

4 *The seascape*

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1 Introduction

This chapter presents reconstructions pertaining to the inanimate marine environment, the seascape.¹ As experienced sailors (see Chapter 6), Proto Oceanic speakers would have possessed a vocabulary to express the physical details of their maritime world, of waves, currents and swells, and, more locally, of tides, of treacherous rocks and reefs, of passages through the reef and sheltered water. As fishermen and gatherers of reef foods their descendants have demonstrated an extensive knowledge of the reef in all its parts (McEldowney 1995, Hviding 1996, Akimichi 1978, Dye 1983). Data have been organized within two main categories: (i) the sea and its features — currents, waves and tides; and (ii) the reef environment.

As in Chapter 3, some of the nouns reconstructed here had both a common-noun and a local-noun sense. It is the common-noun senses that are treated here. For further discussion and reconstruction of local-noun senses, see Chapter 8, §2.

2 The sea and its features

2.1 Sea, salt water

Four POc words denoting ‘sea’ have been reconstructed: **tasik*, **masawa(n,η)*, **laman* and **laur*. Of these, **tasik* has the most general reference. In addition to its sense of ‘sea’ as opposed to ‘land’, it has a second sense, ‘salt water, sea water’ contrasting with ‘fresh water’. It also had a local-noun sense (see p.240). Its reflexes have wide distribution and also occur frequently in compounds. Of the others, **masawa(n,η)* emphasized the sense of open sea, **laman* evidently denoted deep water in contrast to the shallow water on or within the fringing reef, while **laur* seems to have functioned primarily, and perhaps

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exclusively, as a local noun meaning ‘seawards’, and is reconstructed in this sense in Chapter 8, p.239. A few common-noun reflexes of **laur* are given below.

PMP **tasik* ‘sea’ (Dempwolff 1938)

POc **tasik* ‘sea, salt water’

Adm:	Loniu	<i>tas</i>	‘sea, ocean, salt water, salt’
Adm:	Seimat	<i>tax</i>	‘sea’
Adm:	Titan	<i>ⁿras</i>	‘ocean, salt water’
NNG:	Manam	<i>tari</i>	‘strong sea current’
NNG:	Bariai	<i>tad</i>	‘ocean’
NNG:	Kove	<i>tari</i>	‘sea, salt water’
PT:	Bwaidoga	<i>tagiga</i>	‘salt deposit on skin after bathing in sea’
PT:	Motu	<i>tadi</i>	‘sea water’
MM:	Patpatar	<i>tes</i>	‘ocean’
MM:	Ramoaaina	<i>tai</i>	‘sea’
MM:	Sursurunga	<i>tas</i>	‘salt water; salt’
MM:	Tangga	<i>tes</i>	‘salt water’
MM:	Tolai	<i>ta</i>	‘sea, salt water’
MM:	Teop	<i>tahī</i>	‘sea, ocean’
		<i>ta-tahi(ana)</i>	‘salty’
SES:	Gela	<i>tahi</i>	‘sea’
SES:	Bugotu	<i>tahi</i>	‘sea, salt water, salt’
SES:	Arosi	<i>asi</i>	‘salt, salt water, the sea’
SES:	Lau	<i>asi</i>	‘sea, salt water’
SES:	Kwaio	<i>asi</i>	‘sea, salt, seawater’
NCV:	Raga	<i>tahi</i>	‘sea, salt water’
NCV:	Tamambo	<i>tasi</i>	‘sea’ (old word)
NCV:	Nguna	<i>na-tasi</i>	‘sea, salt water’
SV:	Lenakel	<i>tehe</i>	‘the sea’
SV:	SW Tanna	<i>tahik</i>	‘sea, salt water’
NCal:	Nemi	<i>dalik</i>	‘sea’ (<i>talik</i> ‘seaside’ (locative))
Mic:	Kosraean	<i>te</i>	‘beach, seaside’
Mic:	Mokilese	<i>cēt</i>	‘sea, salt’
Mic:	Puluwatese	<i>hāṭ</i>	‘sea, ocean, tide’
Mic:	Woleaian	<i>tati</i>	‘sea, salt water’
Fij:	Bauan	<i>taḍi</i>	‘the sea’

PPn **tahi* ‘shallow sea near shore or in lagoon, salt water; tide’

Pn:	Tongan	<i>tahi</i>	‘sea, sea-water, tide’
Pn:	E Futunan	<i>tai</i>	‘shallow sea over the reef as opposed to the open ocean (<i>moana</i>); the shore as opposed to inland (<i>?uta</i>); tide’
Pn:	Pukapukan	<i>tai</i>	‘sea, beach, tide’
Pn:	Rennellese	<i>tai</i>	‘ocean, lake, saltwater’
Pn:	Samoa	<i>tai</i>	‘tide, the sea’

Pn:	Tikopia	<i>tai</i>	‘sea, near the shore; coastal as opposed to inland’
Pn:	Rarotongan	<i>tai</i>	‘sea, sea water, coast bordering the sea, tide’
Pn:	Maori	<i>tai</i>	‘sea near shore, tide; shore as opposed to inland’
Pn:	Hawaiian	<i>kai</i>	‘sea, seawater, area near the sea’

In addition to these simple terms, a number of compound terms consisting of **tasik* plus a modifier probably existed in POc, denoting conditions or defined areas of sea. Many contemporary languages possess such compounds. For example, Lau (SES) distinguishes the following compounds whose first element is *asi* (< **tasik*).

<i>asiʔabua</i>	‘deep blue sea’
<i>asidalafa</i>	‘open ocean’
<i>asidaudau</i>	‘open sea outside reef’
<i>asifolā, asimae</i>	‘sea within reef’
<i>asimaui</i>	‘sea outside reef’
<i>asinamo</i>	‘lagoon within reef’
<i>asīle</i>	‘where reef drops to deep water’
<i>asirū</i>	‘sea where there is no reef’

In Polynesian languages reflexes of **tasik* chiefly refer to the sea near the shore, the shallow coastal waters, while another term, PPn **moana* (see below) has been adopted to refer to the open sea.

POc **masawa(n,ŋ)* has reflexes in both Western Oceanic and Eastern Oceanic meaning ‘deep ocean’ or ‘open sea’. It appears also to have had the sense ‘open space, clear space’ and to be etymologically related to POc **sawa(n,ŋ)* ‘channel, passage’ (§3.5).

POc **masawa(n,ŋ)* ‘open sea’

NNG:	Bariai	<i>madaoan</i>	‘deep ocean’
NNG:	Manam	<i>masaoa-saoa</i>	‘far, distant, remote’
SES:	Bugotu	<i>maha</i>	(V) ‘be deep of sea, (N) the deep sea’
SES:	‘Are’are	<i>matāwa</i>	‘the open sea’
SES:	Sa’a	<i>matawa</i>	‘the open sea’
SES:	Lau	<i>matak^{wa}</i>	‘open sea’
SES:	Arosi	<i>matawa</i>	‘open sea far from land’
NCV:	Raga	<i>mahava</i>	‘space (time or place)’
NCV:	Lonwolwol	<i>meha</i>	‘clear place, sky, air, space, void, open sea’
NCV:	Atchin	<i>masaw</i>	‘open sea’
NCV:	Nguna	<i>masawa(ga)</i>	‘space between fingers’
SV:	Kwamera	<i>(k^wán)mahan</i>	‘storage place, space, nothingness, an opening between the clouds’
Mic:	Mokilese	<i>mataw</i>	‘open sea’
Mic:	Woleaian	<i>metaw</i>	‘sea, ocean, lagoon, a big body of sea water’
Mic:	Puluwatese	<i>metaw</i>	‘deep sea, ocean’

Polynesian languages reflect another term for ‘ocean’:

PPn **moana* ‘sea beyond the reef, ocean’ (Biggs & Clark 1993)

Pn:	Niuean	<i>moana</i>	‘ocean, deep sea’
Pn:	Tongan	<i>moana</i>	‘deep sea, sea beyond the reef’
Pn:	Rennellese	<i>moana</i>	‘sea beyond the reef, ocean’
Pn:	Samoa	<i>moana</i>	‘deep sea, deep water’
Pn:	Tikopia	<i>moana</i>	‘sea, esp. deep sea, ocean, as distinct from inshore waters on and around reef’
Pn:	Maori	<i>moana</i>	‘sea’
Pn:	Hawaiian	<i>moana</i>	‘ocean, open sea’

Ross Clark (pers. comm.) hypothesises that **moana* may be derived from POc **masawa(n,ŋ)*, once the final consonant has been lost. He suggests that if we assume **masawa* could carry a possessive suffix (as a relational noun, ‘open sea between ...’ or ‘open sea off ...’), then **masawa-ña* would have given PPn ***mahawana*. The reduction of ***-aw-* to **-o-* is a common sporadic change. Clark notes a parallel in the treatment of **qasawa-na* ‘spouse’, which becomes Nuclear Pn **qāwāŋa* (unexplained **n* > *ŋ*), but Tongan *ʔohoana*, Niuean *hoana*.

The PCEMP reconstruction in the next set is supported by cognates in the Central Malayo-Polynesian languages Yamdena, Fordata and Kei, and the South Halmahera/Irian Jaya languages Buli and Numfor, all meaning ‘deep’ or ‘depth’. Cognates in Oceanic languages fairly consistently refer to deep water, and most probably to deep water just beyond the reef, i.e. where the sudden change of depth is significant.

PCEMP **laman* ‘deep’ (Blust 1984)

POc **laman* ‘deep sea beyond the reef’

Adm:	Mussau	<i>lamana</i>	‘sea near the shore’ (cf. <i>malioŋe</i> ‘deep blue sea beyond the reef’)
Adm:	Penchal	<i>lam</i>	‘deep sea beyond the reef’
Adm:	Loniu	<i>laman</i>	‘deep sea just beyond the reef’
NNG:	Gitua	<i>laman</i>	‘deep’
MM:	Ramoaina	<i>lāman</i>	‘sea, blue water close to shore’
MM:	Tolai	<i>lamana</i>	‘deep, of the sea’
		<i>lamana(na)</i>	‘the deep sea, the depth of the sea’
MM:	Patpatar	<i>lam-lamana</i>	‘deep ocean’
MM:	Sursurunga	<i>lāmən</i>	‘deep’
MM:	Teop	<i>namana</i>	‘deep ocean’
MM:	Roviana	<i>lamana</i>	‘the ocean; deep, of water’
SES:	Sa’a	<i>lama</i>	‘lake’
SES:	Lau	<i>lama</i>	‘pool at low tide in the reef’
SES:	Arosi	<i>rama</i>	‘water between reef and shore; long deep channel in the open sea’
		<i>rama-rama</i>	‘deep water beyond the edge of the reef’
NCV:	Mota	<i>lama</i>	‘open sea’
SV:	Lenakel	<i>līm^wnān</i>	‘deep water’

Listed below are common-noun reflexes of **laur*. However, these are few and scattered, and it is possible that this term had no common-noun use in POc. For local-noun uses, see p.239.

PMP **lahud* ‘downriver, towards the sea’ (Dempwolff 1938, Blust 1997)

POc **laur* ‘sea, seawards’

NNG:	Gedaged	<i>lau</i>	‘the high seas, an open unenclosed portion of the sea’
MM:	Tabar	<i>ro-rau</i>	‘sea’
MM:	Tolai	<i>lau</i>	‘open sea, horizon’; (for bush people) ‘any place out of sight’
MM:	Nehan	<i>laur</i>	‘water’
SES:	Gela	<i>lau</i>	‘shore, sea; shorewards, seawards (from a speaker inland)’
NCV:	Mota	<i>lau</i>	‘seashore as opposed to inland; beach as approached from land’
NCV:	Raga	<i>(a)lau</i>	‘on beach, on lee side’

PMic **lau* ‘pool, pond’ (Marck 1994:313)

Mic:	Kosraean	<i>la-la</i>	‘pond, shallow lagoon’
Mic:	Kiribati	<i>nei</i>	‘pond, pool, swamp, marsh’
Mic:	Satawalese	<i>lā</i>	‘pool, pond’
Mic:	Carolinian	<i>lālā</i>	‘all manner of standing water (puddles, pools, ponds, lakes), typically in reference to fresh water’

2.2 Sheltered or open sea

For sheltered or calm water, reflexes of POc **[ma-[d]]rapu* ‘still, calm, windless’ or POc **malino* ‘calm’ were used (for the full cognate sets see Chapter 5, §5.1). In Proto Eastern Oceanic, sheltered seas were referred to as ‘dead’ (**mate*), while open or exposed seas were described as ‘alive’ (**maqurip*). Codrington and Palmer write that this distinction also occurs in Malagasy (1896:205).

PEOc **tasik mate* ‘sheltered sea, lee shore’

SES:	‘Are’are	<i>āsi mae</i>	‘quiet sea in the lagoon’
SES:	Lau	<i>asi mae</i>	‘area within reef’
SES:	Arosi	<i>asi mae</i>	‘lee side of an island’
SES:	Sa’a	<i>esi mae</i>	‘lee shore’
NCV:	Mota	<i>tas mate</i>	‘a district of Mota to the leeward where the sea is quiet or dead’
NCV:	Raga	<i>tahi mate</i>	‘calm sea, lee shore’
NCV:	Paamese	<i>tasi mat</i>	‘calm sea’
Pn:	Hawaiian	<i>kai make</i>	‘ebb tide; calm sea’
cf. also:			
Pn:	Tongan	<i>mate-mate</i>	‘calm, of wind or sea’

PEOc **tasik maquri(p)* ‘open sea; ocean on the weather side; weather shore’

SES:	’Are’are	<i>āsi mauri</i>	‘open sea, as opposed to <i>āsi mae</i> ’
SES:	Lau	<i>asi mauri</i>	‘sea outside reef’
SES:	Arosi	<i>asi mauri</i>	‘the weather side’
NCV:	Mota	<i>tas maur</i>	‘the weather side where the sea is lively’
NCV:	Raga	<i>tahi mauri</i>	‘ocean on the weather shore’

These compounds are echoed in Wayan (Fij) terms *wai mate* ‘quiet sea’ and *wai ðola* ‘sea with free-flowing current’, with the reflex of POC **waiR* ‘water’ replacing **tasik*, and *ðola* ‘alive’ replacing **maqurip*.

In a number of languages, rough water is described by reflexes of POC **saqat* ‘bad’.

PT:	Kiriwina	<i>(ipai)saga</i>	‘rough, of sea, weather’
SES:	’Are’are	<i>āsi taʔa</i>	‘rough sea’
SES:	Arosi	<i>asi taʔa</i>	‘confused sea’

2.3 Current

Several terms denoting current or flow of water can be reconstructed for POC. Reflexes of **qaRus* and **tape* occur as both noun and verb. A third term, POC **ma-qañur* ‘floating, adrift’ is a stative verb. There is also the doublet POC **qaliR*/**saliR* ‘to flow, drift, float’, which has general application, i.e. to the movement of birds, winds and liquids.

PMP **qaRus* (N) ‘current’, (V) ‘flow’ (Dempwolff 1938)

POC **qaRus* (N) ‘current’, (V) ‘flow’

PT:	Motu	<i>aru</i>	‘current of river or sea’
PT:	Tubetube	<i>kalusi</i>	‘current (in the sea)’
PT:	Kiriwina	<i>yelu</i>	‘sea; current’
PT:	Kukuya	<i>anue</i>	‘float away’
PT:	Molima	<i>ʔaluwa</i>	‘float, be borne away by water or wind’
PT:	Muyuw	<i>yeiwl</i>	‘current’
NCV:	Mota	<i>ar</i>	‘currents in the sea between Mota and Gaua’
SV:	N Tanna	<i>aeh</i>	‘flow’
SV:	Kwamera	<i>arəs</i>	‘flow’
SV:	Anejom	<i>areθ-raθ</i>	‘flow’
		<i>n-areθ</i>	‘current’
NCal:	Nêlêmwa	<i>aut</i>	‘wave, swell’
NCal:	Nemi	<i>kōt</i>	‘flow’
NCal:	Cèmuhî	<i>ōot</i>	‘current’
Mic:	Kosraean	<i>εs</i>	‘current, stream’
Mic:	Woleaian	<i>yaʔt</i>	‘current, tidal or nontidal movement of lake or ocean water’
Mic:	Puluwatese	<i>yawʔt</i>	‘current; to flow, as a current’
Fij:	Bauan	<i>yau</i>	‘carry, bring’

Pn:	Tongan	<i>ʔau</i>	‘current, stream; (of pus) to ooze out, flow (but blood is said to <i>tafe</i>); (of a boil, etc.) to give out pus’
Pn:	Rennellese	<i>ʔau(a)</i>	‘float’
Pn:	Samoan	<i>au</i>	‘flow on, roll on; continue; current; stream; carry (in the hand)’
		<i>au-au</i>	‘current’
Pn:	Anutan	<i>au</i>	‘ocean current’
Pn:	Nukuoro	<i>au</i>	‘the generic term for the major types of currents in the open sea’
Pn:	Rarotongan	<i>au</i>	‘a current, as of a river or of the ocean; the wake of a boat or ship’
Pn:	Maori	<i>au</i>	‘current, wake of a canoe; rapid; whirlpool’
Pn:	Hawaiian	<i>au</i>	‘current; movement, eddy, tide, motion; to move, drift, float, walk, hurry, stir’

The bare PAn verb **qañud* ‘drift on a current, carried away by flowing water’ does not appear to have reflexes in Oceanic languages, but the form **ma-qañud* is well represented:

PAn **ma-qañud* ‘adrift’ (ACD)

POc **maqañur* ‘float, be afloat or drifting’ (ACD has ‘floating, adrift’)

Adm:	Seimat	<i>man</i>	(VI) ‘drift, float on a current’
SES:	Sa’a	<i>manu</i>	‘float’
SES:	Arosi	<i>manu</i>	‘float in water or air, as pumice, the moon, frigate hawk’
NCal:	Nengone	<i>n^hae</i>	‘float, be afloat or drifting’
Mic:	Chuukese	<i>mār</i>	‘be becalmed, adrift; drift; soar (without flapping wings), glide; do a dance movement with outstretched arms’
Mic:	Puluwatese	<i>mān</i>	‘drift, as a becalmed canoe’
Mic:	Woleaian	<i>māri</i>	‘drift, be adrift (as a canoe)’
Fij:	Rotuman	<i>manu</i>	‘float’
Pn:	Tongan	<i>maʔanu</i>	‘be afloat, not to be resting on or touching the bottom’
Pn:	E Uvean	<i>maʔanu</i>	‘afloat, float’
Pn:	Rennellese	<i>maʔanu</i>	‘float, drift, soar; to leap, as in a dance’
Pn:	Samoan	<i>mānu</i>	‘come to the surface, emerge (as a turtle)’
Pn:	Tikopia	<i>mānū</i>	‘floating on water’
Pn:	Maori	<i>mānu</i>	‘float; be launched: so start, of an expedition by water; overflow; be flooded’

POc **tape* (V) ‘(current) flow’, (N) ‘current, flow’

PT:	Motu	<i>taha (i rame)</i>	‘current in the sea’
SES:	Bugotu	<i>tave</i>	(V) ‘flow’
SES:	Gela	<i>tave</i>	(V) ‘(liquids, air) flow’

SES:	Lau	<i>afe</i>	‘current, wave, tide’ (also <i>afea</i> , <i>afeafe</i> , <i>afela</i> ‘current, tide rip’)
SES:	Kwaio	<i>afe</i> <i>afe-afe</i>	(V) ‘flow, drip, run down, dissolve’; (N) ‘current’ ‘current’
SES:	Sa’a	<i>ahe</i>	(N) ‘surf; currents from wind or tide’; (V) ‘flow’
SES:	’Are’are	<i>?ahe</i>	‘tidal current, tidal rip’
SES:	Arosi	<i>ahe</i> <i>ahe(ra)</i>	(V) ‘(current) flow’ ‘current’
NCV:	Paamese	<i>tahe</i>	(N) ‘wave’
NCal:	Nemi	<i>davec</i>	‘flood’
Fij:	Bauan	<i>dave</i>	(V) ‘(liquids in a small stream) flow’
Pn:	Niuean	<i>tafe</i>	(V) ‘flow’
Pn:	Tongan	<i>tafe</i>	‘(liquids) flow, run’
Pn:	Anutan	<i>ta-tape</i>	‘for water to flow; particularly for an ocean current to run’ (Feinberg 1988:197)
		<i>tape</i>	‘tide, current’
Pn:	Samoa	<i>tafe</i>	‘flow, run’
Pn:	Rennellese	<i>tahe</i>	‘float, drift’
Pn:	Tikopia	<i>tafe</i>	(N) ‘current’; (V) ‘drift at sea; trickle’
Pn:	W Futunan	<i>tafe</i>	‘flow, melt’
Pn:	Emae	<i>tafe</i>	(V) ‘flow’
Pn:	Hawaiian	<i>kahe</i>	(V) ‘flow’
PAn <i>*qaluR</i> (?) (V) ‘flow’ (Blust 1999)			
POc <i>*qaliR</i> ‘flow, drift, float’ (doublet <i>*saliR</i>)			
MM:	Tolai	<i>alir(en)</i> <i>alir</i>	‘rivulet or small stream caused by the rain’ ‘swim, float, drift’
MM:	Ramoaina	<i>alir</i>	‘flow, float, drift, swim’
MM:	Roviana	<i>ale</i>	‘float’
SES:	Lau	<i>alilo</i>	(V) ‘shift, of wind’; ‘an eddy’
SES:	’Are’are	<i>arir(o?a)</i>	(N,V) ‘eddy, of wind’
PMP <i>*saliR</i> ‘flow’			
POc <i>*saliR</i> (V) ‘flow, float, drift’			
MM:	Meramera	<i>sali</i>	(V) ‘flow’
MM:	Nakanai	<i>sali</i>	(V) ‘flow’
NCV:	Mota	<i>sale</i>	‘float, drift, flow, run with water’
NCV:	Raga	<i>hala</i>	‘float, drift, wave hands in dancing’
NCV:	Lonwolwol	<i>hal</i>	‘(liquids) gush out; float, spread, flow, float’
Pn:	Niuean	<i>hili</i>	‘float’

2.4 Waves

Two types of wave commonly distinguished in Oceanic languages are (a) surf, waves breaking on the shore, and (b) ocean swells, typically unbroken although the wind can

whip up white caps. For instance, Mussau (Adm) has *koto* ‘surf, breakers’ and *toje-tojea* ‘wave, swell in the open sea’, Motu (PT) has *hure-hure* ‘surf’ and *sinaia* ‘ocean swell, high waves which do not break’. In Roviana (MM) the corresponding terms are *tovovo* ‘breakers, esp. on sea reef or exposed shore’ and *bogusu* ‘ocean swell’, and in Tongan (Pn), *ηalu* ‘surf’ and *ākefua* ‘to have an ocean swell (no breaking waves)’. Although we can reconstruct three POc terms for types of wave, **napo(k)* ‘breaking wave, surf’, **ηalu(n)* ‘mounting wave, ocean wave’ and **bayau* ‘ocean swell’, there is some crossover of meaning in reflexes of the first two forms. POc **bayau* is the only reconstruction which appears to refer unambiguously to ocean swells. Three other reconstructions are relevant here. POc **loka* referred to ‘high sea or tide, heavy breakers’, while POc **[u]Ruap* with primary meaning ‘high tide’ (see §2.6 below) evidently referred also to ‘wave’. The term **bari* ‘(waves) pound the coast at high tide’ is reconstructable for Proto Central Pacific.

PAn **Nabek* ‘breakers, surf, waves’ (ACD)

POc **napo(k)* ‘breaking wave; surf’

MM:	Tabar	<i>nava</i>	‘wave’
MM:	Lihir	<i>i-nah</i>	‘tide’
SES:	Lau	<i>nafo</i>	‘surf, wave’
SES:	Kwaio	<i>nafo</i>	‘surf, waves’
SES:	‘Are’are	<i>nahō</i>	‘wave, surf’
SES:	Sa’a	<i>nahō</i>	‘surf, wave’
SES:	Arosi	<i>nahō</i>	‘surf, waves on the beach’
NCV:	Mota	<i>nawo</i>	‘salt water, surf’
NCV:	Raga	<i>navo</i>	‘wave, surf, salt’
Mic:	Kiribati	<i>nao</i>	‘wave, swell’
Mic:	Mokilese	<i>no</i>	‘wave’
Mic:	Puluwatese	<i>nɔ</i>	‘wave, be many waves, as in a strong sea’
Mic:	Woleaian	<i>lɔ</i>	‘wave, surf’

Reflexes of POc **ηalu(n)* in some languages refer to ocean waves in general and in others to breaking waves or surf.

PMP **qalun* ‘long rolling wave, swell, billow’ (ACD, Dempwolff 1938)

POc **ηalu(n)* ‘mounting wave, ocean wave’

NNG:	Manam	<i>(ma)ηalu</i>	‘breakers, surf’
PT:	Tubetube	<i>yalu</i>	‘backwash from wave breaking on the beach’
SES:	Lau	<i>ηalu-ηalua</i>	‘a rough confused sea’
Mic:	Marshallese	<i>ηal</i>	‘ocean swell, mounting wave which does not break, billow’
Mic:	Mokilese	<i>ηal-ηal</i>	‘low tide’
Pn:	Tongan	<i>ηalu</i>	‘wave (when rolling in), breaker or surf’
Pn:	Samoan	<i>ηalu</i>	‘wave, breaker; to be rough’
Pn:	Tikopia	<i>ηaru</i>	‘wave, swell (normally used as collective in singular)’
Pn:	Maori	<i>ηaru</i>	‘wave of the sea, corrugation’
Pn:	Anutan	<i>ηaru</i>	‘wave (generic); breaker’ (Feinberg 1988:192)
Pn:	Hawaiian	<i>nalū</i>	‘surf’

POc **bayau* ‘ocean wave, ocean swell’

Adm:	Nyindrou	<i>bayau</i>	‘wave away from shore or reef’
PT:	Motu	<i>beu-beu</i>	‘wave of the sea, generally of swell inside reef’
Fij:	Bauan	<i>biau</i>	‘wave, billow (not breaking)’
Pn:	Tongan	<i>peau</i>	‘wave, billow’
Pn:	Samoan	<i>peau</i>	‘wave, billow’
Pn:	Rennellese	<i>peau</i>	‘wave, esp. white caps’
Pn:	Tuvalu	<i>peau</i>	‘wave of sea’
Pn:	Tokelauan	<i>peau</i>	‘billow, roller’
Pn:	W Futunan	<i>peau</i>	‘white caps; swell in ocean’
Pn:	Tikopia	<i>peau</i>	‘foam, spindrift at sea’

cf. also:

NNG:	Dami	<i>uyau</i>	‘wave’
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POc **loka* (N) ‘high sea or tide, heavy breakers’; (V) ‘be high, rough, of sea or surf’

Adm:	Lou	<i>loka</i>	‘high tide, flood’
Fij:	Wayan	<i>loka-loka</i>	‘of sea, be rough during calm weather, indicating strong winds will come later’
Fij:	Bauan	<i>loka</i>	(N) ‘heavy breakers over a reef, very heavy tides that flow inland, floods’; (V) ‘break, of breakers, tidal wave’ (<i>ua loka</i> ‘tidal wave’)
Pn:	Niuean	<i>loka</i>	‘be rough, usually of sea’
Pn:	Tongan	<i>loka</i>	(of harbour, lagoon, passage, or sea where it meets coast) ‘be rough’
		<i>loka-tau</i>	(of sea near the coast) ‘be rough and roaring’
Pn:	Tikopia	<i>roka</i>	‘rough of sea; great wave, as in heavy surf’

PCP **bari* ‘(waves) pound the coast, as at high tide’

Fij:	Bauan	<i>bari</i>	‘nibble at a hard thing, as waves against a rock face’
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PPn **pali* ‘to pound the coast, as at high tide’

Pn:	Tongareva	<i>pari</i>	‘rough, of waves’
Pn:	Rarotongan	<i>pari</i>	‘high, full, as the tide’
Pn:	Tahitian	<i>pari-pari</i>	‘spray breaking on the shore’
Pn:	Tuamotuan	<i>pari</i>	‘(waves etc.) pound against and wear away; flow over, as the tide’
Pn:	Maori	<i>pari</i>	‘flowing, of tide; flow over s.t., of tide’

2.5 Foam

Blust (ACD) has reconstructed several forms denoting ‘foam’ for PAn and lower-order protolanguages, all showing some degree of formal similarity:

PAn	<i>*buCag</i>	‘foam, froth’
PAn	<i>*puCag</i>	‘foam, froth, lather’
PMP	<i>*budaq</i>	‘foam, bubbles, lather, scum, froth’
POc	<i>*puro</i>	‘foam, bubbles’
PMP	<i>*busa</i>	‘foam’
PAn	<i>*bujeq</i>	‘foam, bubbles, lather, scum, froth’
PAn	<i>*bua</i>	‘foam, bubbles, froth’

PAn **buCag* and **puCag* are to our knowledge not reflected in Oceanic languages (the expected POc reflexes of either would be ***puta(q)* and ***buta(q)*). Of the other forms, PMP **budaq* (POc **pura(q)*) and POc **puro* are discussed in Chapter 3 (see p.61 and p.83 respectively), whilst PMP **busa* and PAn **bujeq* are referred to below. Blust’s reflexes of **bua* are two from Taiwan, together with the Tolai and Maori reflexes that we prefer to attribute to PMP **busa* (the expected Maori form is ***puha*).

No single contemporary Oceanic language we know of has reflexes of two of these forms with identical meaning. However, Arosi has a contrast between *?abuta* ‘the break of a wave, the foam and white of the crest of a wave’ and *huto-huto* ‘foam, froth’, while ‘Are’are contrasts *aputa* ‘(surf) break’ with *huto-huto* ‘slime, saliva’. This suggests that POc **busa* and **puso* may have differed in meaning, with the former perhaps denoting foam of the sea and the latter a more general term for foaming or slimy substances.

There is an additional formal complication, namely that PMP **bujeq* seems to have two sets of reflexes in Oceanic languages, pointing to two POc forms: **buso* and POc **puso*. It may be that POc indeed had both, **buso* perhaps a verb, **puso* a verb or a noun (see vol. 1, pp.30–31). Alternatively, forms apparently reflecting **buso* may represent a conflation of **busa* and **puso*, implying that **buso* did not in fact occur in POc.

PMP **busa* ‘foam’ (ACD)

POc **busa* ‘foam, froth’

MM:	Sursurunga	<i>bus-bus</i>	‘foam coming from the mouth; bubbles’
MM:	Tolai	<i>bua</i>	(N) ‘foam of the sea’; (V) ‘foam, bubble, boil’
SES:	Arosi	<i>(?a)buta</i>	‘the break of a wave, surf’; (<i>?abutasi</i> ‘to break in foam upon’)
SES:	‘Are’are	<i>(a)puta</i>	‘break, of surf’
NCV:	Namakir	<i>buha</i>	‘foam’
Pn:	Maori	<i>pua</i>	‘foam of the sea; foaming, breaking’
cf. also:			
Pn:	Samoan	<i>pusa</i>	‘give out smoke, steam, vapour’
Pn:	Tongan	<i>pu-puha</i>	‘be hot and perspiring’

PMP **bujeq* ‘foam, bubbles, lather, scum, froth’ (ACD)

POc **buso* ‘foam, froth’

Adm:	Mussau	<i>biso</i>	‘foam, froth, bubbles’
NNG:	Manam	<i>buso</i>	‘foam’
PT:	Dobu	<i>buso-buso</i>	‘foam’
NCV:	Raga	<i>buso</i>	‘foam’
Mic:	Kiribati	<i>buro-buro</i>	‘froth, bubbles, foam, lather’
Mic:	Ponapean	<i>p^wuto-p^wut</i>	‘foam, scum’
Mic:	Woleaian	<i>φuzo-φuz</i>	(N,V) ‘bubbles, foam, froth’

PAn **bujeq* ‘foam, bubbles, lather, scum, froth’ (ACD)

POc **puso* ‘foam, froth, slime’

PT:	Kiriwina	<i>polu</i>	(N) ‘foam, spray’ (vowel metathesis)
MM:	Nakanai	<i>pu-puso</i>	‘pumice’
SES:	Sa’a	<i>huto-huto</i>	(N) ‘froth, foam’
SES:	Arosi	<i>huto-huto</i>	‘froth, foam’
SES:	‘Are’are	<i>huto-huto</i>	‘slime, saliva’
Fij:	Wayan	<i>vuso</i>	‘froth, foam’
Fij:	Bauan	<i>vuso</i>	(N,V) ‘froth, foam’
Pn:	Niuean	<i>fiho</i>	(N) ‘froth, foam’
Pn:	Tongan	<i>fiho</i>	‘phlegm’
Pn:	W Futunan	<i>fiso</i>	(V) ‘foam, bubble’

2.6 Tides

Tidal patterns are an important regulator of the daily life of communities which obtain much of their food by foraging on the reef, and by netting and trapping reef fish. They are also important in localities where canoe access through the reef is only possible under certain tidal conditions. Although we have reconstructed terms only for the high and low points of tidal movement, communities evidently had names for a number of intermediate tidal stages, for tides at particular times of day and for seasonal tides. The following description of Lau (SES) terms is from Akimichi (1978:306). With one exception, these are all descriptive compounds based on either *lua* (< POc **[u]Ruap*) ‘high tide’ or *mai* (< POc **maqati* ‘low tide’).

Tide or tidal movement (*afe*) [from POc **tape* ‘to flow’] is divided into *lua* (flux) and *mai* (reflux), and these are further subdivided into several phases, given here in a sequential order. The lowest phase is termed *mai laŋa* [dry], then the tide starts to come up (*lua kariabulo*) [turn around]. Then the intertidal rocks become invisible or submerged (*lua e fakaelua*), and soon disappear under the water (*lua e dalafa*). The fullest phase is termed *lua e hata*. Then the tide begins to go out (*gouna asi maŋoli*), and it ebbs to a slight degree (*mai toli*). The rocks emerge from under the water (*mai tarafafoa*), and they come in sight completely (*mai tete*). Then the tide turns to be the lowest phase (*mai laŋa*) again.

In addition to their daily ebb and flow, tides have a seasonal cycle, with extreme highs and lows at certain times of year that correspond to phases of the lunar and solar cycles. Communities would have been aware of these spring or king tides, when there would be possible flooding, and of the unusually small neap tides which might permit such activities as the building and maintenance of stone fish traps on the reef. A detailed description of the seasonal cycle of tides comes from McEldowney (1995) who has written about Andra, a sand cay with surrounding reef just off the north coast of Manus in the Admiralties. She describes a community which has built hundreds of stone fish traps along the northern reef edge so that they form a nearly continuous wall. For Andra speakers, the times of neap tides signal the opportunity for rebuilding the trap walls and are the most opportune time for many fishing methods. McEldowney writes (p.283–284) that the lowest tides occur over four consecutive days when

the reef is called *matahun* [perhaps **maqati* ‘low tide’ + **puna* ‘origin, beginning’] and ‘new’ because the reef is becoming newly exposed. The low tides of *matahun* are characterised as receding quickly and earlier than those on succeeding days; they do not drop as far as on following days; their duration is relatively short; and they are quickly replaced by the returning tide. This initial phase of the low water sequence is seen as the most opportune time for many fishing methods.

Hviding (1996:52) describes in some detail the seasonal variation in tides in Marovo, NW Solomons, and the way in which this affects the activities of its community. He notes how the time of the southeast tradewinds coincides with the occurrence of low tides during daytime (*mati rane*), and the time of northwest monsoons with low tides at night (*mati ipu*), and describes how these constitute predictable and distinct juxtaposed seasons. He writes:

This recurring pattern, particularly the tidal one, is important for the yearly cycles of fishing and shellfish gathering and is tied in with knowledge and observation of a number of other cyclic events in nature. ... Within the general two-season pattern, Marovo people recognize a number of predictable shorter-term fluctuations and climatic extremes that act as markers of important ceremonial occasions and productive activities. Among these are the particularly low tides occurring from mid-morning around June, announcing the ripening of the Canarium nut trees and aptly termed *mati buruburu* (low tide of nut trees). *Mati buruburu* also signifies the beginning of the period during which marriages were traditionally concentrated, when peak harvests from both fishing and gardening could be expected. The extreme low tides in mid-morning provide ideal conditions on the barrier reef flats for *kuarao* fishing, large communal efforts using an encircling line, yielding extraordinarily large catches, and associated with large feasts.

In Wayan (spoken in the Wasaya group, western Fiji), terms for spring and neap tides include *ua kurakura* ‘spring tide, highest tide of the month, when moon is full’, *ua qē* ‘neap tide, very quickly turning high tide, a low high tide’, and *ðere uaua* ‘very quickly turning low tide, a high low tide’. Wayan speakers also have a range of terms for high tides occurring at different times of day: *ua qwata* ‘morning tide, be high tide in morning’, *ua siŋa* ‘midday tide, be high tide at midday’, *ua vakiavi* ‘late afternoon tide, be high tide at evening’ and *ua boŋi* ‘night tide, be high tide at night’. It is probable that in POc also, there were a number of compounds based on *[u]Ruap and **maqati* that denoted specific kinds of high and low tide. However, on the evidence to hand we cannot recover the precise forms of such compounds.

The reconstruction for low tide, POc **maqati*, which continues a PAn form, is a well-supported one. The same form is also widely attested in the sense ‘dry reef, reef exposed at low tide’.

PAn **ma-qaCi* ‘ebb, of water in streams; low tide’ (ACD)

POc **maqati* (N) ‘low tide; dry reef’; (V) ‘ebb; dry, of reef’

Adm: Mussau	<i>mati</i>	‘low tide; dry reef’
	(<i>poŋa</i>) <i>mati</i>	‘coral reef’
Adm: Wuvulu	<i>maʔi</i>	‘low tide’
Adm: Seimat	<i>mat</i>	‘tide’
Adm: Lou	<i>met</i>	‘low tide; reef; dry reef’
Adm: Titan	<i>mat</i>	‘beach, tide’
Adm: Drehet	<i>m^wak</i>	‘ebb tide, dry reef’

Adm:	Nyindrou	<i>mek</i>	‘reef; low tide’
NNG:	Mangap	<i>magat</i>	‘low tide; dry reef’
NNG:	Manam	<i>mati</i>	‘reef’ (<i>mati-ibara</i> ‘ebb, ebb-tide; low water’)
MM:	Nakanai	<i>mahati</i>	‘be out, of the tide; low tide; dry season’
MM:	Vitu	<i>mayati</i>	‘low tide, reef’
MM:	Lavongai	<i>mat</i>	‘low tide’ (<i>kuli-mat</i> ‘reef’)
MM:	Tigak	<i>mat</i>	‘low tide; reef’
MM:	Kara (East)	<i>mat</i>	‘reef’
MM:	Tiang	<i>mat</i>	‘low tide; reef’
MM:	Nalik	<i>(sara)mat</i>	‘low tide’
MM:	Sursurunga	<i>məs</i>	‘low tide/shallow; dry spot’
MM:	Tolai	<i>mat (i marum)</i>	‘low tide during darkness’ (<i>mat i qai</i> ‘low tide during moonlight’)
MM:	Siar	<i>maiat</i>	‘reef’
MM:	Teop	<i>masi</i>	‘low tide with the reef visible’
MM:	Simbo	<i>mati</i>	‘low tide’
MM:	Marovo	<i>mati</i>	‘shallow reef; dry land; low tide; reef exposed by receding tide’
MM:	Halia	<i>mac</i>	‘coral reef; low tide’
SES:	Lau	<i>mai</i>	‘ebb tide; reef, dry reef; to ebb’
SES:	Kwaio	<i>mai</i>	‘low tide’
SES:	‘Are’are	<i>mai</i>	‘low tide, ebb tide’
SES:	Sa’a	<i>mei</i>	‘ebb tide, low tide’
SES:	Arosi	<i>mai</i>	‘low tide, ebb’
		<i>mairara</i>	‘dead low water at spring tide’
		<i>mainiharisi</i>	‘neap tide’ (<i>harisi</i> ‘season’)
		<i>maitē, maiuru</i>	‘very low tide’
NCV:	Paamese	<i>a-mati</i>	‘tide’
NCV:	Nguna	<i>māti</i>	‘low tide’
NCV:	Namakir	<i>maʔat</i>	‘shallow (water), low tide’
SV:	Sye	<i>mah</i>	‘low tide’
SV:	Kwamera	<i>maha</i>	‘low tide’
SV:	Anejom	<i>mas</i>	‘low tide’
NCal:	Nemi	<i>māc</i>	‘part of the reef exposed at low tide’
Fij:	Rotuman	<i>mafi</i>	‘low-tide water; tide in general’
Fij:	Bauan	<i>mati</i>	(V) ‘ebb, of the tide, as opposed to the flow’; ‘part of the reef exposed at low tide’

POc *[ma]maca ‘dry up, evaporate’, has some reflexes which refer to low tide or to exposure of the reef at low tide. These may represent parallel semantic specialisations. (See also Chapter 7, §5.6)

PMP **maja* ‘be dry’

POc **[ma]maca* (V) ‘dry up, evaporate, be empty of liquid’; (N) ‘low tide’

NNG:	Kove	<i>mamasa</i>	‘dry’
PT:	Kiriwina	<i>mamala</i>	‘low tide’
PT:	Motu	<i>(ko)mada</i>	‘low water’
MM:	Nakanai	<i>mamara</i>	‘(water) partly dried up by sun; extremely low tide’
MM:	Ramoaaina	<i>māma</i>	‘reef; low tide, shallow’
MM:	Tolai	<i>mamā</i>	‘reef; low tide; coral; shallow’
MM:	Roviana	<i>masa</i>	‘beach, sea shore’ (<i>masa-masa</i> ‘shallow’, <i>masa herepata</i> ‘very low tide’)
SES:	Gela	<i>mamaha</i>	‘dry’
SES:	Sa’a	<i>mamata</i>	‘be high and dry, of a reef; be dry at low water’
SES:	Arosi	<i>mamata</i>	‘dry’
NCV:	Raga	<i>mamasa</i>	‘dry’
NCV:	Paamese	<i>mese</i>	‘dry; (of tide) low, go out’
SV:	Anejom	<i>mesei</i>	‘dry’
SV:	Kwamera	<i>maha</i>	‘low tide; empty, of liquid’
NCal:	Nemi	<i>mat</i>	‘dry up; low tide’
NCal:	Iaai	<i>m^he²</i>	‘dry up, dry reef; low tide’
Mic:	Kiribati	<i>mara</i>	‘moistened, soaked, softened’
Mic:	Kosraean	<i>m^ues</i>	‘shallow place in reef’
Mic:	Mokilese	<i>mat</i>	‘portion of reef exposed at low tide’
Mic:	Marshallese	<i>mmat</i>	‘protrude from surface (water or land), emerge’
Mic:	Ponapean	<i>mat</i>	‘dry’
Mic:	Carolinian	<i>mmata</i>	‘low tide, dry’
Mic:	Puluwatese	<i>mmat</i>	‘be low, of tide’
Mic:	Woleaian	<i>mmata</i>	‘dry, low tide’
Fij:	Rotuman	<i>mamasa</i>	‘be dry’
Fij:	Bauan	<i>maōa</i>	‘empty, dry of liquids’
Pn:	Niuean	<i>maha</i>	‘empty, dry’
Pn:	Tongan	<i>maha</i>	‘dry’
		<i>mamaha</i>	‘shallow; (tide) be out’
Pn:	E Futunan	<i>masa</i>	‘dry’
Pn:	E Uvean	<i>maha</i>	‘empty, dry’
Pn:	Rennellese	<i>masa</i>	‘empty of liquid, (tide) shallow’.
Pn:	Samoaan	<i>masa</i>	‘be shallow’
Pn:	Nukuoro	<i>masa</i>	‘empty, low tide’
Pn:	Emae	<i>masa</i>	‘empty of liquid’

POc **Ruap* has been long-established as a term for high tide, with a PMP antecedent, **Ruab*. Further evidence in the form of the POc verb *[*ma-]uRua(p)* ‘flood, be flooded’ (see below) leads us to conclude that **Ruap* had an alternant form **uRuap*.

² In Iaai *m^h* reflects PNCal **mm* and POc **mam*. (For a fuller discussion, see Ozanne-Rivierre 1986:39.)

PMP **Ruab* ‘high tide’ (Blust 1984–85)

POc *[*u*]*Ruap* (N) ‘high tide’; (V) ‘flow in, of tide’; (N) ‘wave’

Adm:	Lou	<i>ua</i>	‘high tide’
NNG:	Malasanga	<i>rua</i>	‘flow’
MM:	Tolai	<i>ruap</i>	‘breakers; break heavily, of the sea’
SES:	Gela	<i>lua</i>	‘full tide’; (V) ‘flow, of tide’
SES:	Lau	<i>lua</i>	‘high tide; flow in, of tide; heavy sea, big waves’ (<i>lua-lua</i> ‘breakers’, <i>lua ni odu</i> ‘a big swell’)
SES:	Sa’a	<i>lue</i>	‘flood tide’
SES:	Kwaio	<i>lua</i>	‘high tide’
		<i>lua-lua, lu-luafe</i>	‘flood tide’ (<i>lua</i> + <i>afe</i> ‘flow’)
SES:	’Are’are	<i>rua</i>	‘flood tide, incoming tide’ (<i>rua paina</i> ‘high tide’)
SES:	Arosi	<i>rua-rua</i>	‘flood of water’
NCV:	Mota	<i>rue</i>	‘flow of tide, high tide, flood tide’
NCV:	Fortsenal	<i>ua</i>	‘make waves’
NCV:	Paamese	<i>ue</i>	‘high tide’
SV:	Kwamera	<i>a-rə-ruk^w</i>	‘be high tide’
NCal:	Nyelāyu	<i>wap</i>	‘high tide’
Fij:	Bauan	<i>ua</i>	‘the tide, a wave’, (<i>ua levu</i> ‘high tide’)
Fij:	Wayan	<i>ua</i>	‘wave; tide’ (<i>ua levu</i> ‘high tide’)

POc **ma-[u]Ruap* and its counterpart, **ma-qati* ‘low tide; be low tide, to ebb’ each had both a dynamic and a stative sense (Evans & Ross 2001).

POc [**ma-*]*juRua(p)* ‘flood, be flooded’ (from p.86)

NNG:	Manam	<i>urua</i>	‘flood, torrent’
PT:	Molima	<i>moluva</i>	‘flood of river or stream’
PT:	Dobu	<i>muluwa</i>	‘flood’
NCV:	Tamambo	<i>moruae</i>	‘flood, big river’

Other reconstructions for high tide include the following (see also POc **lomak* ‘flood, of sea’ (Ch. 3, p.87)):

PMP **lubuk* ‘deep pool in water’ (Dempwolff 1938)

POc **lubu(k)* ‘high tide; deep water’

Adm:	Drehet	(<i>m^wak</i>) <i>ulup</i>	‘high tide’
		<i>lu-lup</i>	‘tidepool’
NNG:	Yabem	<i>lop</i>	‘flood tide’
MM:	Vitu	<i>lobo</i>	‘high tide’
MM:	Meramera	<i>lubu-lubu</i>	‘high tide’
MM:	Tolai	<i>lubu</i>	‘to rise, flow or flood, of the tide; full tide’
MM:	Ramoaina	<i>lubu</i>	‘deep water; full tide; the change of the monsoon’
SES:	Lau	<i>lobo</i>	‘deep water in lagoon’ (Akimichi 1978)
NCal:	Nemi	<i>nigi</i>	‘deep water’

PWOC **tunan* ‘high tide’

PT:	Molima	<i>tunana</i>	‘high, of water’
PT:	Muyuw	<i>tan</i>	‘high tide’
MM:	Notsi	<i>tun</i>	‘high tide’
MM:	Lihir	<i>ton</i>	‘high tide’
MM:	Sursurunga	<i>tun</i>	‘tide’
MM:	Tangga	<i>tun</i>	‘high tide’
MM:	Konomala	<i>tun-tun</i>	‘high tide’

Sometimes reflexes of POC **ponuq* ‘full’ are used to refer to a high tide (SES: Sa’a *asi e honu* ‘high spring tide’, Pn: Takuu *fonu* ‘deep; full, of tide’).

3 The reef environment

3.1 Coral

POC **laje* was both a generic term for coral and the name for branching coral in contrast to **buŋa* ‘smooth round or table coral’. The term **laje* is widely attested in Oceanic but we know of only one probable cognate outside Oceanic, Lauje (Tomini-Tolitoli, Sulawesi) *lais* ‘coral’. For **giri-giri* ‘coral, coral rubble’, see Chapter 3, §7.3.

PMP **lajay* ‘coral’POC **laje* (i) ‘coral’; (ii) ‘branching coral’

Adm:	Lou	<i>las</i>	‘limestone’
Adm:	Loniu	<i>lac</i>	‘coral’
NNG:	Takia	<i>lad</i>	‘coral’
NNG:	Gedaged	<i>lad</i>	‘coral’
PT:	Motu	<i>lade</i>	‘k.o. coral; coral reef’
PT:	Kukuya	<i>nai</i>	‘reef; coral’
PT:	Sudest	<i>laje</i>	‘coral’
PT:	Kiriwina	<i>lai</i>	‘coral’
MM:	Babatana	<i>laji</i>	‘coral’
MM:	Maringe	<i>(glae)laje</i>	‘coral’
SES:	Gela	<i>lade</i>	‘all kinds of branching coral’
SES:	Arosi	<i>rade</i>	‘coral’
SES:	Kwaio	<i>lade-lade</i>	‘coral’
SES:	Lau	<i>lade</i>	‘branching coral’
NCV:	Mota	<i>las</i>	‘live coral, of the branching kinds’
NCV:	Namagir	<i>les</i>	‘branching coral’
SV:	Anejom	<i>(n)las</i>	‘live coral on a reef’
Mic:	Kosraean	<i>læs</i>	‘k.o. coral’
Fij:	Wayan	<i>lase</i>	‘coral (alive or dead), esp. branching coral; burnt coral, powdered coral, lime’
		<i>vatu lase-lase</i>	‘brain coral, smooth round coral’
		<i>lase iviu</i>	‘sea fan coral’

Fij:	Bauan	<i>lase</i>	‘common branchy coral and the lime made from it’
Pn:	Tongan	<i>lahe</i>	‘lime (coral)’
Pn:	Rennellese	<i>gase</i>	‘k.o. common branching coral’

POc **buŋa* ‘smooth round coral’ is evidently derived from PMP **buŋa* ‘blossom’ through the latter’s extension of meaning to PMP **buŋa ni batu* ‘coral sponge’ (lit. ‘blossom of stone’), which then reduced simply to **buŋa* in Oceanic.

PMP **buŋa* ‘flower, blossom’, **buŋa ni batu* ‘coral sponge’ (ACD)

POc **buŋa* ‘smooth, round coral’

NNG:	Takia	<i>buŋ</i>	‘large white coral’
NNG:	Gedaged	<i>buŋ</i>	‘a round coral growth’
MM:	Nakanai	<i>buga</i>	‘plate-shaped coral’
MM:	Bola	<i>buŋa</i>	‘k.o. coral’
MM:	Babatana	<i>buŋa-na</i>	‘large whitish stones found on the reef, calcified coral’
NCV:	Mota	<i>puŋa</i>	‘k.o. coral (madrepore)’
Fij:	Bauan	<i>vuŋa</i>	‘a porous coral rock in the sea’

PPn **puŋa* ‘coral rock’

Pn:	Niuean	<i>puŋa</i>	‘limestone, coral rock’ (<i>puŋa-puŋa</i> ‘limestone platform on the reef’)
Pn:	Tongan	<i>puŋa, (mata)puŋa</i>	‘k.o. rather soft rock or stone, apparently a compact form of coral’
Pn:	Samoan	<i>puŋa</i>	‘k.o. coral, used for polishing and as weights in breadfruit storage pits’
Pn:	Rennellese	<i>puŋa</i>	‘general name for flat or round sharp coral’
Pn:	Tikopia	<i>puŋa</i>	‘marine rock, prob. coral’
Pn:	Tahitian	<i>puʔa</i>	‘coral sp., lime, abrasive stone’
Pn:	Maori	<i>puŋa-puŋa</i>	‘pumice’
Pn:	Hawaiian	<i>puna</i>	‘coral’

In Polynesian languages, reflexes of **puŋa* typically contrast with those of **feo*.

PPn **feo* ‘coral, possibly branching coral’

Pn:	Niuean	<i>feo</i>	‘coral’
Pn:	Tongan	<i>feo</i>	‘coral’
Pn:	E Futunan	<i>fe(o)-feo</i>	‘branching coral’
Pn:	Samoan	<i>feo-feo</i>	‘branching coral’
Pn:	Tikopia	<i>feo</i>	‘coral, generic’
Pn:	Tuamotuan	<i>heo</i>	‘k.o. coral rock’

3.2 Reefs

Coral reefs are a dominant feature not only of atolls, but also of the coastal environments of parts of mainland New Guinea and of many of the high islands of the tropical Pacific. Reef systems can be loosely classified into atolls, fringing reefs which border shores, and barrier reefs which are some distance offshore. Although many atolls are in fact islands, some consist only of reef.

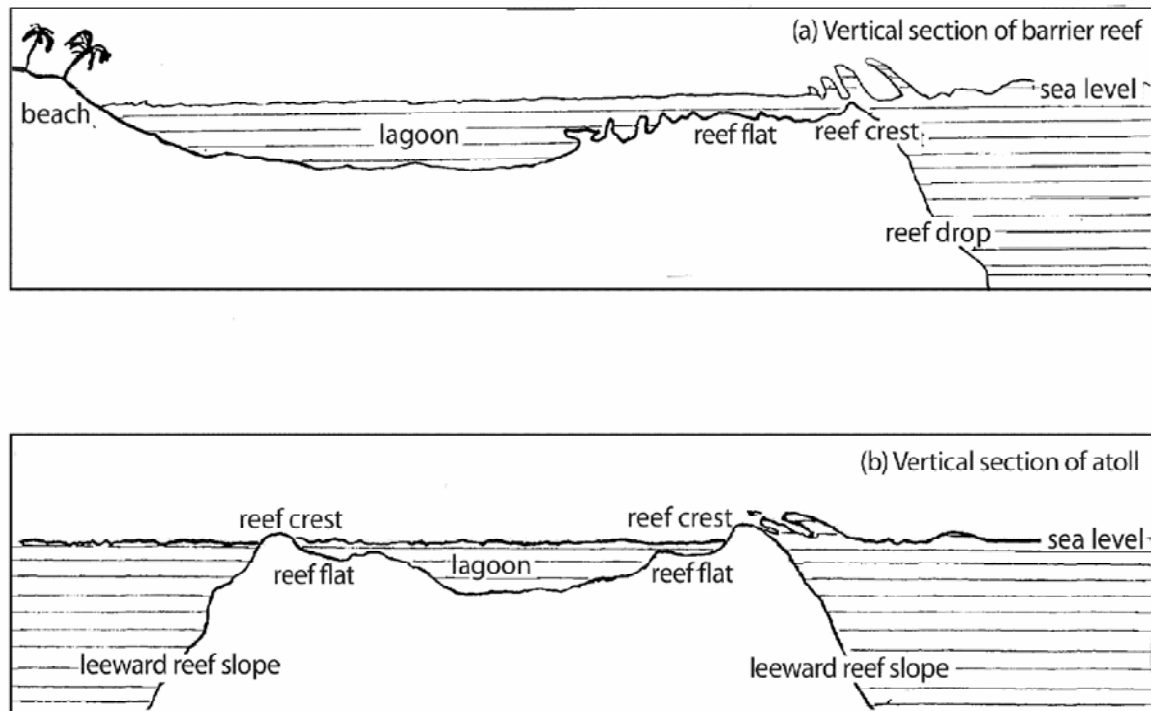


Figure 3: Reef forms

Coral reefs generally have a number of features in common, as shown in Figure 3. These include a windward slope, with often a steep drop to the ocean floor on the seaward side, a crest and a reef flat which is exposed at low tide and contains holes and channels. Reef flats in general are easily accessible and support a wide variety of fish and shellfish. A natural division is between the windward and leeward sides of the reef, with the windward more heavily scoured by tides and wave action, and the leeward supporting a much more varied and fragile coral community. Atolls and barrier reefs enclose a body of sheltered water, the lagoon, within which occur patch reefs, coral heads and sand patches.

Two POC reconstructions are glossed simply as 'reef', **sakaRu* and **oda*. Oceanic reflexes of **sakaRu* are extremely widespread. Outside Oceanic, we have located two terms from Austronesian languages in the Cenderawasih Bay area, Yeretuar *s?aru* 'coral stone' and Iresim *haru* 'coral reef', both from the Anceaux collection of wordlists of Irian Jaya languages (Smits & Voorhoeve 1992:228), which suggest a PEMP reconstruction. Blust (ACD) has recorded Chamorro *sahagu* 'deep water' as cognate and thus proposes promotion of the POC reconstruction to PMP, albeit with questionable gloss. In Tryon (1995), which lists terms for 'reef' in around 50 non-Oceanic languages, the most common terms are cognates of the compound **patu karanj*, literally 'coral rock'. It may be that reefs were not as central to life in many parts of Indonesia as they are in Oceanic settlements.

PMP/PEMP **sakaRu* ‘reef, shoal’POc **sakaRu* ‘reef, shoal’

Adm:	Baluan	<i>suk</i>	‘beach’
NNG:	Dami	<i>sā</i>	‘sky, reef’
NNG:	Mangap	<i>sakar</i>	‘reef’
NNG:	Manam	<i>sakaru</i>	‘reef’
NNG:	Sissano	<i>saʔar</i>	‘reef’
PT:	Motu	<i>hayaru</i>	‘rise, of the tide’
MM:	Bali	<i>zayaru</i>	‘reef’
MM:	Nakanai	<i>sakalu</i>	‘reef’
MM:	Bola	<i>rakaru</i>	‘reef’
MM:	Teop	<i>han</i>	‘a reef coming near the surface of the ocean, but is always under water’
MM:	Halia	<i>sāl</i>	‘between the deep edge of the reef and where the surf breaks’
MM:	Roviana	<i>sayaru</i>	‘reef’
SES:	Bugotu	<i>hagalu</i>	‘reef’
SES:	Sa’a	<i>taʔalu</i>	‘shoal water, a coral patch under water’
SES:	Lau	<i>taʔalu</i>	‘a shoal, shoalwater’
SES:	’Are’are	<i>taʔaru</i>	‘shoal, reef in shallow water’
SES:	Arosi	<i>taʔaru</i>	‘shoal, shallow spot in the sea; coral reef’
NCV:	Mota	<i>sakaru</i>	‘rough coral stones between surf and beach’
NCV:	Namakir	<i>hako</i>	‘reef’
Mic:	Kiribati	<i>rakai</i>	‘block of coral rocks; rock; reef’
Mic:	Kosraean	<i>taka</i>	‘island, atoll’
Mic:	Marshallese	<i>təkæ, təkər</i>	‘strip of reef; long reef between two islets’
Mic:	Ponapean	<i>teke</i>	‘small island’
Mic:	Puluwatese	<i>tā</i>	‘uninhabited reef island’
Fij:	Wayan	<i>ḍakau</i>	‘reef, shoal’
Fij:	Bauan	<i>ḍakau</i>	‘coral reef’
Pn:	Tongan	<i>hakau</i>	‘coral reef or rock which appears above the surface at low tide’
Pn:	Samoa	<i>aʔau</i>	‘coral reef’
Pn:	Rennellese	<i>akau</i>	‘coral reef in general’
Pn:	Tikopia	<i>akau</i>	‘reef fringing an island or in atoll form’
Pn:	Tuvalu	<i>akau</i>	‘reef formations in the lagoon’
Pn:	Marquesan	<i>akau</i>	‘coral outcrops’

POc **oda* ‘reef’ is widely reflected in Micronesian languages, but otherwise is retained as a separate word (in our data) only in one Papuan Tip language.

POc **oda* ‘reef’

PT:	Kiriwina	<i>oda(iaga)</i>	‘coral reef’
Mic:	Kiribati	<i>ora</i>	‘low tide, expanse of beach, strand’
Mic:	Ponapean	<i>ōt</i>	‘reef’ (archaic)

Mic:	Marshallese	<i>wər</i>	‘coral reef’
Mic:	Mokilese	<i>wos</i>	‘reef’
Mic:	Chuukese	<i>wōç, woço-</i>	‘reef’
Mic:	Carolinian	<i>wōş, woşo-</i>	‘reef, esp. fringing barrier reef’
Mic:	Woleaian	<i>woş, woşo</i>	‘reef, coral, lime’
Mic:	Puluwatese	<i>wōr</i>	‘reef’

However, further evidence supporting *oda* as a term for ‘reef’ lies in two reconstructions made by Ross Clark (1991), POc **paŋ-oda* ‘gather shellfish and other seafood on the reef’ and **p-in-aŋ-oda* ‘shellfish, seafood gathered on the reef’ (where **paŋ-* is the verbal suffix (underlying form **paN-*) and *-in-* the noun-deriving infix discussed in vol. 1, p.29 and p.33 respectively). A selection of reflexes follows:

PT:	Motu	<i>haoda</i>	(V) ‘fish’
SES:	Bugotu	<i>vagoda</i>	‘hunt for shellfish on the reef’
SES:	Gela	<i>vaŋoda</i>	‘collect food on the reef; anything on the reef; gatherer of reef food’
SES:	Sa’a	<i>haŋoda</i>	‘haliotis (sea ear) used as bait for crayfish’
NCV:	Mota	<i>vaŋona</i>	‘catch fish with a line; get shellfish on the reef or in a canoe’
NCV:	Nguna	<i>(pa)vagoda</i>	‘look for shellfish’
		<i>vinagoda</i>	‘shellfish’
NCV:	Lonwolwol	<i>fogōr</i>	‘look for fish (on reef etc.)’
SV:	Anejom	<i>a-haŋeč</i>	‘forage on reef’

The following reconstruction is attested only in SE Solomonian languages and Rotuman.

PEOc **papo* ‘shore reef, fringing reef’

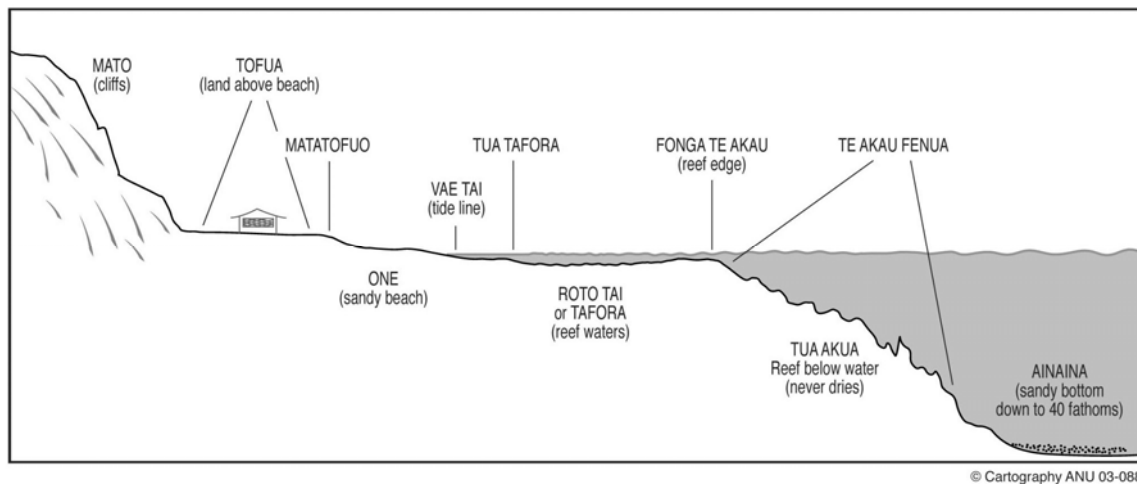
SES:	’Are’are	<i>haho</i>	‘the shore reef’
SES:	Sa’a	<i>haho</i>	‘the shore reef’
SES:	Arosi	<i>haho</i>	‘encircling reef’
Fij:	Rotuman	<i>haho</i>	‘coral reef’

In addition to a general term for the reef, communities have terms for various zones within the reef. The Admiralties language spoken on Andra, a sand cay with fringing reef, distinguishes five major reef zones (McEldowney 1995:484–488): the windward reef slope (*aweā kontoh*); the windward reef crest (name not given) which is the most elevated portion of the reef, the reef flat (*lomat*); the leeward reef margin consisting of alternating series of coral patches and sand chutes (*lonpai* ‘sand chute’), and the leeward reef slope (*chechen*). These in turn are divided into eleven subzones. For instance, the reef flat (*lomat*) consists of two segments, the windward two thirds (*lolomat*) dominated by live coral and largely exposed during the lower tides, and the leeward third (*lonpapi*) mainly covered by sand deposits which remain largely submerged even during the lowest tides. Also scattered through the reef flat are some areas of sea grass, referred to as *korekt*, and small deep pools known as *lolu*.

Raymond Firth in his *Tikopia–English dictionary* (1985:613) provides an illustration, reproduced here as Figure 4, of a reef profile with main features labelled. Tikopia is a high island with fringing reef. The features labelled include the ocean side of the reef (*tua akau*, lit. ‘back of reef’), the reef crest (*foŋa te akau*), that part of the reef dry at low tide (*roto tai*

or *tafora*, ‘middle salt water/reef waters’), the tide line (*vae tai* ‘foot of salt water’), the sandy beach (*one* ‘sand’), and the land above the beach (*tofua* ‘sandy dunes’).

A second Polynesian example comes from Niuatoputapu, an island with a volcanic ridge and fringing reef located halfway between Tonga and Samoa. Dye (1983:246) records a local division of the marine environment into four major biotopes: the reef flat (*namo*) including littoral zones, the shallow salt-water lagoon (*tahi*), the living fringing and barrier reef fronts (*mataʔuluʔulu*) and the open ocean (*moana*). The reef flat and reef edge are further divided into leeward and windward zones, although Dye gives the local name only for the windward reef flat, *lafo-lafo*.



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Figure 4: Tikopia reef profile
(Firth 1985:613, reproduced with permission)

Although we can be confident that there were Proto Oceanic names for various reef zones, we have reconstructions only at lower levels. PPn **tuqa-hakau* (from **tuqa* ‘back’ + **hakau* ‘reef’) refers variously to the reef’s outer edge or to the ocean just beyond. Marovo (MM), spoken on New Georgia, has a term *tabikale* ‘steep reef dropoff, into deep water’. Lau (SES) also has an unrelated term, *fafo-ʔile*, for the seaward side of the reef translated by Ivens as literally ‘overhanging the precipice’.

PPn **tuqa-hakau* ‘ocean side of the reef, ocean beyond the reef’ (from PPn **tuqa* ‘back’ + **hakau* ‘reef’)

Pn:	Rennellese	<i>tuʔā</i>	‘side of reef facing the ocean’
Pn:	Samoa	<i>tua-aʔau</i>	‘outside the reef in deep water’
Pn:	Tikopia	<i>tua-akau</i>	‘open sea just beyond the reef’
Pn:	Hawaiian	<i>kua-au</i>	‘basin inside the reef; lagoon’

A PCP reconstruction that may also apply to the reef’s outer edge is **qulu-qulu*, (possibly from POc/PPn **qulu* ‘head’).

PCP **qulu-qulu* ‘outer edge of shore reef where waves break’

Fij:	Wayan	<i>ululu</i>	‘pool or sandbar at mouth of a stream’
Pn:	Niuean	<i>ulu-ulu</i>	‘reef’

Pn:	Tongan	<i>ʔulu-ʔulu</i>	‘low-lying rocks adjoining shore or inner reef’
Pn:	Niuatoputapu	<i>(mata)ʔulu-ʔulu</i>	‘reef front’
Pn:	E Futunan	<i>ʔulu-ʔulu</i>	‘outer edge of reef where waves break’
Pn:	Pukapukan	<i>ulu-ulu(akau)</i>	‘outer reef, reef shelf’
Pn:	Rennellese	<i>ʔugu-ʔugu</i>	‘outer barrier reef’
Pn:	K’marangi	<i>(mata) uru-uru</i>	‘reef where waves come in and immediately beyond’

Reflexes of POc **mata* with its extended meaning ‘edge’ are sometimes used in compounds to refer to reef edge. They include Molima (PT) *mata-ʔipi* ‘edge of reef and beyond’ and Tikopia *mata akau* ‘edge of reef’ as well as the Niuatoputapu and Kapingamarangi forms cited above.

The windward and leeward sides of the reef were possibly described by the terms reconstructed in the previous chapter for windward and leeward coasts, PEOc **liku* ‘windward side’ and POc **ruru* ‘calm, sheltered’ or by the terms for rough and sheltered water, PEOc **tasik maquri(p)* and PEOc **tasik mate* respectively, which evidently could be used to include also the weather and lee coasts of barrier islands (p.95).

3.3 Submerged reefs, rocks and sandbanks

Isolated patches of submerged reef occur in the open sea between the outer (barrier) reef and islands with shore reefs. These submerged reefs are dangerous to boats but are valuable fishing grounds. In some languages they are referred to by the generic word for ‘coral reef’, in others there is a separate term for a submerged patch of reef or rocks. In the following reconstruction, retention of the final vowel in Anejom and Mota suggests POc final **-q* (John Lynch pers. comm.).

POc **m^waloq* ‘submerged rock or coral reef, coral head’

NNG:	Takia	<i>mal</i>	‘reef, a chain of rocks, coral, or a ridge of sand at or near the surface of water’
NNG:	Manam	<i>m^walo(bo)</i>	‘sink, submerge, be drowned’
MM:	Nakanai	<i>malo</i>	‘wandering stones or reefs that chase and sink canoes’
MM:	Lamasong	<i>mano</i>	‘reef’
MM:	Bola	<i>malo</i>	‘steep face of reef that goes down into the deep’
SES:	Lau	<i>walo</i>	‘coral reef’
SES:	Kwaio	<i>walo</i>	‘reef’
SES:	’Are’are	<i>maro</i>	‘submerged coral reef’
SES:	Sa’a	<i>m^walo</i>	‘sunken rock, reef at sea’
SES:	Arosi	<i>m^waro</i>	‘hidden rock or shoal’
NCV:	Mota	<i>m^walo</i>	‘a sunken rock where the sea breaks’
NCV:	Raga	<i>malo</i>	‘reef’
NCV:	Nguna	<i>m^wālo</i>	‘coral head’
SV:	Anejom	<i>in-m^woče</i>	‘coral reef’
Pn:	Tongan	<i>ʔalo</i>	(VI) ‘sink, submerge’

POc **nuku* ‘sand bank, sand spit, sandy ground’ is listed with full cognate set in Chapter 3 (p.45). From two of its cognates, Bugotu and Bauan Fijian, we can also reconstruct PEOc **nuku potu* ‘point of reef or sandbank (presumably one that appears at low tide)’ (**potu* ‘appear, emerge’).

PEOc **nuku potu* ‘point of reef or sandbank (that appears at low tide)’

SES:	Bugotu	<i>nuyu votu</i>	‘point of a reef’
Fij:	Bauan	<i>nuku votu</i>	‘sandbank’

Both the SE Solomonic and Micronesian reflexes of PEOc **baro* refer to flat rocks in or near the sea.

PEOc **baro* ‘flat rock or ledge (in or near sea)’

SES:	Lau	<i>baro</i>	‘flat rock in the sea’
SES:	Kwaio	<i>balo</i>	‘flat reef stones’
Mic:	Kiribati	<i>ba</i>	‘rock or ledge, continuous and solid’
Mic:	Marshallese	<i>p^{uu}a^{uu}</i>	‘rock’
Mic:	Puluwatese	<i>porōw</i>	‘sandstone, calcified coral’
Mic:	Woleaian	<i>pozou</i>	‘beach rock, huge flat rock’

PPn **toka* ‘rock, as a submerged rock or reef’ (Biggs & Clark 1993)

Pn:	Niuean	<i>toka</i>	‘bedrock of sea’
Pn:	E Futunan	<i>toka</i>	‘reef rock’
Pn:	Pukapukan	<i>toka</i>	‘coral growth’
Pn:	Samoan	<i>toʔa</i>	‘sea rock, reef’
Pn:	Tahitian	<i>toʔa</i>	‘rock, coral rock variety’
Pn:	Hawaiian	<i>koʔa</i>	‘coral, coral head’
Pn:	Anutan	<i>toka</i>	‘rock in sea, visible at low tide’

Reflexes of POc **baban* ‘flat; flat rock, any hard flat surface’ are also used in some languages to refer to flat rock surfaces underwater (see vol. 1, p.58).

3.4 Lagoon, sheltered water

A feature of coral atolls and of some high islands with barrier reefs is the enclosed or sheltered water usually referred to as a lagoon. These can be very large, examples being the Marovo and Lau lagoons in the Solomons within which are located a number of inhabited islands. Reflexes of POc **namo* refer at times to the lagoon within a reef, and at others to a deep hole in the reef. The common meaning ‘enclosed water’ is retained.

PMP **namaw* ‘sheltered water: deep place in a river; cove, harbour, lagoon’ (ACD)

POc **namo* ‘lagoon inside a reef; deep pool or hole in reef’

PT:	Motu	<i>nomu</i>	‘deeper place on shore reef’ (irreg. vowel change)
MM:	Kara	<i>nam</i>	‘lagoon’
SES:	‘Are’are	<i>nāmo</i>	‘lake; crevice, deep places in between the reefs’
SES:	Sa’a	<i>namo</i>	‘land-locked harbour’

SES:	Arosi	<i>namo</i>	‘a landlocked, shallow lagoon near the shore’
SES:	Lau	<i>namo</i>	‘the lagoon inside a reef, near the reef (the deep) pools towards the shore’
SES:	Kwaio	<i>namo</i>	‘lake, pool, deep place in river’
NCV:	Mota	<i>nam^{wo}</i>	‘lagoon within a reef’
Mic:	Kiribati	<i>namo</i>	‘harbour’
Mic:	Ponapean	<i>nām^w</i>	‘deep place within the barrier reef; lagoon’
Mic:	Puluwatese	<i>nām^w</i>	‘lagoon’
Mic:	Woleaian	<i>ram^w</i>	‘lagoon, lake’
Fij:	Wayan	<i>namo</i>	‘deep-water hole within reef’
Pn:	Niuean	<i>namo</i>	‘lake, lagoon’
Pn:	Tongan	<i>namo</i>	‘lagoon’
Pn:	Niuatoputapu	<i>namo</i>	‘the reef flat’
Pn:	E Futunan	<i>namo</i>	‘large shallow area on reef’
Pn:	Tokelauan	<i>namo</i>	‘lagoon’

In languages where the community’s activities are centred on the lagoon there are usually dozens of terms for particular features. For instance, Akimichi (1978:305–306) reports that Lau has terms for shallow water (*mai* or *fafo-mai* ‘low water’ or ‘above low water’); intermediate depths (*fafo-buso*) and deep water (*lobo*). He adds a host of other terms for features of the lagoon and its boundaries:

Rarabala is applied to the places where the passes and the lagoon meet and the shelf area between the ocean and the lagoon, and where the depth is 6–7 m. *Fakana aba* also is applied between passages and the lagoon, but only to those 4–5 m deep. Areas of the lagoon where the depth and the nature of the bottom changes are also named. For instance, *fakana matakwa* indicates the area intermediate between *rarabala* ‘reef shelf’ and *asi matakwa* ‘ocean’, *fakana lobo* is the off-shore border between *lobo* ‘lagoon deeps’ and *fafobuso* ‘intermediate’ (*fakana* ‘outer terminal’), *raona lobo* is the in-shore border between *lobo* and *fafobuso* (*raona* ‘inner terminal’).

Small deep holes are a feature of the reef flat, but the only reconstructable term we have other than **namo* is PPn **loto* (see below). Ross in Chapter 8 has reconstructed POc **loto* ‘space within a concave object’, and lists POc **lalo*, **lo-* and **la-*, all as relational nouns referring to the space within something. Non-cognate terms include Andra (Adm) *lolu* ‘small deep pools in reef’, Lau (SES) *lobo* ‘a pool in the reef or in a river’ and Niuean (Pn) *lili* ‘small hollow in the reef, as opposed to pools or puddles elsewhere’ and to deeper holes in the reef, which in Niuean are called *pupuo*.

POc **loto* ‘space within a concave object’ (see p.248 for full cognate set)

PPn **loto* ‘pool, depression in reef; inside’ (Biggs & Clark 1993)

Pn:	Niuean	<i>loto</i>	‘small pool on the reef’
Pn:	Tongan	<i>loto</i>	‘hole or depression in coral reef or sea bed’
Pn:	Rennellese	<i>goto</i>	‘lagoon inside reef’
Pn:	Samoa	<i>loto</i>	‘pool, stretch of deep (or deeper) water’
Pn:	Tikopia	<i>roto</i>	‘lake, in interior of island’
Pn:	Tuamotuan	<i>roto</i>	‘depression in reef, pool’
Pn:	Tahitian	<i>roto</i>	‘lagoon’
Pn:	Maori	<i>roto</i>	‘lake, pool’
Pn:	Hawaiian	<i>loko(kai)</i>	‘lagoon’ (<i>loko-loko</i> ‘puddles’)

3.5 Channel in fringing reef

A typical coral-fringed coastline or atoll has breaks in the reef which permit canoes to move from sheltered water to the open sea and back. The Lau people refer to passages connecting the ocean and the lagoon as *dari* (lit. ‘gulleys’), while canoe traffic at low tide uses a channel in the lagoon known as *tafaʔa* (Akimichi 1978:306). According to Fox’s Lau dictionary, *tafaʔa* can also be used for a pass in a mountain range. Two POc terms are reconstructable; **sawa(n,ŋ)* ‘channel, passage’ continues PMP **sawaq* ‘channel’, while **mata (qi/ni) *sawa(n,ŋ)* ‘channel in fringing reef giving passage to boats; landing place’ refers specifically to a reef opening or channel associated with landing canoes. POc **wasas* may have had a more abstract meaning, ‘space between’ or similar, but in at least one of its reflexes refers to the passageway through a reef.

The final nasal of **sawa(n,ŋ)* is unexpected but attested in languages that retain POc final consonants.

PMP **sawaq* ‘channel’ (ACD)

POc **sawa(n,ŋ)* ‘channel, passage’

Adm:	Wuvulu	<i>tawa</i>	‘channel, passage between islands’
Adm:	Mussau	<i>soana</i>	‘channel, passage through the reef’
NNG:	Yabem	<i>sawa</i>	‘space, empty area’; (ADJ) ‘empty’
PT:	Dobu	<i>ʔawa</i>	‘channel through reef’
PT:	Kiriwina	<i>sawa</i>	‘area of reef etc possessed by a village as its traditional fishing ground’
PT:	Kukuya	<i>awa(haha)</i>	‘valley; gap between two peaks’
PT:	Motu	<i>dara</i>	‘lagoon in atoll’
MM:	Teop	<i>hoa</i>	‘a place in a reef where a canoe can cross through breakers’
MM:	Nduke	<i>savaŋa</i>	‘passage’
MM:	Roviana	<i>savaŋa</i>	‘strait between two islands’
SES:	Gela	<i>hā</i>	‘open place’
SES:	Bugotu	<i>hā</i>	‘landing place’
SES:	Arosi	<i>tawa</i>	‘common prefix to names of landing places’
SES:	‘Are’are	<i>tawa</i>	‘channel in the shore reef; landing place; parting in the hair’
SES:	Sa’a	<i>tawa</i>	‘opening in the shore reef; used in the names of landing places’
NCV:	Mota	<i>salava</i>	‘landing place’ (<i>savala</i> reinterpreted as <i>sawa</i> ‘landing place’ + <i>lava</i> ‘large’??)
Mic:	Kiribati	<i>rawa</i>	‘channel, passage through reef’
Mic:	Mokilese	<i>taw</i>	‘channel, passage through reef’
Mic:	Carolinian	<i>tawur</i>	‘channel, passage through reef’
Mic:	Woleaian	<i>tawa</i>	‘channel, harbour’
Fij:	Wayan	<i>ḍawa</i>	(N LOC) (i) ‘(when speaker is on coast) the beach or reef flat’; (ii) ‘(when speaker is inland) the coast, seaside’

PPn **awa* ‘channel, passage through reef’ (Biggs & Clark 1993; loss of initial **s-* is unexpected)

Pn:	Niuean	<i>ava</i>	‘channel, opening in the reef; harbour’
Pn:	Rennellese	<i>aba</i>	‘pass, channel, canoe anchorage’
Pn:	Samoaan	<i>ava</i>	‘channel, passage (in the reef), gap’
Pn:	Maori	<i>awa</i>	‘channel, landing place for canoes’
Pn:	Hawaiian	<i>awa</i>	‘port, harbour; channel or passage, as through a reef’

POc **mata* (*qi/ni*) *sawa(n,ŋ)* ‘channel in fringing reef giving passage to boats; landing place’ (Pawley & Pawley 1994; **mata* ‘eye’, **qi* or **ni* ‘genitive linker’)

Adm:	Lou	<i>mara-sa</i>	‘channel, passage between islands’
Adm:	Titan	<i>mata-caw</i>	‘channel, passage between islands’
Adm:	Loniu	<i>ma-caw</i>	‘ocean passage between two islands’
SES:	Gela	<i>mata ni hā</i>	‘landing place’
SES:	Lau	<i>mā-i-takwa</i>	‘landing place, opening’
SES:	Arosi	<i>ma-e-tawa</i>	‘landing place where the sea is calm’
SES:	Kwaio	<i>mā li tak^{wa}</i>	‘landing place’
SES:	‘Are’are	<i>maritawa</i>	‘landing place, channel’
Mic:	Kiribati	<i>mata n rawa-rawa</i>	‘channel, gap in reef’
Fij:	Bauan	<i>mata-sawa</i>	‘landing place’
Fij:	Wayan	<i>mata-ōawa</i>	‘beach’

In similar vein, Nakanai has (*la*)*mata-la-sakalu* ‘passage through the reef’ (*la* article).

POc **wasas* seems basically to have denoted a space between two points, expanding its meaning in Central Pacific languages to mean ‘distance at sea’ and then finally simply ‘ocean’.

POc **wasas* ‘passage, space between, particularly at sea, distance between two points’

PT:	Gumawana	(<i>neg</i>) <i>wasas</i>	‘sea’
PT:	Dobu	(<i>a</i>) <i>wasasa</i>	‘passage in reef’
PT:	Muyuw	(<i>a</i>) <i>wasas</i>	‘space, gap, bay, gulf, inlet’
NCV:	Mota	<i>wasas(ŋiu)</i>	‘narrow space or interval between’
Fij:	Rotuman	<i>vasa</i>	‘far out at sea; stand between.’
Fij:	Bauan	<i>wasas-wasas</i>	‘sea, ocean’

PPn **wasas* ‘open sea; space, distance, especially at sea’ (not in Biggs and Clark 1993, which has PPn **wā* ‘interval of space or time’)

Pn:	Tongan	<i>vaha</i>	‘space between; space, distance, especially at sea’
		<i>vasa-loa</i>	‘wide expanse, esp. of sea’
		<i>vaha-mohe</i>	(of two islands) ‘so far apart that at least one night must be spent at sea in travelling from one to the other’ (<i>mohe vaha</i> ‘to sleep at sea’)
Pn:	Rennellese	<i>basa</i>	‘far, deep ocean’
Pn:	Samoaan	<i>vasa</i>	‘open sea’

Pn:	Tikopia	<i>vasa</i>	‘open space; empty space, esp. of cosmic kind; in marine context, ocean wastes’
Pn:	E Futunan	<i>vasa</i>	‘separation, interval’
Pn:	Tokelauan	<i>vasa</i>	‘open sea’
Pn:	Mangareva	<i>vaʔa</i>	‘space, interval’

Where a Polynesian language includes reflexes of both **moana* (p.94) and **wasa*, (as for example Tongan, Samoan and Tikopia do), the former generally refers to deep sea, the latter to open unlimited sea.

4 Conclusion

There can be no doubt that the physical world outlined by reconstructions in this chapter is consistent with the nature of Lapita settlements as reconstructed by archaeologists and described in Chapter 2. The reconstruction of terms for the marine physical environment in this chapter is substantially better supported than the reconstruction of terms for the terrestrial environment in Chapter 3. It includes a plethora of terms for the sea, for reefs, and for features associated with them, with such detail as submerged reefs and passageways through the reef for canoes, features relevant to human marine activities rather than simply features that dominate the landscape. As we noted in the conclusion of Chapter 3, the main reason that terms for certain landscape features are not reconstructable is probably that early Oceanic speakers were on the move from one landscape to another. By the same token, the fact that a reasonably detailed seascape terminology is reconstructable implies (i) that the seascape and coastal environment remained fairly constant even when the landscape changed; and (ii) that the sea and the coastline were of crucial importance to the economies of Proto Oceanic speakers and their descendants. The constancy of speakers’ coastal environments does not mean that they are identical on all Pacific islands—for they are not. Rather, it implies that Oceanic speakers have had a strong tendency to seek out coastal environments of a certain kind, namely those with accessible reefs.