catch them, though you'll see plenty of them, as they'll be chasing your tuna.

"Sharks will give you more trouble with certain fish than other ones," says Bill Jones, a long-time Kwaj angler. "I swear every yellowfin tuna in the ocean has a shark six feet away from its butt."

"Fishing is a dangerous sport," admits Dax Mitchell, another angler. "Fish have teeth, and they bite."

Then there are the gaffs, hooks, and other objects that require constant attention in addition to all of the human concerns. Bottom line: Captains have the responsibility of looking out for their crew. Driving safely, obeying all USAG-KA regulations pertaining to rental boats and maintaining radio contact with the Small Boat Marina will ensure everyone on-board has a safe, fun time.

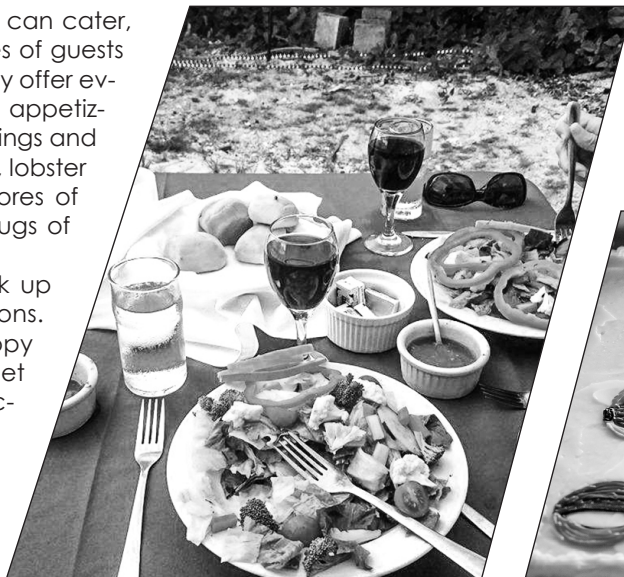


YOUR PARTY YOUR WAY

Catering on Kwaj. Food Services can cater, providing enough food for oodles of guests attending your next big bash. They offer everything (upon availability), from appetizers like lumpia, shrimp, chicken wings and fruit and cheese trays, to rib eyes, lobster tails, pasta, mini sandwiches, scores of desserts and even three-gallon jugs of hot coffee.

Visit the Sunrise Bakery to pick up a full menu with prices and options. You may also download a copy from the USAG-KA-web intranet site (at Community > Food Services > Announcements).

Pay close attention to the reservation and payment deadlines associated with each order. Call the Catering/Bakery supervisor at 53316 with any questions.



Custom designed cakes also available



Catering on Roi. Food Services can also cater on Roi through Café Roi and through the Outrigger Snack Bar. Call Café Roi at 56368 and the Snack Bar at 56370 for options.

Tip: Place your order at least two weeks in advance. But the more lead time, the better.

Helium balloons. On Kwaj, you can also get helium for balloons. Simply bring your empty balloons and strings to the AAFES shoppette and ask to see the manager. It's \$0.50 per balloon. **Tip:** Bring your balloons in a couple of days before your event.

Community Activities rentals are available for your events on both Kwaj and Roi. Call 53331 to make reservations on Kwaj; on Roi, call 56580.

Tables	\$5 per table
Chairs	\$5 per 10 chairs
20x20 Tent	\$40
20x40 Tent	\$60
Grill	\$15

NOTE: Helium is not available on Roi-Namur.

DATE NIGHT IDEAS

BY CARI DELLINGER

Looking for some creative ways to impress your special someone? Well, you won't find a plethora of restaurants or attractions here. But whether you want to celebrate a special occasion or switch things up, there are still plenty of date night ideas for couples to pursue.

Private dinner on Emon beach. What could be better than watching an amazing sunset while enjoying a generous three-course meal on the beach? KRS Catering offers weeknight dinners with advance reservations.

Stargazing. Kwajalein Atoll offers some of the best star watching on Earth. Go for a stroll, lay out on the golf course,

or find some comfy seats and look up! See who can first spot the Southern Cross, the Milky Way, and even a satellite or two! **Tip:** Bring an astronomy app.

Get creative in the Hobby Shop. Unleash your creative side and have fun molding clay into a cool souvenir of your special outing. If you're feeling extra romantic, give the pottery wheel a spin.

Bowling. Perfect for double-dates or private rentals, the Kwaj Lanes Bowling Alley opens on Saturday evenings and offers several lanes and plenty of funky music and ambience to make your evening a blast. **Tip:** BYOB and have a pizza delivered.

Weekend getaway to Roi (or Kwaj for

Roi rats). What better way to get rid of stress than to go relax on a different island together? This idea takes some planning, but it's definitely worth the time to create a special weekend that your main squeeze will be sure to remember.

Trip to Ebeye. Take the ferry over to Ebeye and head to Mon La-Mike, the local watering hole and nightclub located downtown near Triple J Supermarket. Or, if you prefer a culinary experience, head to one of the local restaurants for a tasty meal. **Tip:** Be mindful of the ferry schedule, and check business hours of Ebeye establishments ahead of time.

Golf Cart Outing. Sometimes it can be the simplest activity that makes a date successful. We all know driving on Kwaj or Roi is a rarity. So why not rent a cart and zoom around the island and explore different sites while enjoying the breeze?

NEED TO SHIP SOMETHING IN ON THE BARGE?

Need to ship something to the islands? If it's too big for USPS, have it brought in on the barge. Follow these steps to get that must-have outboard motor or guitar amp you've been eyeing for the past few weeks.



1. Contact Shipping and Receiving, explaining what the item is. The email is: **usarmy.bucholz.311-sig-cmd.list.shipping-receiving@mail.mil**. They'll advise if you can go ahead with shipping the item to the logistics site at San Leandro, California.
2. If you get a green light from Shipping and Receiving, provide them the name of the item's vendor, the expected arrival date at San Leandro and the item's tracking number. Don't forget to include a return email so that Shipping and Receiving staff can contact you.
3. When the item arrives via barge at Kwajalein, Shipping and Receiving staff contact you via email, sending you a shipping invoice.
4. Kwaj folks: Go to the KRS Finance Office to pay your barge shipping fee. Roi folks: Roi residents may pay via check to KRS Finance or pay in person at the Finance Office at the terminal building.
5. If your item is particularly big or heavy, you may want to rent a pickup truck or golf cart from Automotive.
6. Kwaj folks: Take your receipt to the Shipping and

Receiving warehouse, temporarily located at Bldg. 993, just west of the power plant. Enter the building from the south side, and tell staff inside that you're there to pick up a personal shipment. **NOTE:** After Building 602 renovations are complete, residents will pick up their items at Building 602. Roi folks: Take your receipt and head to General Supply, located next to the power plant and fuel pier. The number to General Supply is 56200.

7. Enjoy your purchase.

KNOW WHERE TO TAKE YOUR JUNK!

BATTERIES On Kwaj, batteries are disposed of at the AAFES check-out counters and at the round house waste collection area. On Roi, batteries are disposed of at the AAFES check-out counters and at the Roi Small Boat Marina.



GAS/OIL

On Kwaj, dispose of spent oils (diesel, propane, etc.) and gasoline at the roundhouse facility. On Roi, take them to the Roi Small Boat Marina.



OLD/EXPIRED PRESCRIPTIONS

On Kwaj, take old/expired medication to the pharmacy. On Roi, take the meds to the clinic.



WASTE PAINT AND PESTICIDES

On both Kwaj and Roi, call Environmental at 51134 to have unwanted/waste paint and pesticides picked up and disposed of properly and safely.

DON'T FORGET TO SORT YOUR TRASH!

Put the following items in a recycling bin:

- aluminum cans
- glass
- steel cans

Put the following items in a separate bag and place next to a recycling bin:

- bulky metal and electronics
- yard waste and wood

ANNUAL USAG-KA LEAGUE SPORTS SCHEDULE

Adult Inner-Tube Water Polo

Registration: January
Season: January-March

Adult Winter Bowling League

Registration: January
Season: January-March

Adult Softball

Registration: February
Season: March-May

Adult Spring Bowling League

Registration: March
Season: April-May

CYS Youth Basketball

Registration: March
Season: April-May

CYS Start Smart Basketball (3-5 yrs)

Registration: March
Season: April-May

CYS Youth Tennis

Registration: March
Season: April-May

Adult Soccer

Registration: August
Season: September-October

CYS Youth Flag Football

Registration: August
Season: September-October

CYS Start Smart Golf (4-7 yrs)

Registration: August
Season: September-October

Adult Fall Bowling League

Registration: September
Season: September-November

Adult Indoor Volleyball

Registration: October
Season: November-December

CYS Youth Golf

Registration: October
Season: November-December

CYS Youth Soccer

Registration: October
Season: November-December

CYS Start Smart Soccer (3-5 yrs)

Registration: October
Season: November-December

Adult Basketball

Registration: December
Season: January-March

CYS Youth T-Ball/Baseball

Registration: December
Season: January-March

CYS Start Smart T-Ball (3-5 yrs)

Registration: December-January
Season: January-March

CYS Youth Bowling

Registration: December-January
Season: January-March

As each sports season and registration period approaches, Community Activities will advertise the specific dates for registration and league play. Questions? Call the Athletics Office at 5-1275.



NEED TO WET YOUR SOCCER WHISTLE

outside of the fall season? Or improve your salsa dancing skills? There are many regular pick-up sports opportunities and free exercise classes available on USAG-KA. Here is a rough list of those that are currently meeting as of September 2017. Because of class leader changes, vacations, PCSs and so on, it would be unwise to print a hard-and-fast exercise class and pick-up sports schedule here. Instead, here are the current points of contact to get you started. For information on paid classes, you'll need to ask around.

FREE FITNESS CLASSES AND PICK-UP SPORTS AVAILABLE TO YOU

Ben Gleich



Kwaj Ultimate Frisbee

Friday evenings usually. Get more info from Ben Gleich at benleich@hotmail.com

Ben Bartyzel



Kwaj Beach Volleyball

Usually Sunday mornings at 8 a.m. Sometimes Thursday evenings. Email for more info: bernd.bartyzel.ctr@mail.mil

Carol Golby-Saunders



Roi Yoga

Get more info from Carol Golby-Saunders at carol.j.golby-saunders.ctr@mail.mil

Labtak Langrus



Kwaj Tennis

Usually Tuesday, Thursday and Saturday, starting at about 5:30 p.m. Get more info from Labtak Langrus at labtak.langrus.ctr@mail.mil

Josh Parker



Kwaj Ballroom Dancing

Get more info from instructor Josh Parker at **52423**.

Wes Kirk



Kwaj Interval running

Get more info from Wes Kirk at wesley.k.kirk.ctr@mail.mil

Alex McGlinn



Kwaj PiYo Live

Get more info from instructor Alex McGlinn at alex.mcglinn@gmail.com See Facebook page: "Kwaj PiYo Live."

Karen Brady



Kwaj Circuit Training

Get more info from instructor Karen Brady at bradyk@kwajalein-school.com



JORDAN VINSON

FLY ROI

For Kwaj residents, the easiest getaway is Roi-Namur, the conjoined islet gem at the northeast tip of the atoll where all the big, fancy radars live. For Roi residents, getting to Kwaj could be considered some sort of getaway. Either way, to get to either island, you'll fly on a Fairchild Metro turboprop airplane operated by Berry Aviation, Inc. pilots. To get on a flight in a space available status, follow these steps.

GET YOUR SPACE-A FORM. The easiest method is to download a copy of the Space Available form from the FlyRoi section of the USAG-KA-web intranet site. Navigate to USAG-KA > Logistics > Aviation > FlyRoi. Those without intranet access can pick up a paper copy of the form from staff at either atoll terminal buildings; however, it will need to be scanned and emailed to the FlyRoi agents at the Roi terminal building. Take a look at the flight schedules, but remember that when signing up for Space-A, you cannot select a specific flight during the day. For instance, say you want to take 2:45 p.m. departure from Kwaj. If there are enough business travelers or enough Space-A travelers who signed up earlier than you, you could be bumped off that flight. Seating is based on availability, date/time of sign up and passenger category. If you are bumped, your next option will be the next flight that day, which in our example would be the 3:55 p.m. departure on Friday.

With that info in mind, submit your form. Those filling out a form on the intranet site will find that you can easily send it to the FlyRoi agents with a click of a button. Those who are using paper copies will need to email their digitized forms to the agents at **usarmy.bucholz.311-sig-cmd.mbx.flyroi@mail.mil**

On the day of your desired flight, show up at least 15 minutes early, and bring your badge.

IMPORTANT CAVEATS

1. Space-A forms are not accepted more than seven days prior to the date request.
2. Same-day reservations are not accepted for either Space-A or business travel.
3. Space-A forms are valid only for one day. If you get bumped through the last flight of the day you specified, you will not be automatically eligible to try for the next day's flights.
4. If you travel on a hard seat for work purposes but stay overnight for leisure, you must fly back to your home island on a Space-A basis.
5. If your departure is via a Space-A basis, your return cannot be via hard seat/for-business basis.
6. Passengers travelling on a 480 pass must travel with their sponsor listed on their 480 badge.
7. Those under the age of 18 may not fly without their guardian present.
8. Children must have some form of photo ID.

EBEYE/ENNIBURR 101

FERRIES. Ferry schedules to Ebeye and Enniburrr are located at the dock security checkpoints (DSC) and online on the USAG-KA-Web intranet site. You may also call 53555 for an audio listing.

WHAT TO KNOW. Know that by passing through the DSC and visiting these islets, you leave the U.S. military base and enter sovereign RMI territory. USAG-KA regulations do not apply on these islets, and you are subject to all RMI laws and regulations. Also keep in mind USAG-KA's special regulations when re-entering the base. Call the Host Nation Office at 55325 with any questions.

WHAT TO WEAR. Dress modestly. Women should wear a dress that covers the

knees or a skirt that covers the knees, along with a shirt that covers the shoulders. Men should wear long pants. Close-toe shoes are recommended.

WHAT TO BRING. Cash, sunscreen, water, a copy of the ferry schedule and maybe a camera.

STAYING OVERNIGHT?

If you plan to stay overnight on Ebeye, an RMI citizen or permanent resident there must sponsor you. The process is simple enough:

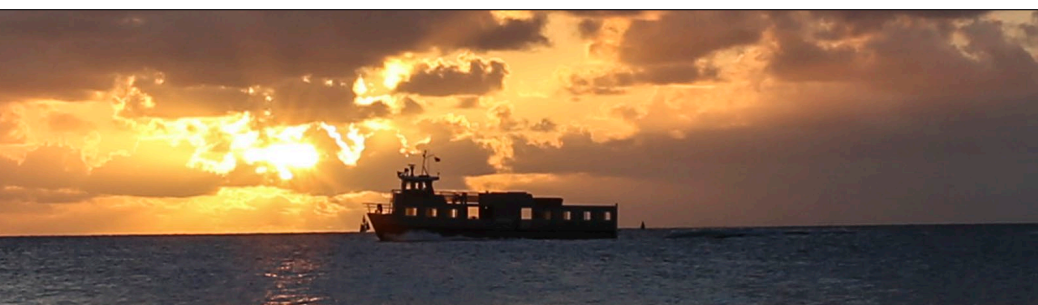
- Your friend does the required paperwork at the Kwajalein Atoll Local Government checkpoint at the dock. This can be done ahead of time or when you arrive.
- Upon arrival, you fill out your visitor paperwork at the checkpoint and then are free to stay the night.

HOW TO GET AN RMI DRIVER'S LICENSE, KALGOV LICENSE PLATE AND DRINKING PERMIT

DRIVER'S LICENSE PROCESS

Bring a picture ID and \$20 for both renewals and new issues. Follow these steps.

- Go on a Monday and take the 8:30 a.m. ferry from Kwaj. Tip: Bring along somebody who has previously gone through the process.
- Sign in at the Kwajalein Atoll Local Government (KALGOV) checkpoint at the dock.
- First stop: Go to the RMI National Police station. Take the road going straight east from the pier, and head north at the second intersection you meet. Pass the Seventh Day Adventist School (a large, three-story building). The police station is just past this building; you'll probably see a fire truck parked outside.
- Once the process is done at the police station, you'll be given paperwork, which you must take to the RMI Finance Office. The office is at the south end of Ebeye, on the second floor of the light-blue building next door to the Marshall Islands National Telecommunications Authority building; the local KALGOV Police station is downstairs. Tip: You can hop on a taxi truck and tell the driver you need to go to the RMI Finance Office.
- At the RMI Finance Office, you turn in your paperwork, pay for your license and receive a receipt.



- Take your receipt back to the RMI National Police station. This is where you get your photo taken and receive your license.

LICENSE PLATE PROCESS

Bring \$30 with you and follow these steps.

- Make your way to the KALGOV office. It's a large, green and orange, two-story building located next door to the MINTA building (see driver's license process for reference). Take the wooden stairway to the second floor.
- Tell the staff you'd like to purchase a license plate; fill out your paperwork
- You pay your \$30 fee and receive your plate all at this one office.

DRINKING PERMIT PROCESS

If you plan to consume alcoholic beverages on Ebeye, you must purchase a permit. The steps are the exact same as those you follow to purchase a license plate.

- Step 1. Be 21 years of age or older and have \$14 on hand.
- Step 2. Make your way to the KALGOV office and inform the staff you'd like a drinking permit. You get your photo taken, pay your \$14 fee and receive your permit all at this same office.

HEADING TO THE OUTER ISLANDS?

Want to hop on a private boat and visit an outer island like Nell or an outer atoll like Ujae? You'll need explicit permission from the RMI government and the local landowners whose islands you'll be visiting. The same goes for any nearby island not constituting U.S. Army Garrison-Kwajalein Atoll. Examples: Bigej, Mann, Carlos and so on.

Obtain permission by filling out a Special Trip Request form (SACC EE Form 104-1), which you can download from the USAG-KA-Web intranet site (at Document Center > Entry-Exit forms). On Kwaj, pick up a paper copy at the Entry-Exit Office at the airport terminal building. On Roi, there are paper copies located outside the Security Office at the DSC.

Follow all instructions on the form and turn it in to the Entry/Exit Office (or the Security Office if you're on Roi) at least two business days prior to your departure.

Important tip: You may not enter the Mid-Atoll Corridor during RTS mission windows. Keep these mission windows in mind when planning your trip.

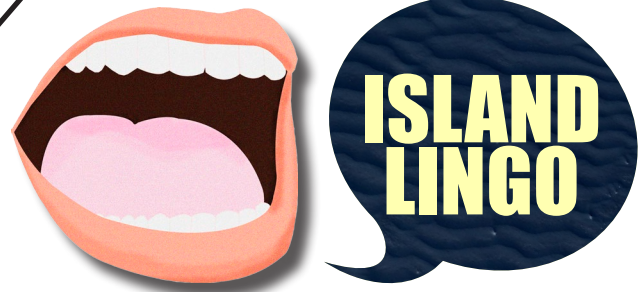
WANT TO HELP SOMEONE ELSE GET AWAY?

If you want to bring someone in to the garrison to visit, get your 480 form ready.

If you'd like to sponsor a visitor on USAG-KA for any significant period of time, you must be a contract employee assigned family or BQ housing. Or you must be a U.S. military or Department of the Army Civilian permanently assigned to USAG-KA. Dependents and TDY guests may not sponsor anyone.

You can get a USAG-KA 480 form from the KRS Human Resources Office (Building 700), across from the Kwaj Lanes Bowling Alley or from the USAG-KA-Web intranet site (at Document Center > Entry-Exit forms).

It's important that you turn in your completed form well ahead of your guest's visit, e.g. three weeks prior.



JORDAN VINSON

With weird, insular communities come interesting bits of unique lingo passed on among community members. Newcomers can consult this info to beef up their Kwajalein-Roi lexicon.

1) "On" vs. "In." You never say "in Kwajalein." It's always "on Kwajalein," "on Roi," "on Third Island," and so on. The extent to which this usage applies to other Pacific island regions is debatable. The pattern is that the smaller the island landmass, the more appropriate it is to refer to "on" as opposed to "in." For example, "on Guam" is often preferred to "in Guam." However, "on Hawaii" does not work.

2) "Up" vs. "Up on." If you are on Kwaj and talking about something going on in the Roi community, you say "up on Roi." Example: "Up on Roi, the rats are as bountiful as they are friendly." Inversely, when up on Roi and talking about Kwaj, you say "down on Kwaj." Example: "The commercial divers down on Kwaj are smelly and uncouth."

3) "Downtown." This is a term commonly used by Roi residents when talking about Kwajalein. It is a reflection of how much more populated, built-up and noisy Kwajalein is compared to Roi-Namur. Example: "Yeah, I'm going downtown this weekend to watch Ballistic Love play at the Vets Hall."

4) "Roi rat." Residents of Roi-Namur refer to themselves as Roi rats. It's an obvious reflection of the community's long-standing affiliation and admiration of the jungle rats, which abound on the Namur-side of the conjoined pair of islets.

5) "Kwajers" vs "Kwajis." At some point in time, the nickname for Kwaj residents used to be Kwajers, though there is little common usage of the term today. Roi rats will sometimes call Kwaj residents Kwajis; the degree to which this term is derogatory is debatable.

6) "Kwajenuity." The quality of being clever, resourceful, inventive and original in the quest to make do with what one has on the islands. Simply, because needed supplies can be hard to get. It is a mindset and state of being that can consume a resident the longer he or she lives on the garrison. One can see examples of kwajenuity by looking into how people build their bike trailers and the means by which they obtained materials to build their decks and so on.

7) "Kwajineer." Verbalized kwajenuity, aka to employ the quality of being clever, resourceful, inventive and original. Example: "Tony did a really nice job of kwajineering that custom chopper."

8) "Kwajical." If it's not logical, it's kwajical. This is self-explanatory.

9) "Kwaj crud." Kwajalein and Roi-Namur are like large petri dishes. We live close together and use a lot of the same common spaces. Newcomers to these petri dishes may experience a slight illness, called the Kwaj crud, during their first week or two on the islands. Think of it as our way of hugging you ... but with germs.

10) "Kwaj-condition." The state of being old, rusted or otherwise worn down by the elements. Example: "Tony has two Kwaj-condition outboard motors for sale."

11) "Kwaj busy." The state of being overly consumed with a number of the social events, activities, sports and hobbies available to residents here. Newcomers are prone to becoming "Kwaj busy."

12) "The odds are good, but the goods are odd." Ask someone about this one.

MARSHALLESE CULTURE

BY JESSICA DAMBRUCH

In 1979, the Republic of the Marshall Islands emerged from more than 250 years of colonial and neo-imperialist influence as a sovereign nation of 29 atolls and five islands. Its rich cultural heritage is challenged with an era defined by mass emigration and a fragile economy. To understand the RMI best, it is vital to encounter its people and learn their history, defined by trade, war and family and delimited by its precious geography.

BEGINNINGS

The citizens of the RMI bear an identity forged by the imperialist *mélange* that dominated the peoples of the Pacific region in the mid-1500s up until present day. Initial settlement of the atolls by ocean-going migrants from the Philippines, Indonesia and islands north of New Guinea dates occurred over 4,000 years ago. Proof of settlement on Kwajalein from 2,000 years ago were found in 1987. After 1850, distinct Austronesian languages these cultural groups brought with them would be codified by missionaries into standard Marshallese.

FOLKWAYS

Prior to the arrival of Christian missionaries in the 1700s Marshallese deities dictated the flow of life and food. Regional folklore indicates that the prehistoric Marshallese were polytheists with a worldview defined by dependence on family ties and the natural world.

A Marshallese maxim, "Jitdam Kapeel," translates as, "wisdom is inquiring or knowing [your relatives]." A deep sense

of cultural identity is rooted to the islands and honored through matrilineal family lines. Prior to 1945, a new husband lived with a wife's *bwij* (family), and her children would inherit land from her *jowi* (clan). Today, Marshallese draw a sense of identity from their clan, family name and home island.

A strong value shared by the Marshallese across various atolls is abiding recognition and respect for women and matrilineal power. Known for their fine craftsmanship in weaving, women are discussed in travel accounts from the 1800s as for their prominent roles in battles, both in the Ralik and Ratak atoll chains. It is said that women served as war drummers who intervened between hostile parties to provoke battle or incite peace.

SOCIAL HIERARCHY

Modern systems of employment adopted within the nation of 29 atolls and five islands have not supplanted the ancient tribal caste structure that defines intricate social relationships and power hierarchies within the RMI: The Iroij Lalab, paramount chief; Iroij, male chief or headman; Ieroij, female chief; alab, landowners who can be men or women and *rijerbal* or workers. Alabs and *rijerbal* are collectively known as *kajur*, commoners, or the power of the chief.

An additional distinction to describe parentage, *bwidaks*, is used for those who possess one common parent and one royal parent. Privileges and rights associated with each class are still observed and few major decisions can be legally recognized without the consent of the *iroij*, the *alab* and a senior *rijerbal*.

FOOD, TOOLS AND MEDICINE

In the past, the limited, steady diet of marine life, starchy pandanus, taro, breadfruit and the many incarnations of the sweet and versatile coconut was sufficient for families to share. Though the variety of edible vegetation in the Marshalls is scant, traditional dishes are still prepared using these local ingredients. Shellfish and a variety of pelagic and reef fish are also consumed today. Marshallese cuisine is also augmented by imported prepackaged and canned foods, and includes rice, processed proteins and sweetened drinks. Fishing by small boat is sometimes a necessary subsistence activity.

Maritime artifacts found in the atoll indicate that the prehistoric Marshallese were highly skilled craftsmen and navigators. The fibrous husks of plants and animal remains from meals were mainstays in the production of fish hooks, spear tips, woven mats and rope before western and iron tools textiles were regularly available. Modern artisans create handicrafts, such as hair ornaments, intricately woven baskets, jewelry, fans and other assorted weavings and wood carvings as gift and tourist items.

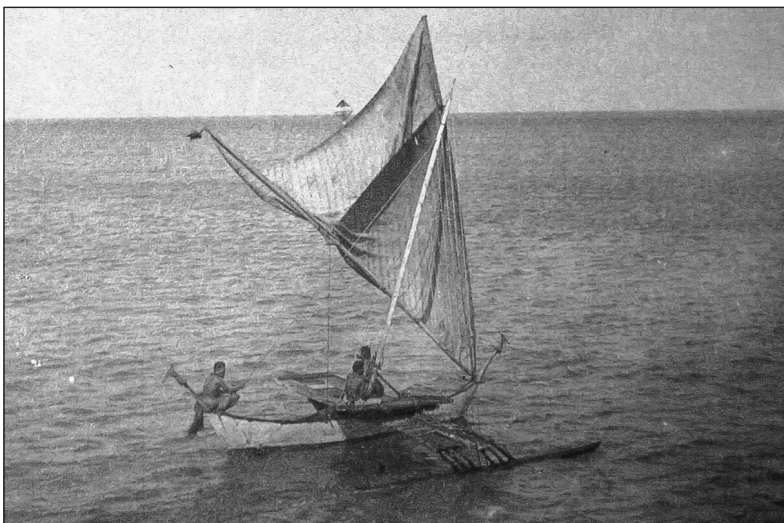
Some still respect and seek out advice from holistic medicine practitioners for home remedies to alleviate pain and other ailments. Though some practical skills such as outrigger canoe making are no longer widely in use today, some local artisans maintain this skill set and through workshops and small courses.

FAMILY MATTERS

Today, faith-based traditions of western world religions play an important role in Marshallese culture, as do occasions to celebrate rites of passage. The *kemem*, a child's first birthday, is the first important celebration in the life of a new family member and entails a large family celebration with dancing, singing, friends and feasting.

The winter holiday season is active with faith-based church festivals and gatherings. Preparation for Christmas *jebta* performances, lively song and dance exhibitions, begins nearly two months in advance of December 24.

Funerals in the Marshalls are involved ceremonies that may last as long as a week and are shared by family. Together everyone honors their relationship to the deceased and reaffirms their



This photo taken at Jaluit Atoll in the 1899-1900 time frame depicts three men sailing on an outrigger canoe. The sail is reefed in this photo—or made smaller—alluding to high winds.



Jobwa stick dancers perform on Kwajalein in 2015.

familial identification. The emmej, or 24-hour vigil occurs early in the process following a death and is followed by the ilomej, or public viewing when groups, or tal, pay their respects. The kallip (burial) includes speeches made to honor the dead and the landowner who allows the body to be interred. Following a kallip, family remain in the home of the deceased to stay near its spirit before it leaves during a period called anak. Lastly, eoraak, or “laying out” provides family members a chance to symbolically talk through grievances and to thank those who supported them during their mourning period.

It is commonplace for Marshallese children to be adopted by jowi and remain in contact with their biological families. This practice is distinct from other concepts of adoption, and has led to greater transparency in the adoption process between Marshallese families outside the atoll.

THE COPRA CRUCIBLE: IMPERIALISM IN THE MARSHALLS, 1500s-1945

The shadows of large western vessels loomed in the Marshalls as early as 1526, when Spanish traders began 30 to 40 years of visits to the atoll. Early ship’s logs situate these visitors first at Ujelang, Enewetak, Bikini and finally Kwajalein in 1565.

The Marshall Islands themselves were named for Captain John Marshall, the British captain of a convict ship who altered his course (charting a route later known as the Outer Passage) on a journey home from Australia to China. The fateful choice led him to engage in trade with islanders at Mili and to locate islands in the Ratak Chain, including Majuro, Maloelap, Wotje and Ailuk.

Nearly two decades later the Russian Otto von Kotzebue landed in the Ratak Chain and generated detailed writ-

ten and pictorial accounts of daily life, homes and dwellings in the Marshalls. In contrast with days to come, Kotzebue’s dealing with the Marshallese were peaceful. From the 1820s to 1850s, the Marshallese attacked many crews of European ships that attempted to land.

In 1857 American Protestant missionaries visited Ebon Atoll and began codification of Marshallese as a written language. They were followed shortly thereafter in 1859 by Adolph Capelle, a German trader, and his Portuguese business partner, Anton DeBrum. The duo purchased land on Likiep and ultimately transformed Jaluit into a mecca for copra and trade. They later took on a third partner, Edward Milne, a Scotsman.

Protestant missionaries used faith as a mechanism to diffuse violence and tribal warfare and saw to it that the large war canoes, a common sight during these times, were burned and destroyed. In 1885, Germany officially annexed the Marshalls and maintained steady power over the region until 1914.

German control abruptly ended on the day that Japanese naval vessels arrived at Jaluit. Under an agreement made with the League of Nations, Japan would retain control of the Marshalls so long as no military fortifications were made. During the Japanese Mandate and Occupation of the Marshall Islands (1914–1939) the most densely populated RMI locations, such as Jaluit, saw an embrace of Japanese culture and customs by the ri-majol (Marshall Islanders) to include intermarriages and the adoption of dress and language, much as the Marshallese had under German protection.

Japan’s initial improvements included developing infrastructure and trade, building roads and adding schools and later included bold military fortification at Kwajalein, Wotje and Jaluit, among others. The militaristic transformation

was performed with the labor of imported convicts and conscripted multinational and Marshallese laborers. Some of these workers would become casualties of Japanese cruelty and war during Operation Flintlock and the Battle of Kwajalein in 1944 until the islands were liberated.

Shortly after, the United States’ nuclear bomb tests at Bikini Atoll (1946-1962) would forever link the Marshall Islands to international discussions of national defense and ancestral rights. The US Department of Energy continues to address concerns regarding national health related to the Castle Bravo nuclear tests through an annual monitoring program.

THE FUTURE

As a young nation with an ancient history, the people of the RMI are destined to shape the future of the future of the Asia-Pacific region. Today, the country is positioned at the forefront of international discussions about nuclear weapons testing, the environmental consequences of global warming and healthcare. In 1986, the RMI signed a Compact of Free Association with the United States which provisions for continued Department of Defense program activities in the Kwajalein Atoll with additional financial aid and security protections extended to the citizens of the RMI.

The Compact, renewed in 2004, is a benefit to Marshallese citizens who claim visa rights to travel into the United States and may achieve greater healthcare access and employment and education opportunities. In its role as a base of operations for the U.S. Army Space and Missile Defense Command, U.S. Army Garrison-Kwajalein Atoll is a major employer of RMI citizens.

Under the Compact, the Marshall Islands has benefited from an array of relief and development efforts, including employment development programs and disaster assistance, including FEMA aid made available after U.S. President Barack Obama declared a state of disaster and released federal emergency relief assistance in June 2013 during a severe drought.

Oral history projects in the U.S. within a growing expatriate number of Marshallese expatriate communities now work to archive the stories of the ri-majol as they travel abroad. Perhaps now the most challenging task will be to keep a knowledge of tradition alive as the people of the Marshall Islands move forward.

STAYING HEALTHY IN PARADISE

BY JESSICA DAMBRUCH

Our local environment contain a motley assortment of bacterial aggressors that will tax your immunities. Most of these can be treated using practical precautions appropriate for basic flu and wound treatment.

Crud and the other things

One of the most common ailments is irritation of the eyes and nasal passages by a colorful assortment of local bacteria. We call it the Kwaj Crud, a basic upper respiratory irritation that often affects newcomers.

Around the same time you can breathe clearly again, you may begin to “feel the burn” from the sun. Be sure to use adequate protection from the sun (hats, cool sunglasses,

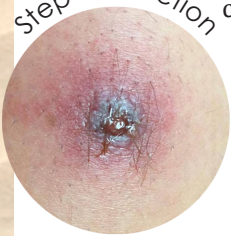
sunscreen) and to stay hydrated as you become acclimated to Kwaj and its equatorial heat.

Maladies local to the Marshalls include TB, staph, strep to, say nothing of accidental envenomation by an underwater critters. Practice basic safety and hygiene and you can largely deter many illnesses that will keep you off the soccer field and out of the surf.

Coral cuts and scrapes

Enjoy the water and take it seriously. Wear protective garments to avoid getting scrapes and cuts from the coral. When you do get your first coral wound, be diligent about taking care of it. Thoroughly wash the wound with soap and water as soon as possible. If redness and swelling persist, visit the Kwaj Clinic for assistance.

The bottom line: Take this stuff seriously.



MAKE YOUR VOICE HEARD

On USAG-KA we live and work in a garrison where daily life is directly impacted by the efforts and relationships of those around us. Everything counts and everything matters. Public forums are held for Kwajalein residents and RMI employees at quarterly Town Hall meetings with the garrison commander and contract leadership. The forums are an opportunity to raise suggestions, voice concerns, and to participate in the life of the garrison. For those who wish to make a more detailed or less-public appeal, the Commander's Hotline (51098) exists to facilitate those needs. Hotline calls may not be directly addressed (sometimes great minds think alike and similar concerns are addressed at town halls), but are all read.

GARRISON POLICY TIPS FROM USAG-KA



No Headphones While Bike Riding

For the safety of the motorists, pedestrians and cyclists around you, residents and visitors must refrain from wearing headphones during transit. If you need tunes for your work commute, throw your Bluetooth speakers in your backpack and share your tunes aloud.

Vehicle Operation

Golf carts and trucks are available for rent from the Automotive office. In order to rent these vehicles, you must first obtain a valid USAGKA driver's license. What if you're here on a TDY assignment, or if you have people visiting on a 480 pass? Here is the policy: 1) No person assigned on the garrison for 30 days or less may operate a motor vehicle without a valid operator's permit issued by a U.S. state, the Republic of the Marshall Islands, or a U.S. Military Installation. 2) Nobody on a 480 visit may rent or drive a vehicle (USAGKA/RTS Regulation 190-5).

Speed Limits

10mph north of 9th Street
15mph south of 9th Street
10mph on non-paved roads

Use extra caution when driving around the elementary school and CDC on Kwaj.

Rules That Apply To Minors/Residents Under Age 21

No visitors under the age of 21 are permitted inside the Bachelor Quarters (BQs). Curfew for minors also applies to dependents and sponsored guests under the age of 18.

Photography and Social Media

Rules limiting photography exist on the garrison. No photographs may be taken of Reagan Test Site facilities and equipment, of secure areas, or of transit entry areas to include the airfields, airport and marine terminals. It is imperative to be mindful of posting photographs that could post a security risk. The responsibility to safeguard these protections in social media is the mandate of each resident.

Sponsorship

When family comes to visit you, celebrate—and plan ahead. Remember that only permanent residents are permitted to shop at Surfway and AAFES and that your guests will not have access to goods at these facilities. It's a good idea to stock up on snacks and supplies before they arrive.

Giving Gifts, Selling Items to Non-USAG-KA Residents

If you would like to give a gift or sell an item to Ebeye residents or Ennubirr residents, you'll need to obtain and fill out the proper form to allow the item(s) to pass through the Dock Security Checkpoint. It is titled "Property Clearance Control Form (SACC DSC Form 004)." Visit your closest DSC to get some copies, or download your own from the USAG-KA-web intranet site.

Diving, Boating Reminders

Remember you cannot go diving at night off Kwaj without first calling in to the Security and Access Control office. Also, if you're taking a boat out—even if it's a private boat—you need to turn a float plan form into the Harbor Control tower.

KWAJ CRUISER CULTURE



BY JESSICA DAMBRUCH

It's time to go bike watching. Kwajalein is home to several rare species of choppers, goosenecks, city bikes, fixies and cruisers. Right now your own new bicycle may be shiny and chrome. Don't get too attached to it. In three months the salt spray in the air will bless everything it touches—bike trailers, flimsy stock baskets, your new wheels and important fittings—with "Kwaj condition," a fine dusting of cinnamon-colored iron oxide.

Cosmetic appeal aside, the salt air poses a real safety hazard for the daily commute.

CORROSION CONTROL

Develop the habit of reflexively checking a few key gears and couplings on the bike for rust and wear.

- Front hub and fork legs
- Handlebars and handlebar stem
- Seat post
- Chain and chain rings (for racing and city bikes)

Take your bike to the beach washstand to remove grit, sand and saltwater from your chain, frame and tires.

Sports cyclists use linseed oil or grease to deter frame rust, and here the same strategy is encouraged wherever important fittings are coupled together.

HAUL YOUR STUFF

In your first weeks on island you will see several silver boxes on wheels trailing behind bikes. When the mother lode from Amazon arrives, you will want a way to haul your stuff home. Consider rigging a storage/moving solution or borrowing a bike trailer from a friend. These are available during patio sales

MISSING BICYCLES

There will come a day when you will walk outside of your residence, blink your eyes, and shout: "Where's my bike?" Before that fateful day, here are some tips from Security and Access Control about what to do before your bike goes missing.

BEFORE YOUR BIKE DISAPPEARS

Customize your bike. Many of us ride identical bikes. Even simple strips of electrical tape to distinguish your bike can help deter cases of mistaken identity. Before painting, mask the appropriate surfaces with paper and tape and be sure you're in a well-ventilated area away from your neighbors.

Register your bike with the Kwajalein Security and Access Control within two weeks of purchase. Your bike will be assigned a tracking number that can be used to verify ownership. If you purchased the bike on the island, bring your receipt with you to the Security and Access Control desk.

AFTER YOUR BIKE DISAPPEARS

Don't panic: It is common for bikes to be "borrowed/stolen" when someone is running late. Start your search by having acquaintances check heavy traffic areas such as Emon Beach, the airport and the dock; follow with a report with SAC.

THE ZEN OF BIKE MAINTENANCE

We are now many miles away from your beloved city bike shop—but that's okay. Bike maintenance is not just a necessary task: It's a way of life and a chance to learn more about the machine that will help you get from Emon to Coral Sands and back again.

One of the best parts about Kwaj life is that you have time to spend maintaining your own vehicle. Local vendors and bike aficionados can assemble and troubleshoot a new bike before your tools arrive in the mail. After they're done, get some bike smarts and get rolling!



HELP YOURSELF TO SELF HELP

The Self Help shop is open Monday, Tuesday and Saturday, 8:30 a.m.-Noon and 1:30-5:30 p.m.



Did you know that you can get plenty of household items, from ant traps and lightbulbs, to ladders and carpet cleaners—all at no cost to you? Here's a list of items that are commonly available at the Self Help shops on Kwajalein.

- Plumbing items: toilet seats, flappers, faucet accessories and more.
- Paint, paint brushes, rollers, trays.
- Lightbulbs of all sorts
- Tools you can borrow: Shovels, posthole diggers, ladders,

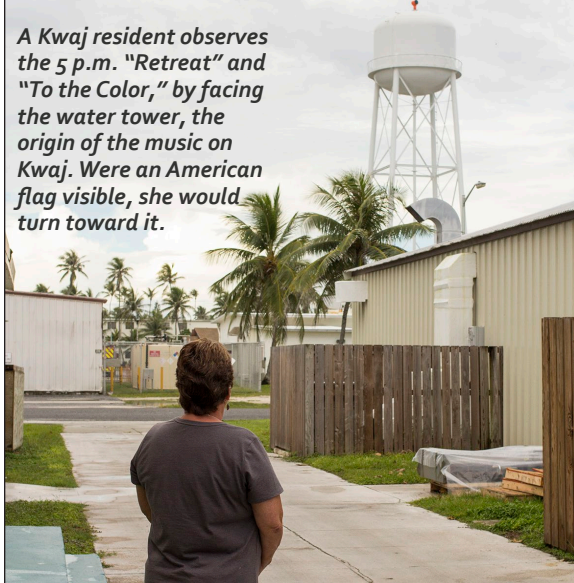
power tools, and non-power tools like hammers and screwdrivers.

- Hardware like nails, screws, nuts, bolts and so on.
- Pest control items like fly traps, ant traps, cockroach traps and rat traps
- Carpet cleaners.
- Power washers.

Questions? Call 54990.

NOTE: There is a small Self Help shop at the Housing Office on Roi, located in the Outrigger building.

A Kwaj resident observes the 5 p.m. "Retreat" and "To the Color," by facing the water tower, the origin of the music on Kwaj. Were an American flag visible, she would turn toward it.



All U.S. Army Garrison-Kwajalein Atoll residents are reminded that the soundings of the 6:30 a.m. "Reveille" and the 5 p.m. "Retreat" and "To the Color" are to be observed with respect.

- **Military service members in uniform** are to turn toward the American flag (or into the direction from which the music originates) and salute.
- **Military service members not in uniform** are to face the flag or music and place their right hands over their hearts. Hats must be removed.
- **Civilians** are encouraged to participate by facing the flag or music and placing their right hands over their hearts. Hats should be removed.



Do you have photos you've shot and want to submit them to the Hourglass? Send the the pics and captions to:
**USARMY.BUCHOLZ.311-SIG-CMD.
 MBX.HOURGLASS@MAIL.MIL**

USEFUL MARSHALLESE PHRASES

SAMPLE DIALOGUE

Kwöj etal ñan ia?
Where are you going?

Ij etal ñan Sunrise Bakery.
I am going to Sunrise Bakery.

In et / in ta?
To do what?

In Möñä jonoul tonaaj.
To eat 10 donuts.

Kwe bwebwe ke?
Are you crazy?

Jab. Ejabwe joun tonaaj enno!
No. One tasty donut is never enough!

While living in the Marshall Islands, you will have many opportunities to interact with members of the Marshallese community and learn about their culture. Learning the Marshallese language is not only recommended to strengthen communication and relationships; it also shows an appreciation of cultural diversity while guests in our host nation. Here are some everyday Marshallese phrases to practice:

Hello/Goodbye = Iokwe (Yokwe old spelling)
Hello everyone = Iokwe aolep
How's life? = Ej et am mour?
And you? = Ak kwe?
Good afternoon = Iokwe in raelep
Good evening = Iokwe in jota
What's your name? = Etam?
My name is () = Eta in ()
Thank you = Kom'mool
Thank you very much = Kommool tata
You're welcome = Kon Jouj
Excuse Me/I'm sorry = Jolok bod
You're excused = Ejolok
Goodbye = Bar iokwe!
See you later = Bar lo eok
Good luck = Jeraamman ñan kwe

Anytime = Aolep Ien
Do you understand? = Kwömelele ke?
I understand = Imelele
I don't understand = Ijab melele
What time is it? = Jete awa?
How much? = Jete onaan?
How old are you? Jete am iio?
I'm thirsty = Imaro
Yes = Aet
No = Jaab
Good = Emman
Bad = Nana
Happy = Monono
Enno = Tasty
So so = Ebwe
Crazy = Bwebwe
Stop = Bojrak
Go = Atal