

THE FEDERATED STATES OF MICRONESIA

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The Federated States of Micronesia (FSM) consists of 45 distinct islands scattered over a vast expanse of ocean between 1°N and 10°N latitude and 137°E and 168°E longitude. Most of these islands are low coral atolls except for four high volcanic islands. The four high islands represent most (92%) of the land area and serve as capital centers of the states. These high islands located from east to west are Kosrae, Pohnpei, Chuuk and Yap state. The population of the entire FSM is approximately 116,268 people with an average population growth of 2.1%.

The wetland areas in FSM primarily comprise of mangrove forest, swamp forest, freshwater marsh, ivory nut palm forest and saline marsh. Over 85% of the wetlands in FSM are mangrove, 65% of which is found on the main island of Pohnpei. Kosrae comes next with an additional 18%. Although Yap has a smaller area of mangrove forests, the mangroves are more developed and more diverse than Pohnpei and Kosrae. Recent studies on biological diversity have indicated that the diversity of the mangrove species increase from east to west with Malaysia and Indonesia having the highest number of species. On the islands of Pohnpei and Kosrae, the species distribution may differ, however, they may have the same number of species of mangrove trees. For example, in Kosrae, *Sonneratia alba* dominates the seaward margin of mangrove forest while on Pohnpei, *Rhizophora mucronata* is found there. Pohnpei may have one or two more species over Kosrae and recent studies show that since the two islands are so close together in geographical location, they may have the same species. Kosrae should be noted for the abundance of nepa, *Nypa fruticans*. Yap like Chuuk, has poorly developed mangroves but slightly greater species diversity than the islands located to the east.

Much of the wetlands in FSM are located on the main island states whereas wetlands on the low atolls are limited to cultivated taro *Colocasia esculenta* and *Cyrtosperma chamissonis* with limited fringing lagoonal mangroves comprised mainly of dwarf *Rhizophora mucronata*, *Bruguiera gymnorrhiza* and *Lumintzera littorea*. The table below shows the wetland areas in the FSM (in hectares).

	Kosrae	Pohnpei	Chuuk	Yap	Totals	Percent
Mangrove Forest	1,562	5,525	306	1,171	8,564	85.4
Swamp forest	345	214	0	155	714	7.1
Freshwater marsh	25	149	234	165	573	5.7
Ivory nut forest	0	137	2	0	139	1.4
Saline marsh	0	29	0	6	35	0.4

Wetland Loss

Over the last several decades, the main uses of the mangrove trees have been for timber and handicrafts and these uses were considered sustainable and non-destructive. As population increased and new lifestyles were introduced, the use of the coastal resources evolved. The loss of wetland areas, primarily mangroves, has been from the dredging of coral rubble from the adjacent fringing reefs. A large area of mangroves has been cleared

to access the adjacent reefs for coral rubble to be used for filling of roads. Land-filling for land reclamation contributes to mangrove loss and is sporadic in some areas of the Federated States of Micronesia.

Wetland Area Legislation

In the FSM, the individual states have exclusive jurisdiction over the management of natural resources. In Kosrae and Pohnpei States, submerged lands (those below the high tide mark) are public land and under the jurisdiction of the State Government. In Chuuk and Yap, water areas are privately or customarily owned. In Pohnpei, the 1987 Watershed Protection and Mangrove Management Act gives the State Forestry Division broad authority to manage mangrove areas. In Kosrae, legislation exists to prevent development along specified river drainages. Thus far this has not become a significant problem and there has not been a real need to enforce the law. Areas designated to be sanctuaries are located in Pohnpei and Kosrae.

Institutional Management

Organizations involved in the management of the wetland areas include:

US Federal Agencies

- Forest Service – provides technical assistance to state governments

- Soil Conservation Service – currently providing technical assistance to Pohnpei and Kosrae states

FSM Government

- FSM Department of Resources and Development – coordinate outside technical assistance for state agencies.

- Pohnpei Division of Forestry – manages the mangrove and watershed areas

- Kosrae Development Review Commission – overlooks the management of the mangrove and watershed areas

Academic Institutions

- College of Micronesia – Sea Grant Extension Services – assisting in the development of coastal resource management plans, parks and protected areas

Community Involvement

In Pohnpei and Kosrae, the communities have shown a lot of interest in protecting the mangrove forest. Some communities have started projects to designate nearby mangrove forests as sanctuaries. The Langer community is pushing that the Pohnpei legislature make it a law that the entire Langer becomes a sanctuary, including the mangrove forest fringing the island. In Kosrae, Utwe-Walung Marine Park was a community initiative.

In the FSM primary and secondary school systems, standards for teaching science have been developed. The next step is to write course outlines for these standards and by next year, these course outlines will be used in the schools. Mangrove management is one of the key issues that is emphasized in these curricula.

Recent work involves several NGOs and government agencies in implementing the Youth to Youth program. This program started with selecting over ten schools. Environmental awareness programs were taken to these schools. During the course of the project, the students were given talks and field trips. Towards the end of the project, students were asked to compose songs and develop skits from what they have learned from the talks and

field trips. Songs were sung and the skits were performed at the fair held during the Earth Day celebrations. Posters were also made and displayed in the classrooms for students from other schools to see. The winning ones are displayed at the airport.

Kosrae state has done some reforestation of mangroves involving the students in the elementary schools. Research, mainly inventories and mangrove productivity studies, have been recently conducted in Kosrae on diameter (growth) and collection of carbon dioxide. These recent studies were mainly carried out by US Forest Services.

The FSM has ratified the Convention for the Protection of the Natural Resources and Environment of the South Pacific (the SPREP convention) and has signed and ratified the Convention on Biological Diversity. FSM is not as yet a party to the UNESCO Man and Biosphere Program, Ramsar Convention or World Heritage Convention, nor has it signed or ratified the Convention on the Conservation of Nature in the South Pacific.