

ACANTHASTER IN THE CULTURES OF HIGH ISLANDS

by

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Residents of high islands in Micronesia, Melanesia and Polynesia usually have their own special names for *Acanthaster*, each have similar advice on curing the sting of the spines, and each claim that *Acanthaster* has been abundant at certain times in the past. I believe that this familiarity of *Acanthaster* in some high island cultures implies that outbreaks are a naturally recurring phenomenon around high islands. An apparent lack of familiarity of *Acanthaster* in the cultures of atolls implies that outbreaks of *Acanthaster* are much less frequent around atolls (low islands).

In Palau (Micronesia), the *Acanthaster* is called *rrusech* (Birkeland, 1979) while other starfish are called *btuch* or *tengetang*. At Fiji (Melanesia), *Acanthaster* is called *bula* (a homonym of "hello") while the general terms for "starfish" are *gasagasan* or *basage* (Atelaite Smalley, pers. comm.). In the Cook and Society Islands (Polynesia), *Acanthaster* is called *taramea* and in Samoa and Tonga (Polynesia), *Acanthaster* is called *alamea* (Garlovsky and Bergquist, 1970; Birkeland and Randall, 1979; Flanigan and Lamberts, 1981).

In contrast, the languages from atolls appear to not contain terms for *Acanthaster*. There is no special word for *Acanthaster* on Pingelap (Spensin James, pers. comm.); the crown-of-thorns is merely referred to as *isu*, a term used for all starfish. Similarly, *Acanthaster* is called *talwalyol* on Ulithi, a general term for all starfish (Eulalia Harui, pers. comm.). Abo et al. (1976) list 12,000 entries with information on about 30,000 Marshallese words. Many fishes, three groups of sea cucumbers, and other marine organisms are mentioned, but there was no word for *Acanthaster*. It must not be important to the Marshallese.

The Gilbert Islands (Kiribati), the Ellice Islands (Tuvalu) and Fanning Island are all atolls. Lobel (1978) presented a list of 407 names of fishes and 95 names of marine invertebrates used by Gilbertese and Ellice Islanders on Fanning Island, but *Acanthaster* was not listed. These inhabitants of atolls had their own specific names for many species of fishes, mollusks and crustaceans and even distinguished between three groups of holothurians, but all seastars came under one name. *Acanthaster* may have never been abundant on these atolls.

There is an exception from the atoll of Mokil (near Ponape) at which the people do call *Acanthaster* by the name *larni*. Of course there may be other exceptions. However, there does seem to be a general presence of words for *Acanthaster* in high island languages and an apparent lack of words for *Acanthaster* in low island languages. These tendencies suggest that *Acanthaster* may be more common around high islands.

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People from atolls say they rarely, if ever, see *Acanthaster* and they have never heard of them being common (Matuatua Smit, Takapoto Atoll, Tuamotu, French Polynesia; Eulalia Harui, Ulithi, Yap District; Spensin James, Pingelap, Ponape District, pers. comms.). Around high islands, the people remember previous outbreaks. According to local fishermen, there was an outbreak in American Samoa in 1938 (Flanigan and Lamberts 1981). Vine (1970) reported that fishermen in the Solomon Islands (Melanesia) remembered large concentrations of *Acanthaster* about 1930, forty years previous to 1970. Chesher (1969) reported that Micronesians remember an outbreak on Ponape just after World War II.

Michael Parke talked to an old Palauan fisherman who described an extensive infestation that took place just prior to World War II. According to this fisherman, the *Acanthaster* soon disappeared, leaving algae in the place of coral. Then urchins became abundant during the early years of World War II. The fisherman felt that *Acanthaster* were transitory and no real problem. The abundance of urchins that resulted were a benefit. Old people could easily collect them for food within wading depth on the reef flat. We have not heard of other cases of an abundance of urchins following *Acanthaster*. It will be interesting to see if herbivorous urchins become common following the present devastation in Palau. Except for areas around artificial sea walls, breakwaters and ramps, regular urchins are remarkably scarce in Palau at the time of this writing.

The people on high islands tell of dangers of stepping on *Acanthaster* when fishing at night at times when *Acanthaster* is abundant (Vaolui, pers. comm.; Flanigan and Lamberts, 1981). A cure for injury from stepping on *Acanthaster* is claimed by several high island cultures to be their own discovery. When I was studying an *Acanthaster* outbreak in Palau, I accidentally jabbed my knee strongly against an *Acanthaster* and came to the boat with a lot of blood dripping out of six cuts in my knee. The boatman, Ngirbauliad ("Yahd") Mineich, advised me to take one of the *Acanthaster* and place it mouth down on the bloody knee. (This was tried, but was not found to be of great help.) When asked if he heard of this cure from a Samoan or Fijian, Yahd said it has always been common knowledge in Palau. Ramon Rechebei, another Palauan, said that he knew of this cure since he was a boy.

Spensin James told me that this cure had worked for him when he tried it. This cure was common knowledge among Ponapean fishermen and it works if you are sure to use the same individual *Acanthaster* that harmed you as the individual to cure you. If you are jabbed by one *Acanthaster* and lift another to cure your pain, it will be of no use. (I am not sure I used the same individual in Palau.)

Laité Smalley told me that when Fijian fishermen step on *bula* on the reef flat, they turn over the same *bula* and put their food against the mouth so that the *bula* will suck out the poison. She said this was generally known by Fijian fishermen and there is no reason to believe it was learned from the Palauans or Samoans. Maybe the cure was discovered in Fiji.

This same cure has been known on Tonga (Richard Braley, pers. comm.), and as a proverb on Western Samoa (Garlovsky and Bergquist, 1970) and American Samoa (Birkeland and Randall, 1979; Flanigan and Lamberts, 1981).

The Secretariat of the British Solomon Islands Protectorate (1970) noted that this same cure by turning over and stepping on the underside of the *Acanthaster* was known in the Solomon Islands, New Britain, Manus Islands, and Gambier Islands.

The apparent history of recurring abundances of *Acanthaster* around high islands but not around atolls may be explained by the causal mechanism of *Acanthaster* outbreaks as suggested in Birkeland and Randall (1979) and Birkeland (1980). *Acanthaster* larvae may survive in much greater abundance following heavy rainfall. This might be because phytoplankton blooms are triggered by terrestrial runoff and this provides an abundant food source for *Acanthaster* larvae. Terrestrial runoff resulting from rains on high islands trigger phytoplankton blooms (Marsh 1977), but it is doubtful that terrestrial runoffs from low, sandy atolls carry an amount of nutrients into the coastal waters adequate to trigger blooms.

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References Cited

- Abo, T., B. W. Bender, A. Capelle, and T. DeBrum. 1976. Marshallese-English Dictionary. Pali Language Texts: Micronesia. The Univ. Press Hawaii, Honolulu. 589 p.
- Birkeland, C. 1979. Report of the *Acanthaster planci* (*rrusech*) survey of Palau, 18 to 26 May 1979. Report submitted to the Division of Marine Resources, Palau. 30 p.
- Birkeland, C. 1980. Population postulation. Glimpses of Micronesia and the Western Pacific 20(2):76-77.
- Birkeland, C., and R. H. Randall. 1979. Report on the *Acanthaster planci* (*alamea*) studies on Tutuila, American Samoa. Report submitted to the Division of Marine Resources, American Samoa. 50 p.
- Chesher, R. H. 1969. *Acanthaster planci*: impact on Pacific coral reefs. Final report to U. S. Dept. of the Interior, Westinghouse Res. Lab. No. 69-951-Ocean-R2. 152 p.

- Flanigan, J. M., and A. E. Lamberts. 1981. *Acanthaster* as a recurring phenomenon in Samoan history. Atoll. Res. Bull.
- Garlovsky, D. F., and A. Bergquist. 1970. Crown-of-thorns starfish in Western Samoa. South Pacific Bull.20(3):47-49.
- Lobel, P. S. 1978. Gilbertese and Ellice Islander names for fishes and other organisms. Micronesica 14(2):177-198.
- Marsh, J. A., Jr. 1977. Terrestrial inputs of nitrogen and phosphorus on fringing reefs of Guam. Proceedings, Third International Coral Reef Symposium. 1. Biology:331-336.
- Secretariat, Honiara, British Solomon Islands Protectorate. 1970. A note on traditional local remedies for injuries received from the crown-of-thorns starfish in the British Solomon Islands Protectorate. 1 p.
- Vine, P. J. 1970. Densities of *Acanthaster planci* in the Pacific Ocean. Nature:228-342.