



Pacific Islands trochus introductions 1927–1998

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Editor's note:

This is an updated version of the original paper, Pacific Islands trochus introductions, written by Bob Gillett and published in the SPC Trochus Information Bulletin #2 in 1993. Since that publication, many additional translocations of trochus in the Pacific have taken place and it was believed worthwhile updating the paper. Many thanks to Bob for his effort in undertaking this job and producing this very important history of trochus enhancement in the Pacific.

Date	Areas	Details	Source
Before 1927	Palau to Chuuk	Unsuccessful attempt Palau to Pohnpei	McGowan 1957
1927-1931	Palau to Chuuk	Total of 6724 shells transferred in bait wells of skipjack boats; 5 years elapsed before judged successful. First harvest 1939, greatest annual harvest (1952) 230 tons	McGowan 1957; McGowan 1958
1930	Palau and Yap to various sites in Caroline Islands	Japanese govt. and private companies transferred shells to many islands including Ngulu, Ngatik, Mokil, Pulawat. Transfers to Sorol, Woleai, Ifaluk, Kapingamarangi and Nukuoro not successful.	McGowan 1957
1937	Palau to Phoenix Islands	No details of transfer available; 1986 status unknown to Kiribati officials. Probably mistaken, Enderbury (Phoenix Islands) could have been confused with Enderby (Pulawat, Chuuk)	Bour et al. 1982; Onorio, pers. comm.
1938	Palau to Saipan	2974 individuals released	South Seas Government 1938
1939	Chuuk to Pohnpei	Skipjack vessel transported shells in 2 trips	Asano and Inenami 1939
1939	Chuuk to Jaluit	6143-tonne cargo ship carried shells in 4 water tanks	Asano and Inenami 1939
1939	Palau to Pohnpei; Palau to Satawal	6745 shells transferred; greatest harvest (1951) 180 tons; 5000 shells transferred; success not known	McGowan 1957; McGowan 1958
1939 or 1940	Yap to Ulithi	Very successful	McGowan 1957, 1958; McCoy, pers. comm.
1939	Palau to Jaluit	Shells transferred to other atolls of the Marshall Islands including Majuro and Ailinglaplap; transfer to Ebon not successful.	McGowan 1957; Bour et al. 1982
1940s or early 1950s	Pohnpei to Kosrae	Unsuccessful operation	McGowan 1958
Early 1950s	Saipan to Guam	Shells transplanted by two fishermen; very successful	Stojkovich and Smith 1978; Smith, pers. comm.; Smith 1986
1952	? to Hawaii	39 shells released in Kaneohe Bay	Katekaru, pers. comm.
1954	? to Kili Atoll	Unsuccessful	McGowan 1958

1. PO Box 3344, Lami, Fiji Islands

1957	Fiji (Viti Levu) to Aitutaki	2 transfers; one in sea water, other damp in crates (40 shells); seaplane used; trochus population plentiful in 1965. First harvest 1981 (200 tonnes)	Van Pel 1957; Devambez 1960; Sims 1984; Powell, pers. comm.
1957	Vanuatu to Tahiti	1200 shells shipped in circulating water tanks. 40 survived the 15-day trip.	Yen 1985; Yen, pers. comm.
1958	Fiji to American Samoa	No details available	Bour et al 1982
1958	Fiji to Tokelau	"Small number of subjects" placed in Atafu lagoon	Van Pel 1958
1958	New Caledonia to Tahiti	40 shells transferred by aircraft in damp sacks. First harvest 1971; greatest annual harvest (1973) 261 tonnes	Van Pel 1957; Anon. 1972; Powell 1960
1959	Pohnpei to Kosrae	500 live trochus released at 13 locations	Gawel 1982
1963	Guam to Hawaii	750 trochus released in Kaneohe Bay; 1967 survey showed trochus surviving, but no indication of reproduction observed; some trochus observed in 1970.	Katekaru, pers. comm.; Kanayama, 1967
1963	Tahiti to Moorea	800 shells transferred	Anon. 1972; Yen 1988
1963	Tahiti to Bora Bora	660 shells transferred	Yen 1988
1964	Tahiti to Raiatea	400 shells transferred	Anon. 1972; Yen 1988
1968	Tahiti to Tuamotu Islands	Manihi 120 shells	Yen 1988
1968	Tahiti to Austral Islands	87 trochus transferred	Yen 1988
1968	Tahiti to Gambier Islands	100 trochus transferred	Yen 1988
1969	Tahiti to Tuamotu Islands	Tikehau 60 shells, Fakarava 170 shells, Takaroa 64 shells, Anaa 60 shells, Pukapuka 100 shells, Rangiroa 355 shells	Yen 1988
1972	Tahiti to Austral Islands	500 shells transferred	Yen 1988
1972	Tahiti to Tuamotu Islands	Arutua 160 shells, Apataki	Yen 1988
1972	Tahiti to Gambier Islands	300 shells transferred	Yen 1988
1973+ ?	Aitutaki to Palmerston	Several transplants but was not successful like earlier transplants to Aitutaki	Powell, pers. comm.
1981-1983	Aitutaki to southern Cook Islands	Palmerston, 3000 shells transferred, abundant at date of report; Manuae, 500 shells, uncommon in 1985; Mitiaro, 300 shells, rare/extinct; Atiu, 300 shells, rare/extinct; Mangaia, 300 shells, rare; Rarotonga, 200 shells, rare/extinct	Sims 1984a and 1984b
1982	Aitutaki to Rakahanga and Manihiki	Shells carried on deck in wet sacks. Unsuccessful, all dead before arrival	Sims 1985
1983	Yap to Woleai	2000 trochus transplanted, all died in transit	Fagolimul and Price 1987
1984	Yap to Woleai	4708 shells transferred, 12 died enroute	Fagolimul and Price 1987
1984	Somewhere in the Marshall Islands to Ebon, Aur and Maloelap	Done in conjunction with trolling resource survey	Y. Elanzo, pers. comm.
1985	Yap to Ifalik and Eaurpik	1979 shells transferred; 90 died enroute	?

1985	Aitutaki to northern Cook Islands	Penryhn, 439 shells, carried 6 days in bait tank; Manihiki, 398 shells, carried 9 days in bait tank; Rakahanga, 693 shells, carried 10 days in bait tank; Pukapuka, all dead, carried 13 days in bait tank	Sims 1985
1985	Aitutaki to Suvarrow	460 shells carried for 3 days in flooded skiff; very low mortality	Sims, pers. comm.
1985	Aitutaki to Tuvalu	181 shells transferred in 3 air shipments; successful; larger transfer planned	Parkinson 1984; Pita 1985; Adams, pers. comm.; Batty, pers. comm.
1986	Aitutaki to northern Cook Islands	1200 trochus shipped using flooded skiff on domestic vessel. Very good survival rate	Dashwood, pers. comm.
1986	Fiji (Viti Levu) to Tokelau	1029 shells transferred; 584 sent by ship via Samoa; 161 flown to Samoa to join original shipment; 284 flown direct to Fakaofu and parachuted. One juvenile found December 1987. Juveniles common in 1994 in Fakaofu	Gillett 1986, 1988a, 1994
1986	Yap to Eauripik, Elato, Lamotrek and West Fayu	3125 shells transferred, 22 died enroute	Fagolimul and Price 1987
1987	Aitutaki to Suvarrow	1000 shells transferred via flooded skiff, no mortality	Sims, pers. comm.
1987	Fiji to Funafuti	200 trochus transported on commercial aircraft, 20 died in transit	Petaia, pers. comm.
1987	Yap to Fais, Ifalik, West Fayu	2504 shells transferred, 77 died in transit	Fagolimul, pers. comm.
1988	Aitutaki to Tokelau	578 shells transferred to Fakaofu using aircraft and parachute	Gillett 1988b
1988	Aitutaki to Tuvalu	1336 shells transferred to Nukulaelae, 2672 to Funafuti and 844 to Nukufetau using military aircraft and parachutes	Gillett 1988c
1989	Aitutaki to Tokelau and Tuvalu	1000 shells transferred to Nui, 600 to Nanumea, 1200 to Atafu and 1080 to Nukunonu using military aircraft and parachutes	Gillett 1989
1989	New Caledonia (Grande Terre to Loyalty Islands)	5709 juveniles transplanted from Grande Terre to Lifou	Hoffshir et al. 1990
1989	Pohnpei to Nukunonu and Kapingamarangi	500 shells transferred to each island, about 6 died in transit. Used flooded skiff on deck	Curren, pers. comm.; Gawel, pers. comm.
1990	Fiji to Samoa	40 trochus transported in September using commercial aircraft and released at some large shells kept at Fisheries Division in Apia for spawning	Zann, pers. comm.
1990	Fiji to Samoa	78 trochus (many were juveniles) transported in October using commercial aircraft and released at Namu'a Island in Aleipata area; In Sept. 1998 the owner of a small resort on Namu'a stated that he had seen, during the last year, a few trochus that were "different and much harder than the local species" (can't break it on rocks and eat it).	Gillett, pers. comm.
1990 (?)	Pohnpei to Pingalap	125 one-inch trochus transplanted	Gawel, pers. comm.
Nov. 1991	Woleai to Elato and Lamotrek	500 and 304 shells transported respectively	Fanafal and Clarke 1994
Jan. 1992	Ulithi to Sorol	500 shells transported	Fanafal and Clarke 1994
Aug. 1992	Uliti to Eauripik	103 shells transported	Fanafal and Clarke 1994
Aug. 1992	Woleai to Fachaulap	200 shells transported	Fanafal and Clarke 1994

Aug. 1992	Fiji to Tonga	545 shells collected on Lakeba Island, Lau Group and flown by commercial aircraft to Tongatapu. 250 of these were flown to Vava'u and placed on reef west of Tapana Island. 260 were transported by naval vessel to Niue; 223 eventually placed on reefs at: Hakapu (99 shells), Namakulu (77) and Tamakautoga (47). In early 1998 several juveniles were found by Fisheries and by JICA near the Pangaimotu causeway; Additional 384 shells transferred from Tongatapu to Vava'u in July 1998	Gillett 1992, Gillett pers. comm.; JICA pers. comm.; 'Ulunga, pers. comm.
May 1994	Fiji to Tonga (Tongatapu)	1172 shell collected on Lakeba Island. 1070 delivered alive to Tongatapu. Majority eventually placed on reef on NW Tongatapu; some juveniles reported by JICA in mid-1998	Gillett 1994; Manu et al. 1994; JICA pers. comm.
Jan. 1995	Fiji to Tonga (Ha'apai)	594 shells collected at Lakeba Island and transplanted to Uoleva Island, Ha'apai; Additional 350 shells transferred from Tongatapu to Uoleva in July 1998	Gillett 1995; 'Ulunga, pers. comm.
Aug. 1996	Tonga to Niue	311 shells (progeny of an earlier transplant to Tonga) placed at Namakulu and Tamakautoga	Pasisi, pers. comm.
Late 1990s	Fiji to Kiribati	Unknown number of shells transplanted to a quarantine facility in Tarawa and to an outer island	Mentioned by Kiribati representative at SPC/ACIAR aquaculture meeting July 2001
Late 1990s	Tonga to Samoa	Unknown number of shells transplanted from Tongatapu hatchery to Samoa	Mentioned by Samoa representative at SPC/ACIAR aquaculture meeting July 2001

References

- Anon. 1972. Commercial exploitation of trochus, French Polynesia. Fisheries Newsletter No. 3-4, 1972. South Pacific Commission, Noumea, New Caledonia.
- Asano, N. 1938. Experiment of trochus transplantation in Saipan Island. South Seas Fisheries News, volume 2, no.3, [in Japanese]. English translation by M. Izumi (1987). Summary translations of trochus research from South Seas Fisheries News, 1937-1939. FAO/UNDP Regional Fishery Support Programme, Document 87/2, Suva.
- Asano, N. and Y. Inenami 1939. Trochus transplantation to Ponape and Jaluit. South Seas Fisheries News, volume 3, no.5, [in Japanese]. English translation by M. Izumi (1987). Summary translations of trochus research from South Seas Fisheries News, 1937-1939. FAO/UNDP Regional Fishery Support Programme, Document 87/2, Suva.
- Bour, W., F. Gohin and P. Bouchet 1982. Croissance et mortalité naturelle des trocas de Nouvelle-Calédonie. ORSTOM, Noumea, New Caledonia.
- Devambez, L. 1960. 1957 Trochus transfer to Cooks apparently successful. South Pacific Bulletin, October, 1960. South Pacific Commission, Noumea, New Caledonia.
- Fagolimul, J. and C. Price. 1987. A survey of Yap Outer Islands recently seeded with trochus. Yap Marine Resources Management Division, Federated States of Micronesia. 32 p.
- Fanafal, J. and R. Clarke 1994. Trochus seeding activities in Yap Outer Islands - an update. Trochus Bulletin No.3, South Pacific Commission, Noumea.
- Gawel, M. 1982. Marine resources development planning for tropical Pacific Islands. University of Hawaii, Urban and Regional Planning Programme, Unpublished Thesis.
- Gillett, R. 1986. The transplantation of trochus from Fiji to Tokelau. Report No. 86-01, UNDP/OPE Integrated Atoll Project, Suva.
- Gillett, R. 1988a. Tokelau trochus survey. FAO/UNDP, Suva.
- Gillett, R. 1988b. The second (1988) transplantation of trochus to Tokelau. FAO/UNDP, Suva.
- Gillett, R. 1988c. The transplantation of trochus to Tuvalu. FAO/UNDP, Suva.

- Gillett, R. 1989. The 1989 transplantation of trochus to Tokelau and Tuvalu. FAO/UNDP, Suva
- Gillett, R. 1992. The August 1992 transplantation of trochus to Tonga and Niue. FAO/UNDP Regional Fishery Support Programme, Suva.
- Gillett, R. 1994_. The May 1994 transplantation of trochus to Tonga. 3 p.
- Gillett, R. 1994_. Trochus survey at Fakaofu, Tokelau. SPC Trochus Bulletin No 3, South Pacific Commission, Noumea. 2–7.
- Gillett, R. 1995. The January 1995 transplantation of trochus from Lau, Fiji to Ha'apai, Tonga. A Report to the Government of Tonga.
- Hoffshir, C., J. Dubois, P. Hamel and H. Meite 1990. Report on a visit made from 26–30 March 1990 to inspect juvenile trochus transplanted on Lifou Reefs. Working Paper 8, Regional Technical Meeting on Fisheries, South Pacific Commission, Noumea.
- Kanayama, R. 1967. Hawaii's aquatic animal introductions. 47th Annual Conference of the Western Association of State Game and Fish Commissions, Honolulu, Hawaii.
- Manu, N., S. Sone, and K. Udugawa 1994. Transplantation of trochus shell, *Trochus niloticus*, to the Kingdom of Tonga. SPC Trochus Information Bulletin No 3, South Pacific Commission, Noumea. 13–15.
- McGowan, J. 1957. Trochus studies in U.S. Trust Territory. SPC Quarterly Bulletin, April 1957. South Pacific Commission, Noumea, New Caledonia.
- McGowan, J. 1958. The trochus fishery of the Trust Territory of the Pacific Islands - a report and recommendations to the High Commissioner.
- Parkinson, B. 1984. A report on the potential for the introduction of trochus (*Trochus niloticus*) to Tuvalu. South Pacific Commission, Noumea, New Caledonia.
- Pita, E. 1985. An overview of the National Fisheries Development Programme. Fisheries Division, Government of Tuvalu, Funafuti, Tuvalu.
- Powell, R. 1960. Notes on the pearl shell market in the South Pacific. South Pacific Commission, Noumea.
- Sims, N. 1984a. The status of *Trochus niloticus* in the Cook Islands 1984. Working Paper 18, 16th Regional Technical Meeting on Fisheries South Pacific Commission Noumea, New Caledonia.
- Sims, N. 1984b. Notes on the ecology of *Trochus niloticus* on Aitutaki, Cook Islands, Ministry of Marine Resources, Rarotonga, Cook Islands.
- Sims, N. 1985. Report on the trochus seeding voyage to the northern group of the Cook Islands. Ministry of Marine Resources, Rarotonga, Cook Islands.
- Sims, N. 1985. The ecology, abundance, and exploitation of *Trochus niloticus* in the Cook Islands. Proceedings of the Fifth International Coral Reef Congress, Tahiti.
- Smith, B. 1986. Reef invertebrate harvesting. In: S. Amesbury, F. Cushing and R. Sakamoto (1986). Guide to the coastal resources of Guam - volume 3 - Fishing on Guam. Contribution 225, University of Guam Marine Laboratory, University of Guam Press.
- South Seas Government. 1939. Experiments on transplantation of top shells. Report of the Fisheries Experimental Station. (2):121–126.
- Stojkovich, J. and B. Smith. 1978. Survey of edible marine shellfish and sea urchins on the reefs of Guam. Technical Report, Aquatic Wildlife Res. Div., Dept. of Agriculture 2.
- Van Pel, H. 1957. Transplanting trochus in the eastern Pacific. SPC Quarterly Bulletin, July 1957. South Pacific Commission, Noumea, New Caledonia.
- Van Pel, H. 1958. A survey of fisheries in the Tokelau Islands. South Pacific Commission, Noumea.
- Yen, S. 1985. The exploitation of trocha (*Trochus niloticus*) in French Polynesia. Vol. 5, Proceedings of the Fifth International Coral Reef Congress, Tahiti.
- Yen, S. 1988. Réflexion sur la gestion des ressources de trocas: cas de la pêche de Polynésie française. Background Paper 87, Workshop on Pacific Inshore Fishery Resources, South Pacific Commission, Noumea.

