**A global survey of “TURF-reserves,” Territorial Use Rights Fisheries coupled with marine reserves.**

Jamie C. Afflerbacha\*, Sarah E. Lestera,b, Dawn T. Doughertya,b, Sarah E. Poonc

**Supplement**

**Table A1**: The 27 TURF-reserve case studies surveyed in the database including the host country and key references.

|  |  |  |
| --- | --- | --- |
| **TURF-Reserve** | **Country** | **References** |
| Glover’s Reef | Belize | Personal Communication with Larry Epstein at Environmental Defense Fund (2013) |
| Port Honduras | Belize | Personal Communication with Larry Epstein at Environmental Defense Fund (2013) |
| Corumbau | Brazil | Diegues (2008), Francini-Filho and Moura (2008), Lopes et al. (2011), Moura et al. (2009), Personal Communication with Guilherme Dutra at Conservation International (2013) and Daniel Viana at UCSB (2013) |
| Navidad | Chile | Castilla and Fernandez (1998), Gelcich et al. (2010, 2011), González (1996), Personal Communication with Stefan Gelcich at Pontificia Universidad Catolica de Chile (2013) and Rodrigo Oyanedel and Renato Molina at UC Santa Barbara (2012, 2013) |
| Kubulau District | Fiji | Clark and Jupiter (2010), Jupiter and Egli (2011), WCS (2012), Personal Communication with Stacy Jupiter at Wildlife Conservation Society (2013). |
| Navakavu, Rewa, Suva | Fiji | Hubert (2007), Bertrand (2010), Nainoca (2011), Personal Communication with Semisi Meo of LMMA (2012). |
| Ise Bay | Japan | Tomiyama et al. (2008), Matsuda et al. (2010) |
| Mutsu Bay | Japan | Makino (2011) |
| Nishi, Hiyama | Japan | Uchida and Watanobe (2008), Personal Communication with Hiro Uchida, University of Rhode Island (2012) |
| Rausu, Shiretoko | Japan | Makino (2011), Makino et al. (2009), Matsuda et al. (2009), Personal Communication with Mitsutaku Makino at Fisheries Research Agency, Japan (2013) |
| Isla Natividad, Baja California | Mexico | COBI (2006, 2010, 2011), Micheli et al. (2012), Personal Communication with Leonardo Vazquez, Andrea Saenz-Arroyo at COBI (2013) and Mary Luna at UCSB (2013) |
| Candelaria, Zambales | Philippines | Mercado (2011) |
| Concepcion, Iloilo | Philippines | Fernandez and Do (2010), Inclusive Cities Observatory (2010) |
| Mahaba Island | Philippines | Vera et al. (2007) |
| Romblon, Romblon | Philippines | Mercado (2011), Siason et al. (2004), Personal Communication with Rhonda Elliott, U.S. Peace Corps. |
| Aleipata District | Samoa | Ministry of Natural Resources and the Environment (2005a) |
| Safata District | Samoa | CRISP (2008), Ministry of Natural Resources and the Environment (2005b) |
| Lira, Galicia | Spain | Perez de Oliveira (2013), Personal Communication with Jose Pascual, Universidad de La Laguna (2013) |
| Eratap | Vanuatu | Léopold et al. (2013), Bartlett (2009) |
| Laonamoa | Vanuatu | Pascal (2011), Bartlett (2009), Personal Communication with Nicolas Pascal, Observatoire de l'Environnement (2013) |
| Managliiu | Vanuatu | Léopold et al. (2013), Bartlett (2009) |
| Piliura | Vanuatu | Pascal (2011), Bartlett (2009), Personal Communication with Nicolas Pascal, Observatoire de l'Environnement (2013) |
| Siviri | Vanuatu | Léopold et al. (2013), Bartlett (2009) |
| Takara | Vanuatu | Léopold et al. (2013), Bartlett (2009) |
| Tanoliu | Vanuatu | Léopold et al. (2013), Bartlett (2009) |
| Unakap | Vanuatu | Pascal (2011), Bartlett (2009), Personal Communication with Nicolas Pascal, Observatoire de l'Environnement (2013) |
| Worasifiu | Vanuatu | Pascal (2011), Bartlett (2009), Personal Communication with Nicolas Pascal, Observatoire de l'Environnement (2013) |

**References**

Bartlett, C. Y., 2009. Emergence, evolution and outcomes of marine protected areas in Vanuatu: implications for social-ecological governance. PhD thesis, James Cook University.

Bertrand, J. F., 2010. Final report for Boston University/Conservation International marine management area science project – Fiji.

Castilla, J. C., Fernandez, M., 1998. Small-scale benthic fisheries in Chile: On co-management and sustainable use of benthic invertebrates. Ecological Applications 8, S124-S132.

Clark, P., Jupiter, S. D., 2010. Law, custom and community-based natural resource management in Kubulau District (Fiji). Environmental Conservation 37, 98-106.

Comunidad y Biodiversidad (COBI), 2006. Proyecto piloto de reservas marinas en Isla Natividad. Retrieved from http://cobi.org.mx/wp-content/uploads/2012/08/2006-d-esp\_fs\_natividad\_0630.pdf.

Comunidad y Biodiversidad (COBI), 2010. Proyecto piloto de reservas marinas en Isla Natividad: A cuatro años por la conservación marina. Retrieved from http://cobi.org.mx/wp-content/uploads/2012/07/proyecto-natividad-2010.pdf.

Comunidad y Biodiversidad (COBI), 2011. Building ocean resilience: An incentive based approach for marine conservation in Mexico. Retrieved from http://cobi.org.mx/wp-content/uploads/2012/07/construyendo-sociedades-costeras.pdf.

Coral Reef Initiatives for the Pacific (CRISP), 2008.Safata Marine Protected Area Management Plan 2008-2010. Technical Report.

Diegues, A. C., 2008. Marine protected areas and artisanal fisheries in Brazil. International Collective in Support of Fishworkers (ICSF).

Dutra, G. F., Camargo, E., Pinto dos Santos, C. A., Ceotto, P., 2011. Abrolhos: challenges for the conservation and sustainable development of the area that encompasses the largest marine biodiversity in the southern Atlantic. Field Actions Science Reports.

Fernandez, C. J. J., Do, K. H. P., 2010. Logit and principal component analyses of the management of marine protected areas in northeastern Iloilo, Philippines. Asia-Pacific Development Journal 17, 97-122.

Francini-Filho, R. B., Moura, R. L., 2008. Evidence for spillover of reef fishes from a no-take marine reserve: An evaluation using the before-after control-impact (BACI) approach. Fisheries Research 93, 346-356.

Gelcich, S., Hughes, T. P., Olsson, P., Folke, C., Defeo, O., Fernández, M., Foale, S., Gunderson, L. H., Rodríguez-Sickert, C., Scheffer, M., Steneck, R. S., Castilla, J. C., 2010. Navigating transformations in governance of Chilean marine coastal resources. Proceedings of the National Academy of Sciences 107, 16794-16799.

Gelcich, S., Peralta, L., Gonzalez, C., Camaño, A., Fernandez, M., Castilla, J. C., 2011. Scaling-up marine coastal biodiversity conservation in Chile: a call to support and develop ancillary measures and innovative financing approaches. In: Biodiversity conservation in the Americas: Lessons and policy recommendations*.* (Ed.) Figueroa EB. Santiago, Chile, 199-220..

González, E., 1996. Territorial use rights in Chilean fisheries. Marine Resource Economics 11, 211-218.

Hubert, A., 2007. Use of fishermen perception in participative resources management: case study in Navakavu (Fiji). Final report. CRISP.

Inclusive Cities Observatory, 2010. Zero Poverty 2020: The case of Concepcion, Philippines. Retrieved from http://www.uclg-cisdp.org/sites/default/files/Concepcion\_2010\_en\_final.pdf.

Jupiter, S. D., Egli, D. P., 2011. Ecosystem-based management in Fiji: successes and challenges after five years of implementation. Journal of Marine Biology. Article ID 940765, 14 pages, doi:10.1155/2011/940765.

Léopold, M., Beckensteiner, J., Kaltavara, J., Raubani, J., Caillon, S., 2013. Community-based management of near-shore fisheries in Vanuatu: What works? Marine Policy 42, 167-176.

Lopes, P. F. M., Silvano, R. A. M, Begossi, A., 2011. Extractive and sustainable development reserves in Brazil: resilient alternatives to fisheries? Journal of Environmental Planning and Management 54, 421-443.

Makino, M., 2011. Fisheries management in Japan: Its institutional features and case studies. Fish & Fisheries Series 34.

Makino, M., Matsuda, H., Sakurai, Y., 2009. Expanding fisheries co-management to ecosystem-based management: A case in the Shiretoko World Natural Heritage area, Japan. Marine Policy 33, 207-214.

Matsuda, H., Makino, M., Sakurai, Y., 2009. Development of an adaptive marine ecosystem management and co-management plan at the Shiretoko World Natural Heritage Site. Biological Conservation 142, 1937-1942.

Matsuda, H., Makino, M., Castilla, J. C., Oikawa, H., Sakurai, Y., Tomiyama, M., 2010. Marine protected areas in Japanese fisheries: case studies in Kyoto, Shiretoko and Ise Bay. International Symposium on Integrated Coastal Management for Marine Biodiversity in Asia. January 14-15, 2010. Kyoto, Japan.

Mercado, A., 2011. Making governance work for marine conservation, Lessons from the Philippines: Zambales, Batangas and Romblon. Philippine Locally-Managed Marine Area (PhiLMMA) Network.

Micheli, F., Saenz-Arroyo, A., Greenley, A., Vazquez, L., Espinoza Montes, J. A., Rosetto, M., De Leo, G. A., Evidence that marine reserves enhance resilience to climatic impacts. PLoS ONE 7, e40832.

Ministry of Natural Resources and the Environment, 2005a. Marine Protected Areas. Information Sheet 2.B. Aleipata marine protected area. Retrieved from http://www1.mnre.gov.ws/documents/fact\_sheets/MPA%20info%20sheet%20Aleipata.pdf.

Ministry of Natural Resources and the Environment, 2005b. Marine Protected Areas. Information Sheet 2.A. Safata marine protected area. Retrieved from http://www1.mnre.gov.ws/documents/fact\_sheets/MPA%20info%20sheet%20Safata.pdf.

Moura, R. L., Minte-Vera, C. V., Curado, I. B., Rancini-Filho, R. B., Rodrigues, H. C. L., Dutra, G. F., Alves, D. C., Souta, F. J. B., 2009. Challenges and prospects of fisheries co-management under a marine extractive reserve framework in Northeastern Brazil. Coastal Management, 37, 617-632.

Nainoca, W. U., 2011. The influence of the Fijian way of life (*bula vakavanua*) on community-based marine conservation (CBMC) in Fiji, with a focus on social capital and traditional ecological knowledge (TEK). Dissertation, Massey University.

Pascal, N. 2011. Cost-benefit analysis of community-based marine protected areas: Five case studies in Vanuatu. Research report, CRISP-CRIOBE (EPHE/CNRS), Insular Research Center and Environment Observatory, Papetoai, Moorea, French Polynesia.

Perez de Oliveira, L., 2013. Fishers as advocates of marine protected areas: a case study from Galicia (NW Spain). Marine Policy 41, 95-102.

Siason, I. M., Ferrer, A. J., Monteclaro, H. M., 2004. Fish over fish rights: Philippine case study on conflict over use of municipal water: synthesis of three case studies in the Visayan Sea. University of the Philippines. Visayas, Technical Report. Retrieved from http://www.worldfishcenter.org/resource\_centre/WF\_1772.pdf.

Tomiyama, M., Komatsu, T., Makino, M., 2008. Sandeel fisheries governance in Ise Bay, Japan. In: Townsend, R., Shotton, R., Uchida, H (eds) Case studies in fisheries self-governance (FAO Fisheries Technical paper No. 504). Food and Agriculture Organization of the United Nations, Rome pp 201-210.

Uchida, H., Watanobe, M., 2008. Walleye pollack (*Suketoudara*) fishery management in the Hiyama region of Hokkaido, Japan. In: Townsend, R., Shotton, R., Uchida, H (eds) Case studies in fisheries self-governance (FAO Fisheries Technical paper No. 504). Food and Agriculture Organization of the United Nations, Rome pp 201-210.

Vera, C. A., Cabaces, R., Reyes, L., 2007. Asserting rights, defining responsibilities: perspectives from small-scale fishing communities on coastal and fisheries management in the Philippines. ICSF Siem Reap Meeting. International Collective in Support of Fishworkers.

WCS (2012) Ecosystem ‐ Based Management Plan: Wainunu district, Vanua Levu, Fiji, Wildlife Conservation Society, Suva, Fiji.

**Table A2**:Information stored in TURF-reserve database. Entries are either descriptive, binary (1 = yes, 0 = no), continuous (e.g., year or size), discrete, or categorical. Sample options for categorical variables are provided in the data type column.

|  |  |  |
| --- | --- | --- |
| **Database field** | **Description** | **Data type** |
| *General information* | | |
| Host country | Country where the TURF-reserve is located. | Categorical |
| World region | Region of the world where the TURF-reserve is located. | Categorical |
| Human development index | The human development index (HDI) of the host country, as defined by the United Nations Development Program. The HDI is a measure of health, education, and income in a host nation. | Continuous |
| Fishery program name | The governing fishery regime. This may be an established, nationwide system for fisheries management or a more local and less formal management scheme (from EDF’s Catch Share Database, catchshares.edf.org). | Categorical |
| Location of TURF-reserve | Detailed information on TURF-reserve site location. | Descriptive |
| Multiple or single TURF species | Whether there are one or more harvested TURF species. | Categorical |
| Number of TURF species | The discrete number of species harvested if the TURF is used for multiple species. | Discrete |
| TURF species | Lists all species harvested within the TURF. | Descriptive |
| Target TURF species | The targeted TURF species, harvested more than others – used when there is a clear distinction between one or a few species and all others harvested. This may be a single species, or a list, and may not encompass all species fishing within the TURF if the information is sparse. | Descriptive |
| TURF species type | Best term to describe the general taxonomic group the target species belongs to. | Categorical (*Crustacean, finfish, mollusk*) |
| TURF species mobility | Oceanic region where the target species is found and its mobility. | Categorical (*Benthic, pelagic, sedentary*) |
| Number of TURF species | The number of species managed under the TURF | Categorical (*Single, multiple, all*) |
| Gear type | Fishing methods used by TURF fishers. Descriptions of gear can be found in Table A3. | Categorical (*Long-line, dive, hand, hook and line, trap, gillnet, set nets, shore net, dredge net, trawl*) |
| TURF or reserve first | Whether the TURF or reserve was created first, or if they were created together. | Categorical |
| *TURF specific information* | | |
| Year TURF created | Year the TURF, or combined TURF-reserve was created. | Continuous |
| Traditional name for TURF | The traditional name for the TURF, if any (e.g., *qoliqoli*). | Categorical |
| Size of TURF-reserve | Amount of area covered by the TURF-reserve boundaries in square kilometers. This includes both the fished and protected areas. | Discrete |
| Number of fishers | Number of fishers with access rights to the TURF. | Discrete |
| Number of boats | Number of boats used to fish in the TURF. | Discrete |
| Who set up TURF? | The parties involved in setting up the TURF. This describes both who established the TURF (e.g., community) and who legitimized it (e.g., government). | Categorical |
| TURF creation | A short description of how the TURF was created. | Descriptive |
| Legal recognition of TURF | Whether the TURF has legal recognition through either federal or local legislation to grant exclusive access rights to fishers. | Binary |
| Are fishers organized? | Whether the TURF fishers are organized either in a coop, association, union or fisher organization. There may be multiple organizations of fishers for one TURF. | Binary |
| Owned or leased | Description of tenure of property rights, either fully owned by fishers or leased from the government. | Categorical |
| Lease length | If leased, the length of tenure granted to the TURF. | Discrete |
| TURF legislation | Federal or local legislation that recognizes TURF. | Descriptive |
| TURF archetype | The TURF-reserve archetype (1 or 2) | Categorical |
| Type of management body | Description of the type of TURF management. | Categorical (*local council, committee, fishers organization, chief or governmental agency*) |
| Name for management body | The formal name for the TURF management body. | Descriptive |
| Management of TURF | A short description explaining how the TURF is managed – focused on who is involved in management and how multiple groups co-manage together. | Descriptive |
| Enforcing exclusive access | The person or group responsible for enforcing the exclusive access to TURF resources and preventing poaching from outside fishers. | Categorical (*warden, government official*) |
| Privilege to fish | Description of how individual fishers are given TURF access rights. | Categorical (*community residency, licenses/permits/registry, fishing organization membership*) |
| Allocated rights | The entity that is allocated TURF rights, usually from the government. | Categorical (*Organized fishers, community, individual fishers)* |
| Who sets harvest regulations | The specific governing body that established harvest regulations that apply directly to TURF fishers. | Categorical (*Fishers organization, government, community group*) |
| Enforcement of regulations | The entity responsible for enforcing the established fishing regulations within the TURF. | Categorical (*Fishers organization, government, warden, community group*) |
| TURF fishing regulations | TURF-specific fishing regulations. | Categorical (*Annual total allowable catch (TAC), size limits, daily catch limits, gear restrictions, seasonal limits, individual catch limit*) |
| Ability to lease or sell rights | Whether the exclusive TURF rights can be sold or leased between fishers. | Binary |
| *Marine reserve information* | | |
| Traditional name for reserve | Traditional name for the marine reserve (e.g. *qoliqoli* in Fiji). | Categorical |
| Formal name for reserve | A formal name for the reserve. | Descriptive |
| Year reserve created | The year the reserve was created. | Continuous |
| Reserve motivation species | The species that motivated reserve creation. This could be a non-targeted species such as sea turtles. | Descriptive |
| Reserve target species | The species the reserve is meant to protect. Although multiple species will be protected in a reserve, this is specific to the harvested species that reserve was created to recover. | Descriptive |
| Who proposed reserve(s) | The group(s) that proposed the marine reserve. | Categorical (*government, fishing organization, NGO, university, community*) |
| Reason for creation | The reason for establishing the marine reserve. | Categorical (*declining stocks, conservation, tourism, illegal fishing*) |
| Who implemented reserve | The person or group that actually implemented the marine reserve. | Categorical (*community, fishers organization, NGO, government*) |
| Who chose reserve location | The person or group that decided where the marine reserve would be located. | Categorical (*community, local council/committee, fishers organization, NGO, government, scientists*) |
| Reasoning for reserve location | Short explanation for why the reserve location was chosen. | Descriptive |
| Reserve boundaries marked | Whether the marine reserve boundary is clearly marked either with a sign, buoys, or other form of demarcation. | Binary |
| Supporting groups | List of all the groups involved in the reserve creation and/or management. This can range from small community councils to NGOs and federal government agencies, and could be in the form of scientific advice, administrative support, financing, etc. | Descriptive |
| Single or network | Whether there is a single reserve or a network of multiple reserves within or nearby the TURF. | Categorical |
| Number of reserves | The total number of no-take reserves in the TURF-reserve system. | Discrete |
| Reserve management authority | The body responsible for managing the reserve. This may be the same body charged with managing the TURF. | Descriptive |
| Location of reserve | Location of the reserve relative to the TURF. | Categorical (*within TURF, outside adjacent, outside detached*) |
| Reserve regulations | Regulations pertaining to the reserve. | Categorical (*permanent, temporary, seasonal, no-take, gear restrictions, species restrictions*) |
| Legal recognition of reserve | Whether the reserve is recognized by local and/or National governments. | Binary |
| Reserve size | The total area of the marine reserve in square kilometers. | Discrete |
| Percent of fishing grounds closed | Fraction of the TURF-reserve that is protected under the no-take area. | Discrete |
| Biological results | Measured or observed effects of the reserve on abundance, biomass and juvenile recruitment of species within the reserve. | Categorical (*positive, negative, no change*) |
| Fishery results | Measured or observed effects that the reserve has had on fish harvest (e.g., yield, CPUE). | Categorical (*positive, negative, no change*) |
| Reserve enforcement authority | The person or group responsible for patrolling and enforcing the marine reserve regulations. | Categorical (*chief, warden, fishers organization member, government*) |
| Reserve enforcement | Description of how the marine reserve is enforced. | Categorical (*boat patrols, fisher compliance, land observer or other*) |
| Reserve financing | Description of what aspects of the marine reserves are financed, and if the information exists, by whom. | Categorical (*monitoring, enforcement, administration*) |
| Reserve monitoring | The types of biological monitoring that take place within the TURF-reserve system. | Categorical (*stock assessments, species abundance, species diversity, species size*) |
| Comparison between reserve and TURF | How the reserve compares to the associated TURF in terms of biodiversity, species abundance, and biomass. | Categorical (*greater in reserve, greater in TURF, no difference*) |
| Community recognition of benefits | Whether the associated fishing community has realized benefits from the TURF reserve system, possibly in the form of CPUE, abundance of species, tourism or other community benefits. | Categorical |
| References | List of all references used to complete the TURF-reserve entry in the database | Descriptive |

**Table A3**: Description of gear types included in the TURF-reserve survey.

|  |  |
| --- | --- |
| **Gear Type** | **Description** |
| Hand Collection | Resources are caught or gleaned by hand. |
| Dive | Resources are caught by free or scuba divers using either hand collection or spear guns. |
| Hook and Line | Fish are caught with a hand or pole based fishing line. |
| Trap | Use of traps, cages to catch fish, crustaceans, molluscs. |
| Long-line | A long fishing line with multiple hooks is set to catch fish. |
| Gillnet | A drifting mesh gillnet is used to catch fish. |
| Set Nets | A stationary/attached mesh net is used to catch fish. |
| Shore net | A mesh net is cast from shore to catch fish. |
| Dredge net | A net is dragged along the seafloor to catch benthic species. |
| Trawl | A net is dragged through the water column to catch fish. |

**Table A4**:Description of fishing regulations observed in surveyed TURF-reserves.

|  |  |
| --- | --- |
| **TURF Fishing Regulation** | **Description** |
| TAC | A total allowable catch (TAC) is determined for one or multiple species. |
| Size Limits | A minimum or maximum size is required for harvested species. |
| Daily Catch Limit | A total allowable catch applies per day. This does not indicate a daily limit per individual. |
| Gear Restrictions | Certain gears are banned or restricted in their use within the TURF (e.g. destructive fishing practices). |
| Seasonal Limits | Fishing for certain species can take place only during a defined season. |
| Species Bans | Harvesting certain species is prohibited. |

**Table A5**:Groups and entities involved in part or all of the TURF-reserve creation process. Scientist(s) were either academic and/or independent of the government or NGOs involved.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TURF-Reserve** | **Country** | **Groups involved in TURF-reserve creation** | | | | | |
| **Community** | **Fishers Organization** | **Individual Fishers** | **Government** | **NGO(s)** | **Scientist(s)** |
| Glover’s Reef | Belize |  |  | **✓** | **✓** | **✓** | **✓** |
| Port Honduras | Belize |  |  | **✓** | **✓** | **✓** | **✓** |
| Corumbau | Brazil | **✓** |  |  | **✓** | **✓** | **✓** |
| Navidad | Chile |  | **✓** |  | **✓** |  | **✓** |
| Kubulau | Fiji | **✓** |  |  |  | **✓** |  |
| Navakavu | Fiji | **✓** |  |  |  | **✓** | **✓** |
| Ise Bay | Japan |  | **✓** |  | **✓** |  |  |
| Mutsu Bay | Japan |  | **✓** |  | **✓** |  |  |
| Nishi | Japan |  | **✓** |  | **✓** |  | **✓** |
| Rausu | Japan |  | **✓** |  | **✓** |  |  |
| Isla Natividad | Mexico |  | **✓** |  | **✓** | **✓** |  |
| Candelaria | Philippines |  | **✓** |  | **✓** | **✓** |  |
| Concepcion | Philippines |  |  |  | **✓** |  |  |
| Mahaba Island | Philippines | **✓** |  |  | **✓** | **✓** | **✓** |
| Romblon | Philippines |  |  |  | **✓** | **✓** |  |
| Aleipata | Samoa | **✓** |  |  | **✓** | **✓** | **✓** |
| Safata | Samoa | **✓** |  |  | **✓** | **✓** | **✓** |
| Lira | Spain | **✓** | **✓** |  | **✓** | **✓** | **✓** |
| Eratap | Vanuatu | **✓** |  |  | **✓** |  |  |
| Laonamoa | Vanuatu | **✓** |  |  | **✓** |  |  |
| Managliliu | Vanuatu | **✓** |  |  | **✓** |  |  |
| Piliura | Vanuatu | **✓** |  |  | **✓** |  |  |
| Siviri | Vanuatu | **✓** |  |  | **✓** |  |  |
| Takara | Vanuatu | **✓** |  |  | **✓** |  |  |
| Tanoliu | Vanuatu | **✓** |  |  | **✓** |  |  |
| Unakap | Vanuatu | **✓** |  |  | **✓** |  |  |
| Worasifiu | Vanuatu | **✓** |  |  | **✓** |  |  |