



# Watershed and Coastal Mapping Mapbook Utulei – Faga’alu – Fatumafuti 2014

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# Introduction

This map book contains cartographic products derived from the American Samoa Watershed and Coastal Mapping project for Fatumafuti, Faga'alu, and Utulei villages, conducted in American Samoa in January 2014. These maps are based on information gathered through participatory mapping workshops held in each village, where participatory GIS methods were used to generate spatial data on coastal and watershed uses and characteristics. The project is intended to fill a critical information gap regarding human activities and issues relating to water quality in these coastal watersheds, which include a NOAA Coral Reef Conservation Program priority watershed site, in order to better inform planning and management activities.

This effort was undertaken as a collaboration between federal and jurisdictional agencies including NOAA's Pacific Islands Regional Office (PIRO), American Samoa's Department of Commerce Coastal Management Program (ASCMP), the American Samoa Department of Marine and Wildlife Resources (DMWR) and American Samoa Environmental Protection Agency (ASEPA). Primary funding for the project is from NOAA's Coral Reef Conservation Program.

A total of 51 workshop participants were involved from the three villages over the course of three days. Participants were village residents recruited by village leaders based on their expertise in the various human uses and activities occurring in this region. Representatives were present from core Samoan groups, including *matai* leaders, women, and young men (*aumaga*).

## Targeted Uses

Watershed-related issues (detailed in the following maps), as well as the locations of critical fishing areas and eight specific types of fishing were mapped in the villages. The priority topics for mapping were determined and defined with assistance from local stakeholders and resource managers

## Maps

Data compiled during the workshop were processed to create maps documenting the spatial extent of watershed-related issues and coastal use patterns as drawn by the participants in the village participatory mapping exercises. After initial data processing was completed, draft maps were presented back to village representatives in October, 2014 to review and provide feedback for final revisions. The following maps show the final patterns for watershed issues and fishing activities, as well as a compilation of the supplemental data provided by participants throughout the mapping process. Watershed issues are compiled together on individual maps for each village. Fishing activities are represented on individual maps for each type of fishing occurring in the 3-village region.

# Contacts

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# Fatumafuti

## Watershed and Coastal Mapping Project, 2014

This information was collected during a village mapping workshop in Fatumafuti where village residents digitally drew regions on maps depicting the spatial location of watershed and coastal topics explained below. The purpose of this participatory mapping workshop was to understand patterns observed by villagers in order to gain information that can be used to address water quality issues and improve coastal watersheds and marine environments.

**Flooding:** The regions indicated only flood during heavy rainfall. Some houses are flooded during heavy storms.

**Intermittent Streams:** These areas flow as streams during heavy rainfall.

**Community drinking water sources:** The community drinking water sources indicated on the map haven't been used for drinking water for decades. Village members also reported a water tank up on the mountain that has not been used for over 50 years and is not being used at present. The community drinking water sources come from spring water and rain water and are only used for back-up emergency when ASPA water is out.

**Trash accumulation:** There is no trash accumulating; the village cleans up often.

**Cultivated land:** Behind the houses and below the mountain is cultivated land. Crops grown include taro, pineapple, banana, kipolo (lime) and others. There are no fertilizers or pesticides used.

**Cess pools and Septic:** All residences are on sewer in Fatumafuti. There are no cess pools or septic.

**Informal dump sites:** There is trash that overflows from the dumpsters in the village, there is also trash left behind at the beach by swimmers from outside the village (Fatumafuti is a popular swimming spot).

**Clean up locations:** The government cleans up the road region and cuts grass once a month. The village cleans up very frequently to remove trash left by swimmers along the beach.

### Legend

- ★ Informal Dump Site
- Dumpster
- Community Drinking Water Sources
- Intermittent Streams
- Flooding
- Cultivated Lands
- Village Clean Up
- Government Clean Up
- Important Fishing Areas
- Streams



0 50 100 200 300 400 Feet



## American Samoa Watershed & Coastal Mapping Fatumafuti 2014





# Faga'alu

## Watershed and Coastal Mapping Project, 2014

This information was collected during a village mapping workshop in Faga'alu where village residents digitally drew regions on maps depicting the spatial location of watershed and coastal topics explained below. The purpose of this participatory mapping workshop was to understand patterns observed by villagers in order to gain information that can be used to address water quality issues and improve coastal watersheds and marine environments.

**Flooding:** In Faga'alu the roads flood frequently and channel water during heavy rainfall. Several regions near the coastline flood. The stream between the hospital and the shoreline floods outside of its stream channel.

**Planned Mitigation Project:** There is a planned mitigation project for this region where a catchment basin will collect water and allow sediment to settle before entering the ocean to improve water quality.

### **Community Drinking Water Sources:**

In Faga'alu there are only ASPA drinking water sources, no community sources. There were three spring catchment collection systems in the late 70s to early 80s behind the quarry (indicated on the map) which are no longer in use. Below the quarry were two points of collection built by the Navy in WWII, but only used by a single family.

**Trash Accumulation:** Trash accumulates along the coastline in various locations. Some comes from stream outlets, and ocean currents bring in floating trash such as styrofoam.

### **Cultivated Lands:**

Farmers do not use pesticides or fertilizer for planting crops. There are a few cultivated regions in Faga'alu. Most mapped regions represent cultivated family lands. A banana plantation is located between Tuika's residences extending to Matafao Elementary School.

### **Cesspools and Septic:**

Most of Faga'alu is on sewer, however a few regions (designated on the map) are using septic or cesspools.

### **Informal Dump Sites:**

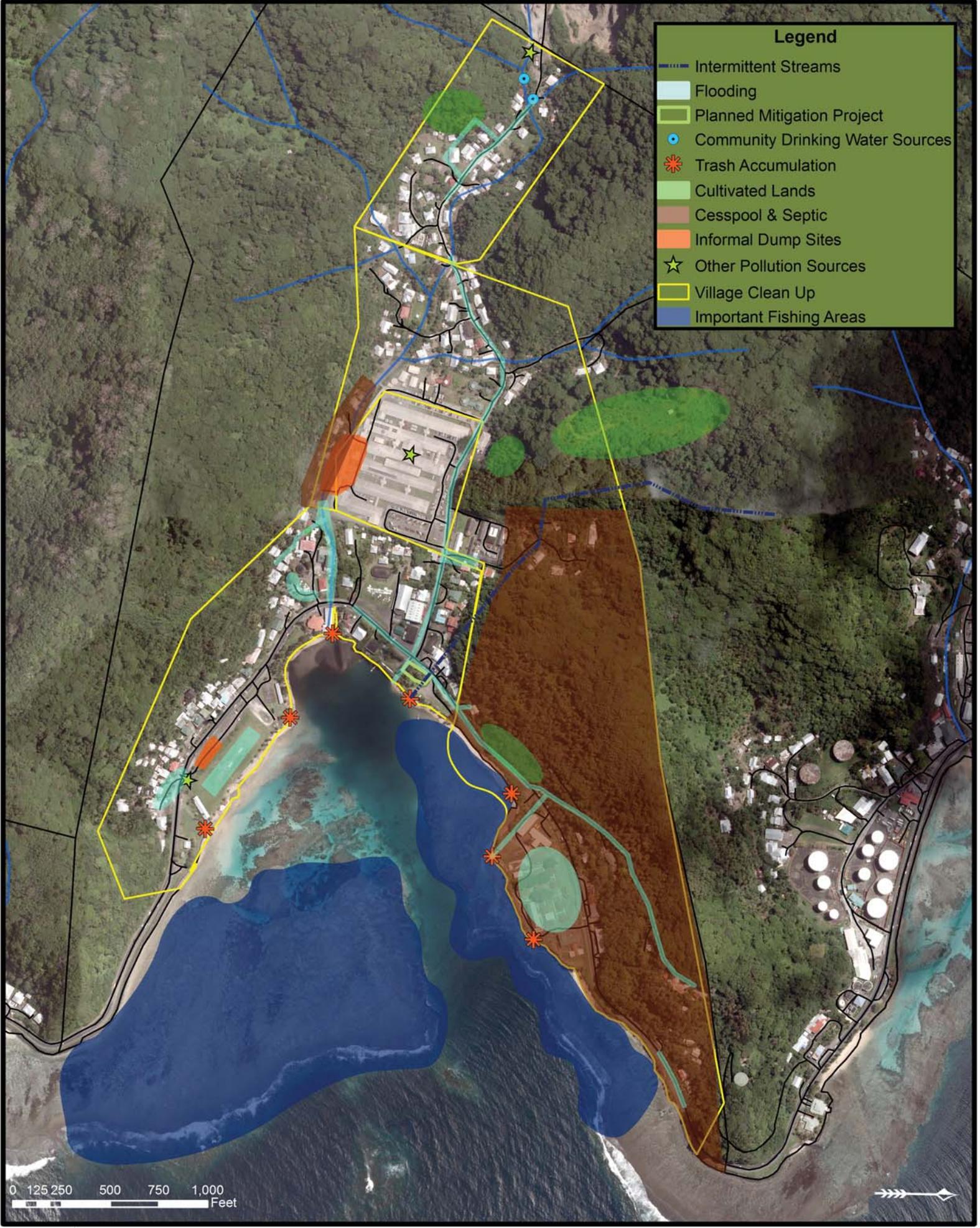
The area within the LBJ hospital supply area is littered with trash and rotting cars. Another dump site is the area near the Faga'alu field where trash overflows from the dumpsters.

### **Other Pollution Sources**

Other sources of pollution in Faga'alu include: sedimentation from the quarry, air pollution from chemicals from the hospital, and stray dogs which are commonly dropped off at Faga'alu park. Also the Matafau School, located along the shore, used to be a dumpsite, which could have an impact on ocean water quality.

### **Village Clean Up Sites/ Schedules**

The village has designated areas to be cleaned up by 3 different groups: 1. UPPER: Quarry to the bridge; 2. MIDDLE: Bridge to Matafao; 3. PARK: Intersection to Faga'alu Park



- Legend**
- Intermittent Streams
  - Flooding
  - Planned Mitigation Project
  - Community Drinking Water Sources
  - Trash Accumulation
  - Cultivated Lands
  - Cesspool & Septic
  - Informal Dump Sites
  - Other Pollution Sources
  - Village Clean Up
  - Important Fishing Areas

0 125 250 500 750 1,000  
Feet



**American Samoa Watershed & Coastal Mapping**  
Faga'alu  
2014





# Utulei

## Watershed and Coastal Mapping Project, 2014

This information was collected during a village mapping workshop in Utulei where village residents digitally drew regions on maps depicting the spatial location of watershed and coastal topics explained below. The purpose of this participatory mapping workshop was to understand patterns observed by villagers in order to gain information that can be used to address water quality issues and improve coastal watersheds and marine environments.

**Flooding:** When it rains heavily, water is channeled by the roads that come down from the hillside. The roads around the Executive Office Building area flood due to runoff, especially when Public Works does not maintain the stream. Sand blocks the outlet and clogs the stream creating flooding. Villagers state that this outlet needs to be maintained.

**Community drinking water sources:** ASPA water reaches Utulei, but it is slow, particularly in the uphill regions. There were references to several community water sources that may be groundwater springs; however no one drinks it.

**Intermittent Streams:** There are two locations near the coast that flow as intermittent streams only during heavy rainfall.

**Trash accumulation:** Most streams and flooded areas collect trash during heavy rain. The location at the end of the stream next to the Young Mart store has two issues: (1) the current brings in sand and blocks the stream on the ocean side of the road, causing flooding, and (2) on the mountain side of the road there is a bridge that collects the waste.

**Cultivated land:** Villagers have indicated that cultivated land in Utulei along the middle of the mountainside is mostly residents who grow crops. The areas that are closer to the mountain top have larger farms. These mountain top regions are currently not farmed. Villagers rotate their farms to avoid over-utilizing some areas. Crops include bananas, taros, coco, papaya, oranges, sugarcane, laupele, lemons, etc. No fertilizer or pesticides are used.

**Informal dumping sites:** There are many informal dump sites within Utulei, mostly from visitors, workers and students, people who are not residents of the village.

**Other pollution sources:** There is significant construction and development for government buildings in the Utulei region; trash from this construction accumulates faster than ASPA collects the waste, and much trash from construction is left on site. At the Young Mart Store, waste accumulates next to the store/dumpster due to delayed waste disposal, often ending up in the road and areas around the store. There is a laundromat and a wastewater treatment plant near the shoreline as you enter Utulei past blunts point; these could contribute to pollution in the ocean.

**Village clean-up sites/schedules:** The village of Utulei has a schedule to clean the village on Wednesday of every week. The villagers have adopted the stream in Utulei which the aumaga clean twice a month. The governmental agencies are responsible for cleaning portions of the village.

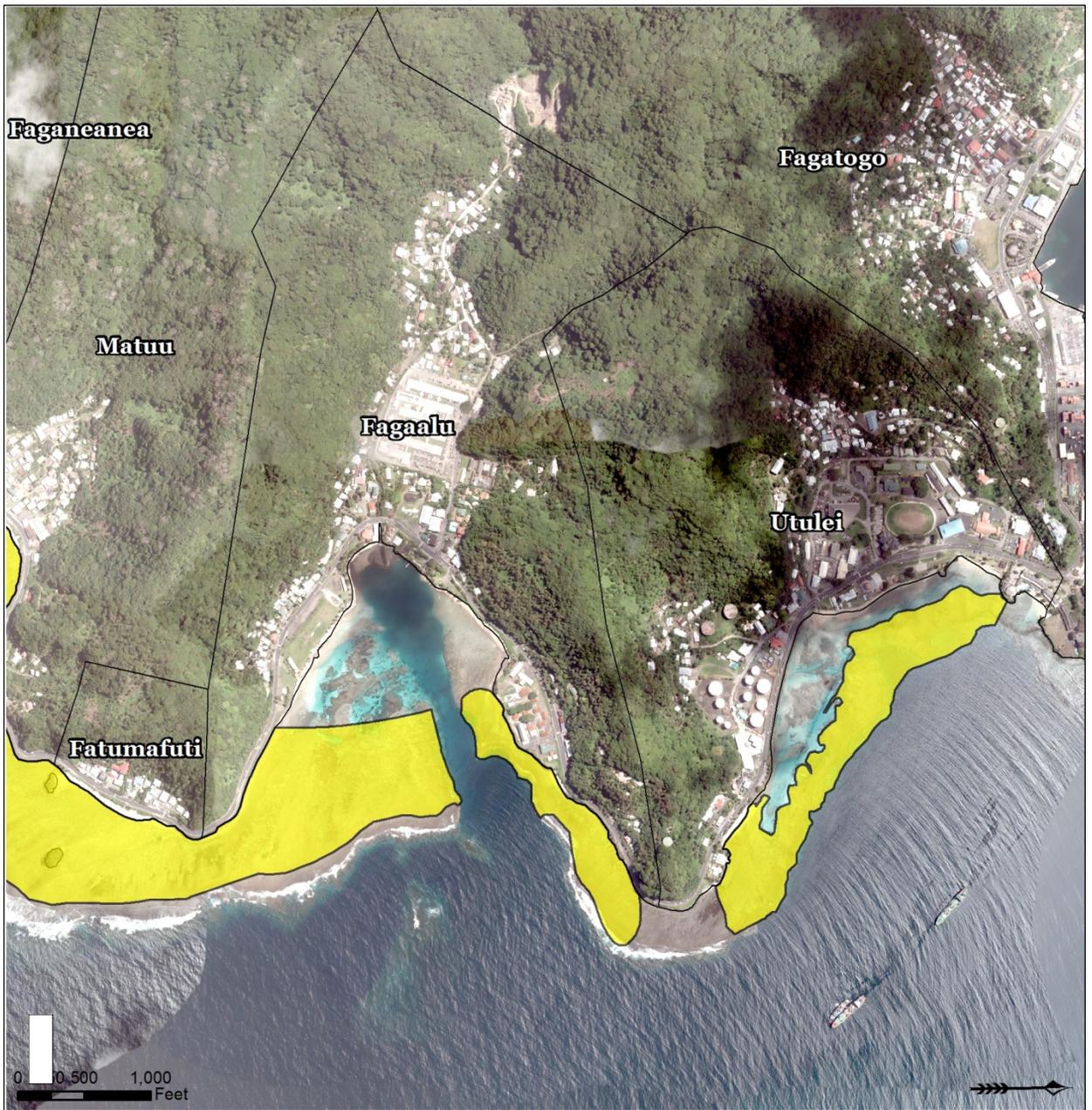
**Legend**

- Intermittent Streams
- Cultivated Lands
- Trash Accumulation
- Informal Dump Sites
- Other Pollution Sources
- Government clean up
- Village clean up
- Flooding
- Important Fishing Areas



**American Samoa Watershed & Coastal Mapping**  
Utulei  
2014





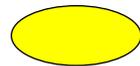
Imagery: USGS. 2012.

**Gleaning**

This activity takes place at a depth of less than five feet and includes intertidal and shallow water gathering of most invertebrates including shellfish, crab, sea cucumbers, octopus (from shore), and shallow seaweed. It does not include in-water diving for fish, lobster, octopus, and invertebrates at depths greater than 5 feet, or palolo gathering.

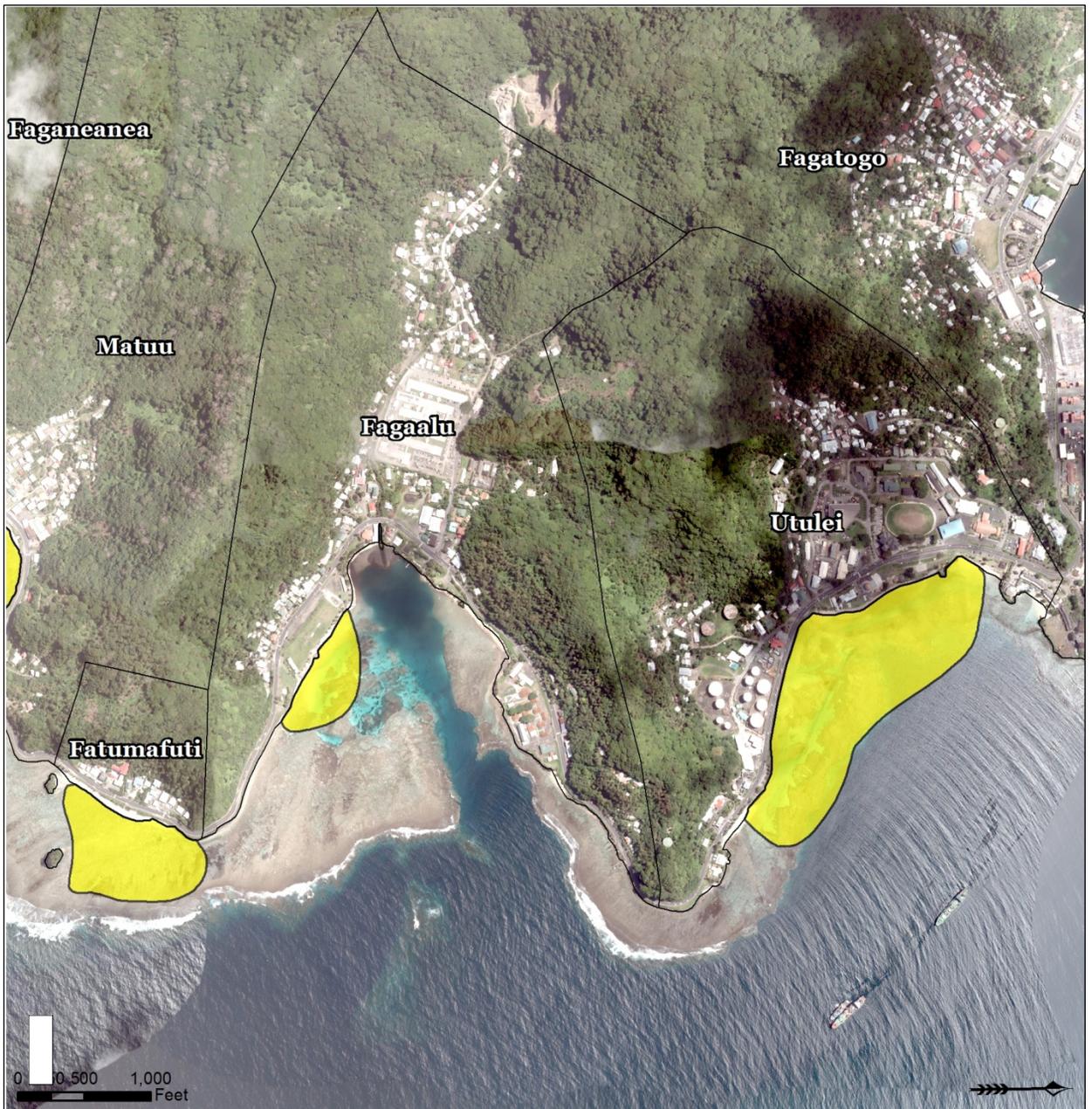
Targeted species include; fe'e (octopus), tuitui (sea urchins), aliao (trochus), loli (sea cucumbers), faisua (clams) , alili (turbo snails), pusi (moray eel), and sisi (black snail).

**Gleaning**



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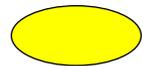
Imagery: USGS. 2012.

### Gill Nets

This category includes fishing using a gill net. It excludes the use of all other types of nets.

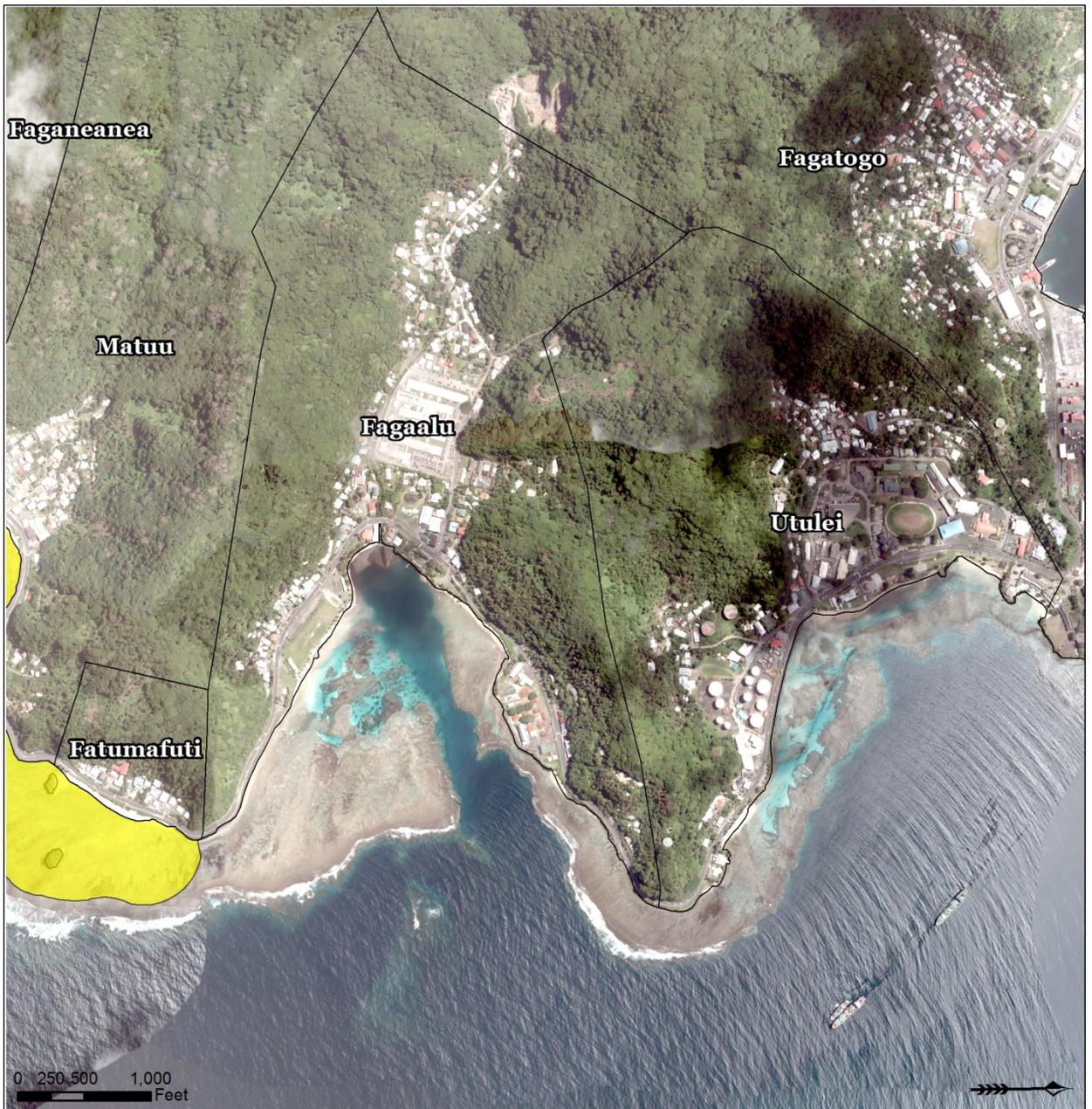
Targeted Species include: atule (big eye scad) and agee (mullet). In front of the stream mouth in Faga'alu targeted species are young smelt (a fresh water species)."

### Gill Nets



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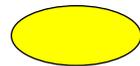
Imagery: USGS. 2012.

### Palolo

This category includes fishing for palolo, a locally culturally significant species of marine worm that is harvested once a year.

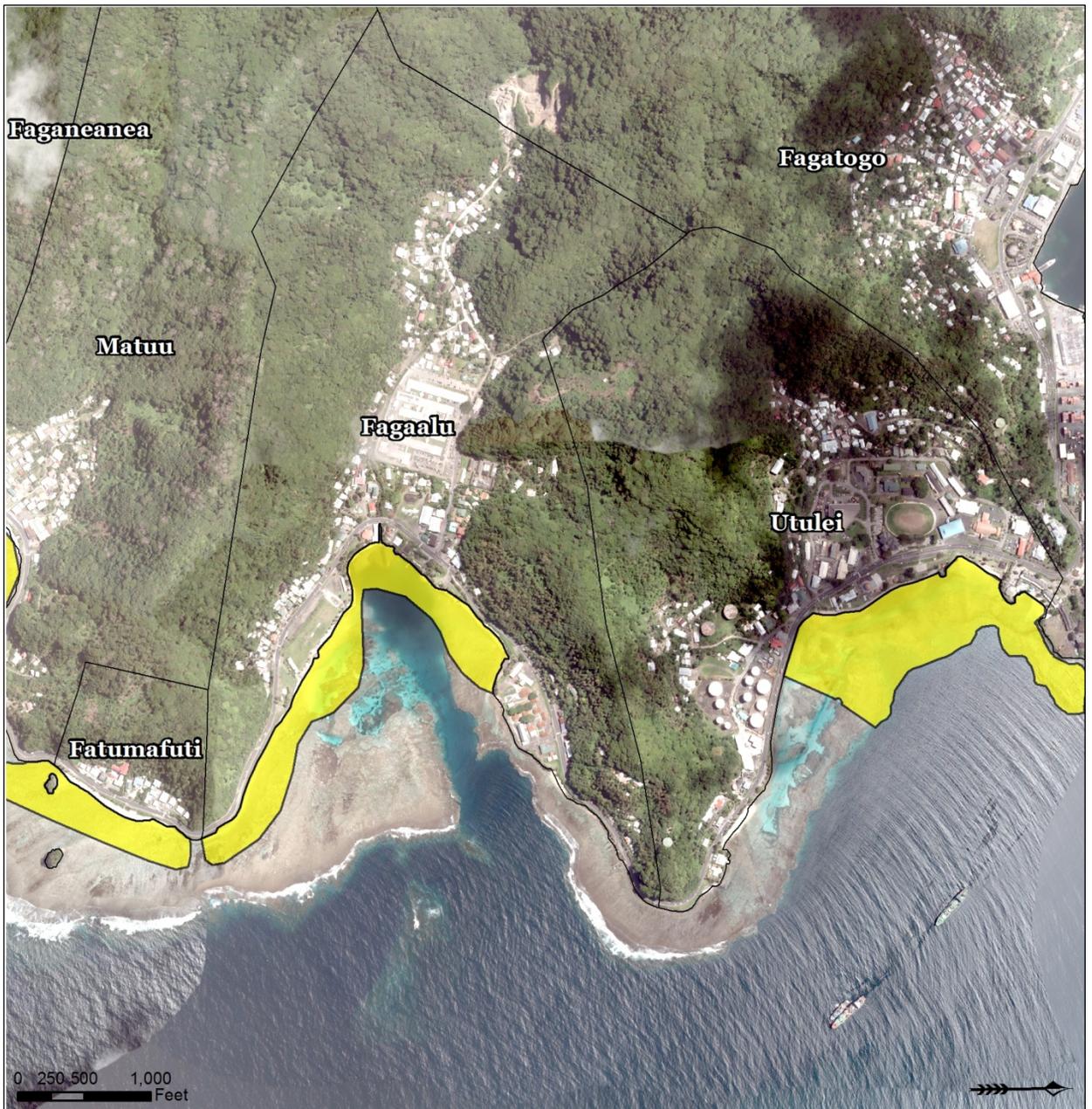
In Fatumafuti you may catch palolo right on the reef and in Faga’alu palolo was good 5 years ago, but now it isn’t really there anymore.

### Palolo



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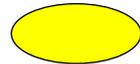
Imagery: USGS. 2012.

### Throw nets

This category includes the use of throw nets, but excludes the use of other net types.

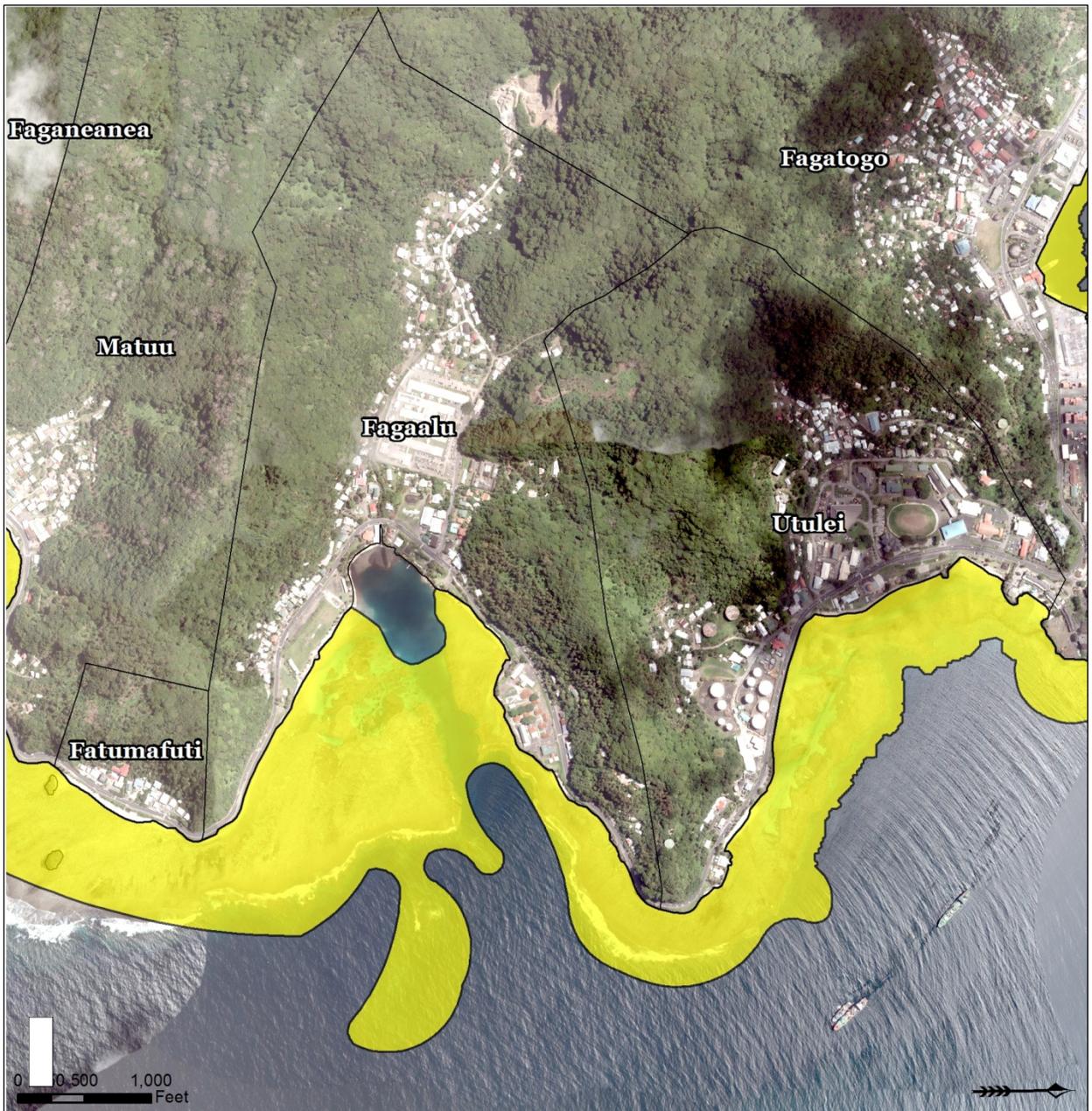
Targeted Species include: iasina (goat fish), pelu pelu (herring), agae (mullet), manini (convict tang) and fua fua (juvenile mullet).

### Throw Nets



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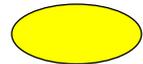
Imagery: USGS. 2012.

**Spearfishing**

Spearfishing includes in water use of a spear (gun, 3-prong) for fish, crab, lobster, and octopus at depths greater than 5 feet deep. It includes commercial and non-commercial, day and night activities. This category does not include shoreline gathering at depths less than 5 feet.

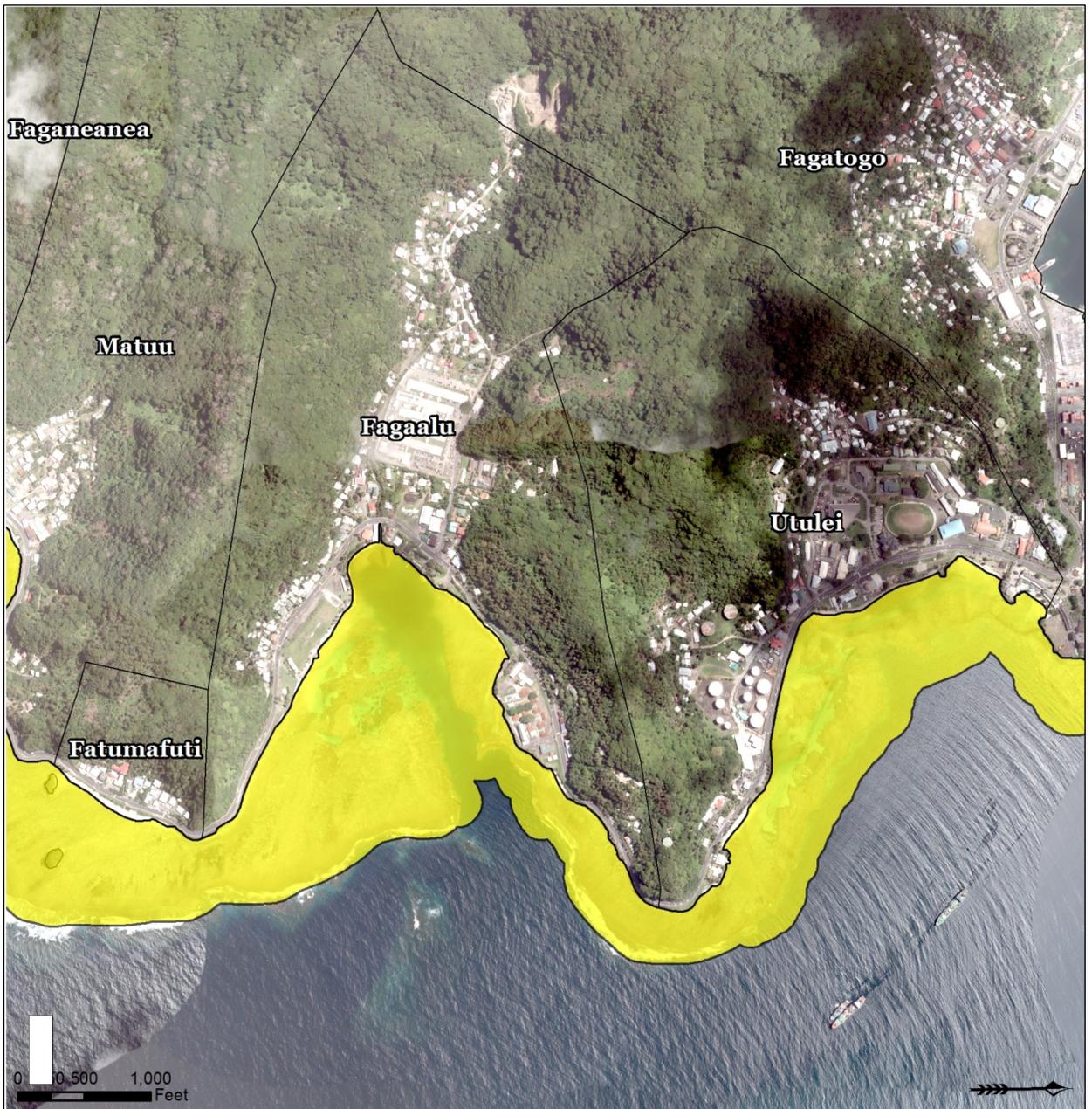
Targeted species include: fuga (juvenile parrotfish), gatala (grouper), poge (surgeon), manini (convict tang), fe'e (octopus), ula (lobster), laea (adult parrotfish), alogo (blue striped surgeon), ume (unicorn fish), malau (soldier fish).

**Spear fishing**



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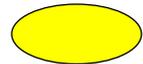
Imagery: USGS. 2012.

**Handlining / bamboo pole / rod and reel fishing from shore**

This category includes shore-based fishing with handline, bamboo pole or rod/reel. Not included are trolling, boat-based fishing, or bottom fishing.

Targeted species include: atule (big eye scad), gatala (groupers), malau (soldierfish), fuga (parrot fish), and laea (parrotfish).

**Rod and Reel**



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