Folk taxonomy of reef fish and the value of participatory monitoring in Wakatobi National Park, southeast Sulawesi, Indonesia

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Introduction

This study presents an etymological examination of folk taxa of nearshore fish caught around Kaledupa Island, in Wakatobi National Park (WNP), Indonesia. Translations of Bajo and Palo fish taxa presented here provide a basis for fisheries studies in WNP, and have already assisted participatory monitoring (PM) by trained fishers. The suitability of folk taxa for monitoring and analysis, and the ability of PM to stimulate appropriate fisheries management are discussed in the context of Indonesia.

The value of folk taxa knowledge and participatory monitoring

As a prerequisite to fisheries surveys, ethnographic data need to be collected — a process that can unearth a wealth of local knowledge on the biology and ecology of species, and technical fishing details (Johannes 1978, 1981; Ruddle 1994; McClanahan et al. 1997; Poizat and Baran 1997; Foale 1998; Neis et al. 1999; Johannes et al. 2000; Obura 2001; Sabetian 2002). Before studies of local knowledge can proceed, a working knowledge of folk taxa must be obtained (Foale 1998). This is particularly challenging in Indonesia where there are an estimated 583 languages spoken, often with highly divergent dialects. Though Bahasa Indonesian is the national language, in most rural locations a local language is used in everyday life and specifically to discuss fishing practices or fish taxa.

As well as aiding in the collection of local knowledge, identification of folk taxa can facilitate PM of fisheries by resource users. The primary benefit of PM is its ability to address complexity vs cost issues inherent to most fisheries surveys (Wilson et al. 1994) and specifically tropical nearshore fisheries (Poizat and Baran 1997; Johannes 1998). Participatory monitoring can take the form of log books or creel surveys, which offer a low cost alternative to fisheries-independent methods such as underwater visual censes. Log books require a high level of literacy, which is not present among Indonesian artisanal fishers. However, creel surveys utilising key members of the community who can interact with all fishers, can generate data on effort, technique, total catch and length frequency of folk taxa.

Participatory monitoring, in association with other management actions, can engender a strong commitment to conservation and co-management. It also places coral reef management within the cultural framework of fisher communities, addressing community requirements by creating a demand for resource use education, local investment and community-level decision making. Furthermore, PM can generate awareness and encourage independent proactive evaluation of trends by user groups (Davos 1998; Obura 2001).

Wakatobi National Park

The Wakatobi National Park (WNP) marine protected area (13,900 km^2) was formed in 1996, and includes the atolls and islands of the Tukang Besi Archipelago (Fig. 1). The support for the formation of WNP was based on the park's position in the centre of the Wallacea Region — a biodiversity "hot spot"[2,3,4], and the relatively low level of subsistence and commercial fishing on the 50,000 ha

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2. http://www.gefweb.org/COUNCIL/council9/workprog/indonesi.pdf (Indonesia: Coral Reef Rehabilitation and Management Project – COREMAP)
3. http://international.nos.noaa.gov/heritage/pdfs/seasia.pdf (Chou L.M. World heritage biodiversity: Filling critical gaps and promoting multi-site approaches to new nominations of tropical coastal, marine and small island ecosystems. Potential tropical coastal, marine and small island world heritage sites in Southeast Asia)
4. http://www.biodiversityhotspots.org/xp/Hotspots/wallacea/?showpage=Biodiversity

of coral reef within the park. Since its well-intended start, WNP languished as a paper park, suffering from a lack of funding, continued destructive fishing practices, and complacent park rangers and management (Elliott et al. 2001; Clifton 2003). Furthermore, there has been limited success in addressing the dipolar needs of expanding local resource use and centralised WNP management objectives. In 2003 a new Head of WNP was appointed and WNP was selected for the Indonesian government's Coral Reef Rehabilitation and Management Program (COREMAP), which aims to develop co-management of reef fisheries in Indonesia. Since 2001, Operation Wallacea has examined various aspects of fisheries around Kaledupa, as part of volunteer programmes, and as ongoing monitoring studies. This work is being put forward as part of a fisheries co-management programme evolving from the WNP, COREMAP and TNC/WWF.

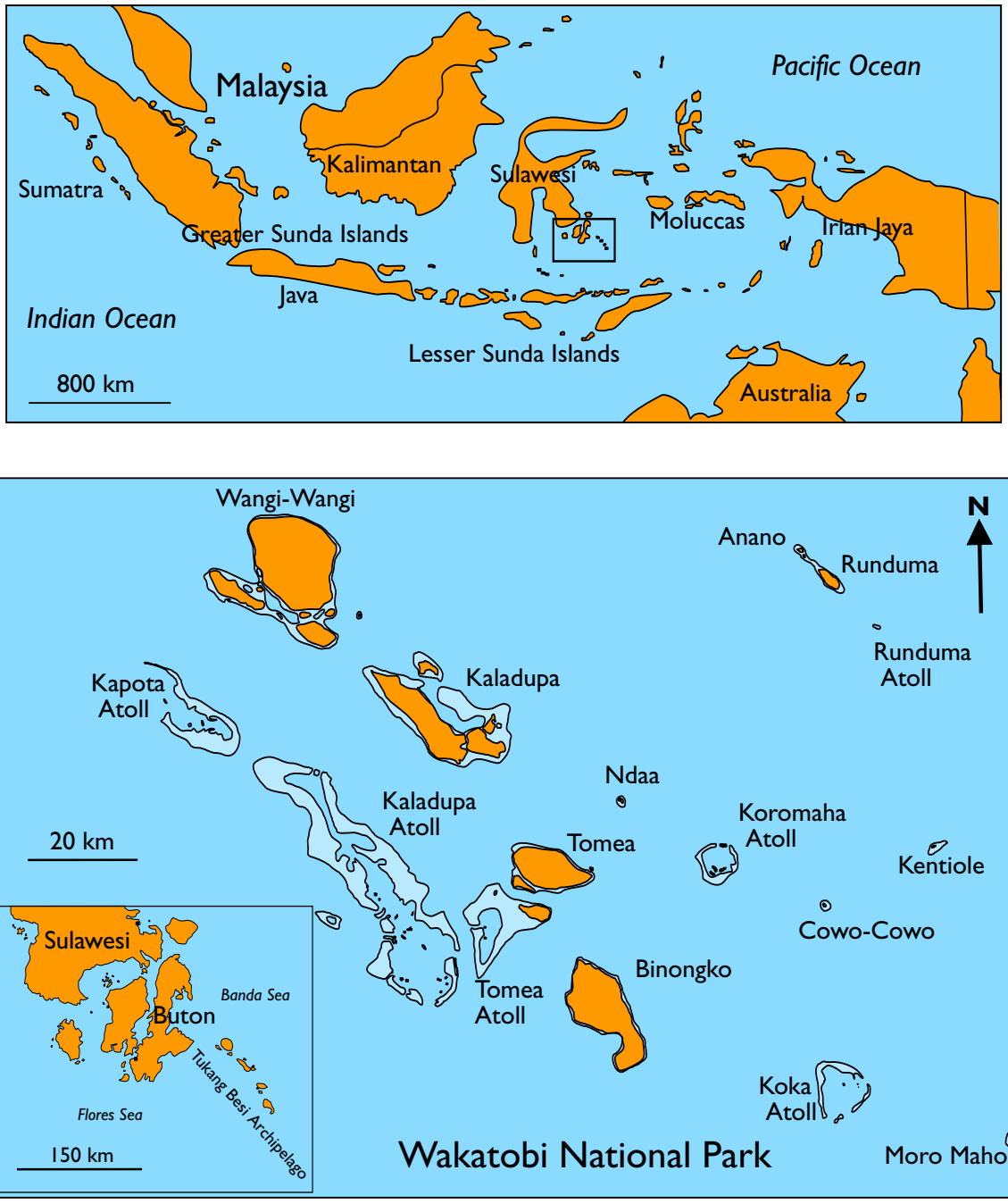

Figure 1. **Wakatobi National Park, Tukang Besi archipelago, southeast Sulawesi, Indonesia.**

Social background

Within WNP there are two socially-segregated ethnic groups: the Orang Bajo (Bajo People), who speak Bahasa Sama, and the Orang Palo (Island People), who speak Bahasa Pulo. Originally, the Bajo were sea nomads living on boats throughout the Malay Archipelago, whose livelihoods and culture were based on subsistence fishing (Djohani 1996; Sather 1997). The Palo are decedents of nearby ethnic Butonese and were predominantly land dwellers, practicing both fishing and farming. In addition the Palo have a strong maritime history as sea traders and pirates, possessing many large wooden sail boats called sopes (Schoorl 1986), which traditionally formed the bulk of the Sultan of Buton's fleet. However, these seemingly unassociated ethnic groups appear to have cohabited the area, as flood stories in both folk histories tell of a split in one people, the Bajo travelling far out to the sea and the Palo climbing the highest peaks.

Increasing enforcement of national borders from the early 1900s and strong political pressure during the 1950s forced nearby Bajo to settle in permanent communities on coral platforms on the reef flats, and the Palo to sell most of their boats and adopt a new centralised government. These changes have caused the loss of important Bajo and Palo maritime history, which had been a way of life for centuries. Now the Bajo are embracing commercialisation and material aspirations, which has caused a shift from subsistence to small-scale commercial fishing and has led to many men seeking work outside fisheries, particularly in Malaysia. The Palo continue to farm as they always have but have now become less active fishers, dominating the developing infrastructure and government.

Of the 87,953 inhabitants of WNP in 2000, 6.1% were ethnic Bajo and 93.9% were ethnic Palo (BPS Statistics of Kec. Wangi-Wangi, Kaledupa, Tomia and Binongko 2000). However, the equal importance of both Palo and Sama languages for fisheries monitoring is indicated by comparable numbers of Bajo (58.6%) and Palo (41.4%) nearshore fishers around Kaledupa in 2003 (May, in prep.). This skewed demography is due to the total reliance of the Wakatobi Bajo on marine resources for subsistence and commerce, and the dominance of farming and administration by the Palo.

Methods

Bajo and Palo fish folk taxa were collected during creel and onboard surveys of all fishing techniques used on the reef flat, crest and wall in the waters around Kaledupa Island between 2001 and 2004. Fish names were re-corrected for misidentification and pronunciation initially, and where confusion arose, fishers were interviewed for clarification. All interviews were conducted in fishers' respective languages with experienced interpreters. During all interviews, folk taxa were checked using the illustrations in Allen (2000) and Lieske and Myers (1996), and photographs in Allen et al. (2003). If there was no general consensus for a species-specific folk taxon, only well known folk taxa for the generic groups were recorded. Most common English names were taken from Allen (2000), as it was found to be very comprehensive for WNP, good for identification of most species, and easy to use for referencing. Etymological translations were obtained from local Bajo and Palo translators who worked closely on fisheries surveys between 2001 and 2004.

Results

During creel and onboard surveys, 313 species of bony fish (*dayah*$_b$*: kenta*$_p$)[5] were recorded, for which 229 individual Bajo and 199 individual Palo folk taxa were identified (Appendix I). There were around 40 commonly caught species that most fishers could readily identify, beyond which identification became ambiguous. Consequently, the folk taxa displayed in Appendix I represent the collective knowledge of fishers, not the general ability of fishers to identify folk taxa, which improved with age and fishing experience. It was also evident that few Bajo and Palo fishers knew folk names in the other's respective language, which is reflected in the lack of similarity between folk taxa. Similar names only extend to: *pogo*$_{bp}$, the generic name for triggerfish; *ruma-ruma*$_{bp}$, the generic name for scad; and *bebete*$_b$/*bete-bete*$_p$, *Leiognathus smithursti*. Within folk taxa there are no variations in names assigned to fish around Kaledupa, with the exception of *Cheilenus chlorurus* in Palo, which is *tai pere*$_p$ on the east coast and *tai repe*$_p$ on the west coast.

Both Bajo and Palo folk taxa use either a species-identifying primary lexeme, which may have a secondary lexeme of descriptive qualifiers, or a primary lexeme relating to a generic group. A generic group lexeme is often followed by secondary lexemes of descriptive qualifiers, which may make the whole folk taxon species-specific. Generic group lexemes were defined as those identified by fishers to have an appreciated generic value, though not necessarily with a known translation. There are 53 and 54 generic group lexemes that represent 43%

5. Words with the subscript $_b$ and $_p$ indicate Bajo and Palo languages, respectively.

and 40% of the caught species in Bajo and Palo, respectively. A further 8% and 3%, respectively, of caught species appeared to have generic values that were not identified by fishers. The use of species-identifying primary lexemes generally corresponds to species with clearly identifying features and does not appear to be related to locally desirable species. However, identification of infrequently caught non-target species (i.e. damsel fish), was not possible below generic groups, mostly because fishers' appeared to have little interest in such species.

Even with a substantial number of species-identifying primary lexemes (41% of Bajo and 47% of Palo taxa) and many generic groups with species-indicating secondary lexemes, both Bajo and Palo taxa fail to distinguish 48% and 55% respectively, of caught species to a species level. Though this percentage seems high, the generic groupings found normally correspond to family, sub-family and genus, sometimes with descriptive qualifiers which identify species to sub-genus generic groups.

The similarity between Linnean and folk taxonomic systems can be seen by the synchrony of generic groupings within Linnean family and genus groupings, with the exception of only 2 Palo and 1 Bajo groupings: jarah gigi$_b$ and bicara$_p$ (*Synodus variegatus* and *Saurida gracilis*); and randa moruta$_p$ (*Gnathodentex aurolineatus* and *Scolopsis auratus*). However, a Linnean system does not apply to Scaridae, where both Bajo and Palo identify Scaridae into colour types, apparently unaware of sexual dimorphism. Interviews revealed that these groupings, as well as other folk taxa which fail to identify species to a species level, are at the level to which identification was important for both Bajo and Palo fishers, and are viewed by fishers as essentially "folk species". These folk species can consist of a generic group lexeme, with or without a descriptive qualifier. For example: snappers with similar appearance, *Lutjanus quinquelineatus, L. kasmira, L. lutjanus* and *L. rufolineatus*, are sasageh$_b$ "folk species" to Bajo fishers; or black parrotfish, *Scarus niger, S. viridifucatus,* and *Chlorurus bleekeri* are *lehe biru$_p$* "folk species" to Palo fishers. The only exception of identifications below species level are due to colour morphs of *Plectropomus laevis* and a Palo name for small grouper (*tulareke$_p$*).

Table 1 presents etymologies of Bajo and Palo taxa together with etymologies of West Nggela (Solomon Islands) folk taxa, as the percentage of species described by that category. Over half the species caught have untranslatable primary lexemes in Bajo and Palo, with many primary lexemes for generic groups having lost their meaning to almost all fishers. For example, the meanings of *pogo$_{bp}$* (triggerfish) and *mogoh$_b$* (parrotfish) are hardly known, and the associated story indicating the meaning of *mbula$_p$* (soliderfish) is no longer fully understood. A few generic groups have retained their meanings, probably because of their direct association to the fish group. For example *kuu$_p$*, which translates as "smelly" and *sala$_p$*, which translates as "don't accidentally eat". Generally, the loss of the meaning of primary lexemes does not appear to be related to the importance of species to fishers. For example, Bajo and Palo folk taxa with untranslatable primary lexemes can be both important commercial or food species (*Herklotsich quadrimaculatus*, *Gerres oyena* and *Lethrinus olivaceus*) and species with little commercial or food value (*Ostracion cubicus* and *Scolopsis monogramma*).

Table 1. **Percentage of 313 bony fish species caught around Kaledupa described by Bajo and Palo taxa categories, compared with West Nggela, Solomon Islands folk taxa for 350 cartilaginous and bony fish (Foale 1998). Percentages do not total to 100% as some categories overlap.**

	Bajo	Palo	West Nggela
Untranslatable 1° lexeme	63%	56%	31%
Appearance only	33%	36%	39%
Habitat only	17%	8%	9%
Behaviour only	6%	6%	3%
Appearance & other	5%	1%	4%
Habitat & other	4%	1%	4%
Behaviour & other	3%	1%	4%
Taste or smell	3%	2%	1%
Fishing	1%	2%	5%
Other	1%	6%	4%
Untranslatable 2° lexeme	3%	2%	n/a
No name	1%	4%	n/a

Descriptive qualifiers, for both species identifying primary lexemes and secondary lexemes of generic groups, can be categorised into "appearance", "habitat", "behaviour", "taste and smell", "fishing", "other", and combinations thereof (Table 1). The category "other" tends to contain complicated explanations that identify the fish, but are not related to direct observations, for example: *mbula$_p$* (first), *tumolla$_p$* (bang), *meah$_b$* (pay) and *ruma-ruma$_p$* (small house). The use of "appearance" dominates descriptive qualifiers in both Bajo and Palo taxa to a similar degree as in West Nggela folk taxa.

Variations in the use of the remaining translatable etymological categories between Bajo and Palo taxa appear small, though when compared to those for West Nggela folk taxa, the relative importance of descriptive qualifiers can be gauged. Etymology of Bajo taxa are very strongly influenced by "habitat", strongly by "behaviour" and weakly by "fishing" and "other". Palo taxa are strongly influenced by "behaviour" and "other", and weakly by combined categories. While West Nggela taxa are strongly influenced by "other", "fishing" and combined categories.

Discussion

Linguistics

As well as aiding fisheries surveys within WNP, Bajo translations may be useful to fisheries scientists and anthropologists across Indonesia, as the Bahasa Sama spoken in WNP is spoken across most of Indonesia (Noorduyn 1991). The wider value of Wakatobi Bajo translations is supported by a strong similarity in Wakatobi Bajo fish names to a small list of Bajo fish translations from Indonesian Lesser Sunda Islands, at least 300 km to the south (Fig. 1a) (Verheijen 1986). Conversely, Palo translations are likely to have a limited value outside the national park, as Bahasa Pulo is a strongly divergent dialect of Bahasa Cia-Cia, one of five core languages on Buton Island. Furthermore, Palo fishers believed there are small island-specific differences in the pronunciation and names of some fish relating to island-specific dialects within the Wakatobi. Considerable differences between geographically close islands are not unusual, as Jennings and Polunin (1995) found between the Fiji islands. However, the differences within the Wakatobi are not thought to be extreme.

Etymological examination of Bajo and Palo folk taxa revealed a lack of meaning of the majority of words, with around twice the number of untranslatable primary lexemes in Bajo and Palo compared with that of West Nggela, Solomon Islands (Foale, 1998). Such a difference in the number of untranslatable primary lexemes suggests a loss of traditional understanding in Bajo and Palo, which may have arisen from cultural erosion due to recent shifts in both the Bajo and Palo lifestyles discussed previously. These changes in socioeconomic factors appear to confirm the feared loss of fishers' knowledge identified by Sabetian (2002), as there has undoubtedly been a loss of marine tradition over the last two generations.

Translatable lexemes show a dominant use of "appearance" as a descriptive qualifier in Bajo and Palo folk taxa, which together with size, habitat and spawning times used to discriminate folk species, tends to identify similar Linnean species. This is not unusual with folk taxa round the world (Poizat and Baran 1997; Foale 1998; Obura 2001), as both Linnean and folk taxa are primarily based on appearance. Of the remaining descriptive qualifiers, Bajo taxa uses "fishing" and "other" — which is usually related to folk law, with a surprisingly low frequency for a culture that depends on fishing. Conversely, Palo fishers tend to use less obvious visual identifiers, such as "behaviour" and "other", as well as less combined categories and more species-specific primary lexemes. The more frequent use of "habitat" by Bajo could indicate the Bajo's closer relationship to marine environment, though as recent folk history describes the Palo as highly skilled fishers. However, the Palo's more frequent use of "other" and more species-specific primary lexemes could be accounted for by a build up of folk laws among a non-transient island dwelling people, and the Bajo frequent use of "habitat" could reflect the practicality of "habitat" to converse within a previously transient and dispersed people.

Folk taxa and analytical resolution

One concern about using folk taxa for monitoring is the potential loss of analytical resolution caused by grouping species with a similar physical attributes within one folk taxon. However, Bajo and Palo folk taxa identify approximately half of the species individually, the remainder of which are identified at least to family level, and most to genus or sub-genus levels. These "folk species" normally consist of 2–10 species of similar body shapes, growth rates and feeding guilds/trophic levels, and are congruent with the Linnean system. Due to this, folk taxa are highly suited to complex fisheries analyses using multi-species and ecosystem models based on feeding guilds or trophic levels. Though Bajo or Palo folk taxonomy per se is unlikely to cause the loss of statistical resolution to fisheries analysis, the degree of rigor in community data collection and misidentification can reduce its value. However, trials of PM around Kaledupa suggest that rigorous data collection can easily be achieved using either Bajo or Palo folk taxa by effective training.

Importance of participatory monitoring in Indonesia and experience in WNP

Indonesia has one of the longest coastlines in the world, with over 17,000 islands and 51,020 km^2 of coral reef (17% of the world's total) (Spalding et al. 2001). This vast area is coming under increasing threat from the expanding (1.49% year^{-1})

Indonesian population of over quarter of a billion in 2004[6], who derive 60% of their protein from fisheries, 90% of which are artisanal (Spalding et al. 2001). The massive funding required for the development of sustainable reef fisheries in Indonesia, via expert based surveys and analysis, is an unrealistic prospect. The economic reality dictates low-cost, community-run fisheries monitoring, assessment and management.

The cost-effectiveness of PM using folk taxa has already been demonstrated in Kenya (Oburu, 2001) and the Takabonerate National Park, South Sulawesi (Malik and Kusen, 1997), where large areas were surveyed with minimal investment. Around Kaledupa the cost PM survey was substantially smaller than for underwater visual censuses (UVCs), with a substantial portion of PM cost being taken up by payments required to sample Bajo fishers who at present do not see aiding monitoring as a civic duty.

Within Indonesia, PM using folk taxa was found to permit meaningful community involvement in Takabonerate National Park (Malik and Kusen 1997) and it was felt that PM would have aided more effective management in three co-managed marine management programs in Maluku, North Sulawesi and South Sulawesi (Malik and Kusen, 1997). PM around Kaledupa proved to be socially rewarding in many subtle ways, and stimulated the assimilation of further fishers' knowledge. As expected, PM generated more questions from fishers than could be explained briefly during creel or on-water surveys, and forced an expanded explanation to an increasingly curious fishing community. The surveys around Kaledupa caused a degree of self analysis by some fishers on the existence of over fishing and its causes, culminating in quantitative interview surveys of anecdotal evidence. Awareness and self-evaluation of trends can incite a gradual step away from expert-based, paternalistic co-management and "rational analyses", as advocated persuasively by Davos (1998). Self supported community management, however "underdeveloped", should be the goal of sustainable development in Indonesia, as realistic long-term monitoring and management must be independent of external aid — which can breed corruption and community fragmentation. With analysis geared towards locally appropriate management issues and developing in complexity over time, such adaptive ad hoc management is perhaps more appropriate to near shore tropical fisheries and reflects the essence of reduced data management suggested by Johannes (1998). Moreover, under recently formed political and legal framework in the wake of Indonesian government decentralisation (Crawford et al. 1998; Patlis et al. 2001), grass roots self-management is a real possibility.

Economics, achievable and locally appropriate analysis, and practical application of data, determines what type and how much data is required for individual situations. In the context of WNP, and perhaps Indonesia, PM using folk taxa is appropriate to the goals of nearshore fisheries monitoring and should aid skills transfer from scientists to the communities living in WNP, Indonesia's second largest marine national park.

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References

Allen G., Steene S., Humann P. and Deloach N. 2003. Reef fish identification: Tropical Pacific. USA: Odyssey Publishings.

Allen G. 2000. Marine fishes of South-East Asia. Singapore: Periplus Editions (HK).

Clifton J. 2003. Prospects for co-management in Indonesia's marine protected areas. Marine Policy 27:389–395.

Crawford B., Dutton I., Rotinsulu C. and Hale L. 1998. Community based coastal resource management in Indonesia: Examples and initial lessons from North Sulawesi. Paper presented at: International tropical marine ecosystems management symposium. Townsville, Australia November 23–26, 1998.

Davos C.A. 1998. Sustaining co-operation for coastal sustainability. Journal of Environmental Management 52: 379–387.

Djohani R.H. 1996. The Bajo, Future marine park managers in Indonesia? In: Parnwell M.J.G.

6. http://www.cia.gov/cia/publications/factbook/index.html (The World Factbook (2004) Washington, D.C.: Central Intelligence Agency, 2004; Bartleby.com, 2004).

and Bryant R.L. (eds). Environmental change in S.E Asia, people politics and sustainable development. Routledge, London.

Elliott G., Mitchell B., Wiltshire B., Manan A. and Wismer S. 2001. Community participation in marine protected area management: Wakatobi National Park, Sulawesi, Indonesia. Coastal Management 29:295–316.

Foale S. (1998). What's in a name? An analysis of the West Nggela (Solomon Islands) fish taxonomy. Traditional Marine Resource Management and Knowledge Information Bulletin 9:3–20.

Jennings S. and Polunin N. 1995. Comparative size and composition of yield from six Fijian reef fisheries. Journal of Fish Biology 46:28–46.

Johannes R. 1978. Reproductive strategies of coastal marine fishes in the tropics. Environmental Biology of Fishes 3:65–84.

Johannes, R. 1981. Words of the lagoon: Fishing and marine lore in the Palau district of Micronesia. Berekeley: University of California Press.

Johannes R. 1998. The case for data-less marine resource management: Examples from tropical nearshore fin-fisheries. Trends in Ecology and Evolution 13:243–246.

Johannes R., Freeman M. and Hamilton R. 2000. Ignore fishers' knowledge and miss the boat. Fish and Fisheries 1:257–271.

Lieske E. and Myers R. 1996. Coral Reef Fishes: Indo-Pacific & Caribbean (Collins Hand guides). New Jersey, USA: Princeton University Press.

Malik R. and Kusen J. 1997. Community involvement in coastal management and monitoring programs in Indonesia. Paper presented in: International symposium on integrated coastal and marine resource management, 25–27 November 1997.

May D. (in prep). Patterns in chaos: Monitoring tropical near-shore fisheries in the Wakatobi National Marine Park.

McClanahan T., Glaesel H. Rubens J. and Kiambo R. 1997. The effects of traditional fisheries management on fisheries yields and the coral-reef ecosystems of southern Kenya. Environmental Conservation 24:105–120.

Neis B., Schneider D.C., Felt L., Haedrich R.L., Fischer J. and Hutchings J.A. 1999. Fisheries assessment: what can be learned from interviewing resource user? Canadian Journal of Fisheries and Aquatic Science 56:1949–1963.

Noorduyn J. 1991. A critical survey of studies of the languages of Sulawesi. Leiden: 6, KITLV Press.

Obura D.O. 2001. Participatory monitoring of shallow tropical marine fisheries by artisanal fishers in Diani, Kenya. Bulletin of Marine Sciences 69:777–791.

Patlis J., Dahuri R., Knight M. and Tulungen J. 2001. Integrated coastal management in decentralised Indonesia. How can it work? Indonesian Journal of Coastal and Marine Resources 4:25–39.

Poizat G. and Baran E. 1997. Fishermen's knowledge as background information in tropical fish ecology: a quantitative comparison with fish sampling results. Environmental Biology of Fishes 50: 435–449.

Ruddle K. 1994. Local knowledge in the future management of inshore tropical marine resources and environments. Nature and Resources 30:28–37.

Sabetian A. 2002. The importance of ethnographic knowledge to fisheries research design and management in the South Pacific: A case study from Kolombangara. Traditional Marine Resources Management and Knowledge Information Bulletin 14:22–34.

Sather C. 1997. The Bajau Laut. Adaption, history, and fate in a maritime fishery society of South-East Sabah. Oxford, UK: Oxford University Press.

Schoorl J.W. 1986. Power, ideology, and change in the early state of Buton. Fifth Dutch-Indonesian historical congress, Lage Vuursche, Netherlands, 23–27 June 1986. Free University, Amsterdam, Netherlands.

Spalding M.D., Ravilious C. and Green E.P. 2001. World Atlas of Coral Reefs. Prepared at the UNEP World Conservation Monitoring Centre. Berkeley, USA: University of California Press.

Verheijen J. 1986. The Sama/Bajau language in the Lesser Sunda Islands. p. 32:1–209. In: Stokhof W. (ed). Materials in languages of Indonesia. Pacific linguistics series D:70. Canberra, Australia.

Wilson J.A., Acheson J.M., Metcalf M. and Kleban P. 1994. Chaos, complexity and community management of fisheries. Marine Policy 18:291–305.

Appendix I

Bajo and Palo fish taxonomy

Dayah$_b$ and Kenta$_p$:

Notes on pronunciation: Both Bajo and Palo are non-written languages and are recorded phonetically. In Palo a repeated word implies small size.

Species index format:

Species (English name: phase of maturity or colour morph): Bajo name [primary lexeme translation/secondary lexeme translation/etc.] (notes on etymology); Palo name [primary lexeme translation/secondary lexeme translation/etc.] (notes on etymology). Local knowledge.
Note: TP = Terminal Phase; IP = Initial Phase; - = etymology locally unknown.

Acanthuridae – Surgeonfish

Family or genus groupings/primary lexemes:

Small surgeonfish species: dodoh$_b$ [-]. Large surgeonfish species: malelah$_b$ [-]. Generic surgeonfish: kuu$_p$ [smelly] (refers to the strong smell of fish on hands and mouth when eaten). *Naso* genus: kumai$_b$ [-] and tui-tui$_p$ [-].

Acanthurus leucocheilus (pale-lipped surgeonfish): malelah$_b$ [-/-]; kuu$_p$ [smelly].
A. lineatus (blue-lined surgeonfish): dodoh igah$_b$ [-/side]; kuu ragi-ragi$_p$ [smelly/-].
A. mata (yellowmask surgeonfish): malelah silah$_b$ [-/deep-open sea]; lutu-lutu$_b$ [-/-].
A. nigricans (white-cheeked surgeonfish): dodoh tambako$_b$ [-/tobacco] (tastes faintly like tobacco); kuu wuta$_p$ [smelly/ground].
A. nigricauda (blackstreak surgeonfish): dodoh$_b$ [-]; kuu wadu$_p$ [smelly/bajo] (palo people believe this fish is highly favoured by the bajo to eat).
A. olivaceous (orange-spot surgeonfish): dodoh$_b$ [-]; kuu tanda meha$_p$ [smelly/marking/red].
A. triostegus (convict surgeonfish): kikida$_b$ [-]; not known in Palo.
A. xanthopterus (yellowfin surgeonfish): malelah$_b$ [-]; kuu wadu$_p$ [smelly/Bajo].
Ctenochaetus binotatus (twospot bristletooth): dodoh$_b$ [-]; kuu$_p$ [smelly].
C. striatus (lined bristletooth): dodoh loong$_b$ [-/black]; not known in Palo.
Naso brachycentron (humpback unicornfish): kumai bukku$_b$ [-/hunched]; tui-tui bungku$_p$. [-/flick or poke].
N. brevirostris (longnosed unicornfish): kumai$_b$ [-]; tui-tui mohute$_p$ [flick or poke/white].
N. lituratus (stripe-face unicornfish): kutiteh$_b$ [-]; tui-tui kangka$_p$ [flick or poke/-].
N. hexacantus (sleek unicornfish), *N. lopezi* (elongate unicornfish) & *N. thynnoides* (single-spined unicornfish): kumai belowis$_b$ [-/generic rabbitfish]; tui-tui iba$_p$ [flick or poke/-].
N. tuberosus (humphead unicornfish) & *N. vlamingii* (Vlaming's unicornfish): kumai$_b$ [-]; dakke$_p$ [-].
N. unicornus (brown unicornfish): kumai tumbo$_b$ [-/collide or poke]; tui-tui sahi$_p$ [flick or poke/bent].
Zebrasoma scopes (blue-lined tang): dodoh$_b$ [-]; kuu mohato$_p$ [smelly/itchy].

Apogonidae – Cardinalfish

Family or genus groupings/primary lexemes:

Generic Cardinalfish: Gogombel$_b$ [-] and Karangka$_p$ [-].

Apogon trimaculatus (threespot cardinalfish): gogombel$_b$ [ugly]; karangka aka$_p$ [-/mangrove].
Cheilodipterus macrodon (eight-lined cardinalfish) gogombel$_b$ [ugly]; karangka watu$_p$ [-/coral].

Atherinidae – Hardyhead

Family or genus groupings/primary lexemes:

Generic hardyhead: babalombah$_b$ [-] and opuru$_p$ [-]. Palo believe they spawn in the seagrass around October.

Atherinomorus endrachtensis (endracht hardyhead): babalombah silah$_b$ [-/deep-open sea]; opuru$_p$ [-].
Hypoatherina temminckii (Samoan hardyhead): babalombah$_b$ [-]; opuru ole$_p$ [-/*Spratelloides robustus*].

Balistidae – Triggerfish

Family or genus groupings/primary lexemes:

Generic triggerfish: $Pogo_{bp}$ [small mouth] (caused by disease in humans). Large triggerfish species: $ampala_b$ [-] and $komparu_p$ [-].

Balistapus undulatus (red-lined triggerfish): pogo $loong_b$ [small mouth/black]; pogo $meha_p$ [small mouth/red].
Balistoides conspicillum (clown triggerfish): pogo $panau_b$ [small mouth/white blotches] (white blotches are caused by a disease locally called panau): pogo $buri_p$ [small mouth/write].
B. viridescens (blue-finned triggerfish): ampala $biasa_b$ [-/normal] or ampala $batu_b$ [-/coral]; komparu $watu_p$ [-/coral].
Melichthys niger (ebony triggerfish): pogo $rambai_b$ [small mouth/thread-like filament]; pogo olo $biru_p$ [small mouth/deep sea/black].
M. vidua (pinktail triggerfish): pogo $kambose_b$ [small mouth/corn] (shape like corn cob); pogo $biru_p$ [small mouth/black].
Odonus niger (red toothed triggerfish): pogo $nyuloh_b$ [small mouth/green]; pogo olo ijo_p [small mouth/deep sea/green].
Pseudobalistes flavimarginatus (yellowmargin triggerfish): ampala $mira_b$ [-/red], ampala $silah_b$ [-/deep sea] or ampala $kuba_b$ [-/cave]; $komparu_p$ [-].
P. fuscus (yellow-spotted triggerfish): $pogo_b$ [small mouth]; komparu $ndokke_p$ [-/monkey].
Rhinecanthus aculeatus (white-barred triggerfish): pogo $pote_b$ [small mouth/white]; pogo mohute mata $kinda_p$ [small mouth/white/bright eyes].
R. rectangulus (wedge-tailed triggerfish): pogo $mankuri_b$ [small mouth/yellow]; $pogo_p$ [small mouth].
R. verrucosus (blackpatch triggerfish): $pogo_b$ [small mouth]; pogo tanda $biru_p$ [small mouth/marking/black].
Sufflamen chrysopterus (black triggerfish): $pogo_b$ [small mouth]; pogo $biru_p$ [small mouth/black].
S. fraenatus (brown triggerfish) pogo $kombose_{bp}$ [small mouth/corn] (shape like corn cob).

Belonidae – Longtom

Family or genus groupings/primary lexemes:

Generic longtom: $timbaloah_b$ [–] and $sori_p$ [spy].

Platybelone platyura (flat-tailed longtom): timbaloah $silah_b$ [-/deep-open sea]; sori $urapi_p$ [spy/hyporhamphus quoyi].
Strongylura leiura (slender longtom): timbaloah $tampae_b$ [-/tempae] (same colour as tempae); sori $gonggo_p$ [spy/bark] (make noise like a dogs bark when taken out of water).
Tylosurus crocodilius (Crocodilian longtom): $timbaloah_b$ [-]; sori $gonggo_p$ [spy/bark] (makes noise like a dog when taken out of water).
T. gavialoides (stout longtom): timbaloah $silah_b$ [-/deep-open sea]; sori olo_p [spy /deep sea].

Bothidae – Flounder

Bothus pantherinus (panther flounder): $kalempede_b$ [thin]; $kalepa_p$ [vagina].
Pseudorhombus jenynsii (small-toothed flounder): $kalempede_b$ [thin]; $kalepa_p$ [vagina].

Caesionidae – Fusilier

Caesio caerulaurea (blue and gold fusilier): $kakambule_b$ [-]; $andou_p$ [-].
C. cuning (red-bellied fusilier): kakambule ecor $cunning_b$ [-/tail/yellow]; Iku $makuri_p$ [tail/yellow].
C. lunaris (lunar fusilier) & *Caesio terus* (yellow and blueback fusilier): kambule $lempes_b$ [-/thin]; opa_p [ubi] (has shape like ubi vegetable).
Pterocaesio tile (dark-banded fusilier): $kambule_b$ [-]; andou $meha_p$ [-/red].

Carangidae – Trevally

Family or genus groupings/primary lexemes:

Generic trevally: $nyubba_b$ [swoop to attack] and $simba_p$ [-]. small trevally: simba-simba [-]. Though simba is the primary lexeme for most trevallies in Palo $Bubara_p$ [-] is used to describe trevallies in general. scad species: $ruma\text{-}ruma_p$ [small house] (during Islamic baptism parties on Kaledupa, a small house is filled with food, particularly $ruma\text{-}ruma_p$ species). The Palo believe $ruma\text{-}ruma_p$ come to the Wakatobi during the easterly wind season.

Alectis ciliaris (pennant fish): nyubba$_b$ [swoop to attack]; simba lili bonua$_p$ [-/visit/continent].
Atule mute (yellowtail scad): nyubba bubuloh$_b$ [swoop to attack/jellyfish]; simba-simba bungku$_p$ [-/bent]. The Bajo believe that the yellowtail scad follow jellyfish swarms, hiding among then to swoop out to catch pray.
Carangoides caeruleopinnatus (onion trevally): tuduh tobah$_b$ [top/water container]; simba-simba lili bonua$_p$ [-/visit/continent].
C. ferdau (blue trevally): nyubba biasa$_b$ [swoop to attack/normal]; simba one nduru$_p$ [-/sand/noisy sound]. The Palo believe the blue trevally digs holes in the sand.
C. othogrammus (yellow-spotted trevally): pipilli$_b$ [-]; simba bnngha$_p$ [-/-].
Caranx ignoblis (giant trevally): meah pote$_b$ [pay/white]; simba moo$_p$ [-/very big].
C. lugubris (black trevally): meah mondo$_b$ [pay/monkey] (black head of monkey); simba biru$_b$ [-/black].
C. melampygus (bluefin trevally): langoang$_b$ [blue bottle flies-many] (blue spots look like it is covered in blue bottle flies); simba$_p$ [-].
C. papuensis (brassy trevally): nyubba langko kape$_b$ [swoop to attack/long/armpit]; simba$_p$ [-].
C. sexfasciatus (bigeye trevally): anggatang$_b$ [apprehensive] (eats bait and slow to move); simba$_p$ [-].
Decapterus macrosoma (long-bodied scad): gagadeh$_b$ [-]; ruma-ruma$_p$ [small house].
D. russelli (Russell's mackerel scad): ruma-ruma$_b$ or roo-ruma$_b$ [small house]; ruma-ruma$_p$ [small house].
Elegatis bipunnulata (rainbow runner): ururoh$_b$ [-]; uru-uru$_p$ [to let out] (fishing line).
Pseudocaranx dentex (silver trevally): kalumbe$_b$ [name of tree]; simba mohute$_p$ [-/white].
Scomberoides iysan (double-spotted queenfish): manua$_b$ [chicken] (jumps out of the water like a fighting chicken); tangiri$_p$ [-].
Selar boops (oxeye scad): tandu tulai$_b$ [horn/-]; anggora$_p$ [-].
S. crumenthalmops (purse-eyed scad) & *S. leptolepis* (small-tailed trevally): layah$_b$ [-]; ruma-ruma$_p$ [small house].

Centropomidae – Bass

Psammoperca waigiensis (sand bass): talunsoh$_b$ [-]; kaka$_p$ [older brother].

Chaetodontidae – Butterflyfish

Family or genus groupings/primary lexemes:

Generic butterflyfish, including bannerfish: tatape$_b$ [rice shaker] (looks round, like basket rice shakers). generic butterflyfish: kali bomba$_p$ [crow bar/wave] and generic bannerfish kali bomba buku wemba$_p$ [crow bar/wave/bamboo/bone].

Clupeidea – Herring and relatives

Amblygaster sirm (northern pilchard): tembah mancoh$_b$ [*herklotsich quadrimaculatus*/bait or lure] (used as bait for tuna); betelalaki olo$_p$ [-/deep sea].
Anodontostoma chacunda (gizzard shad): kuasi$_b$ [-]; kowasi$_p$ [-].
Herklotsich quadrimaculatus (bluestripe herring): tembah$_b$ [-]; bisuko$_p$ [-]. The Palo believe they spawn in the seagrass and coral around June, August and October on lunar days 15 and 16.
Spratelloides robustus (blue sprat): tatambang$_b$ [-]; ole$_p$ [-]. Palo believe they spawn in the seagrass around October.

Diodontidae – Porcupinefish

Family or genus groupings/primary lexemes:

Generic porcupinefish: konkeh$_b$ [-].

Chilomycterus reticulatus (spotfin porcupinefish): konkeh silah$_b$ [-/deep-open sea]; nona'a$_p$ [-].
C. spilostylus (spotbase porcupinefish): konkeh$_b$ [-]; lombe$_p$ [-].
Diodon liturosus (blotched porcupinefish): konkeh batu$_b$ [-/coral]; borutu$_p$ [pricklie].

Ephippidae – Batfish

Platax teira (teira batfish): buna biasa$_b$ [-/normal]; vuna$_p$ [-].

Exocoetidae – Flyingfish

Cypselurus spilopterus (flyingfish): tutue$_b$ [-]; kambala$_p$ [-].

Fistulariidae – Flutemouth

Fistularia commersonii (smooth flutemouth): tarigongoh igabuku$_b$ [-/reef wall]; hoppa$_p$ [ridge of coconut frond]. Palo believe the smooth flutemouth can be found in sandy habitats.
F. petimba (rough flutemouth): tarigongoh terusang$_b$ [-/deep off shore]; hoppa$_p$ [ridge of coconut frond]. Palo believe the rough flutemouth can be found in mangroves.

Gerreidae – Biddy

Gerres acinaces (longtail silver biddy): lamudo$_b$ [-]: kenta pute$_p$ [fish/white].
G. filamentosus (whipfin silver biddy): taboh$_b$ [-]; ulu watu$_p$ [-/coral].
G. oyena (common silver biddy): bansa$_b$ [-]; kenta ommuu$_p$ [-]. When small, the Palo call the common silver biddy kenta pute$_p$ [fish/white]. The Palo believe they spawn in the seagrass and coral around September to November during the full moon.

Haemulidae – Sweetlips

Plectorhinchus lessoni (striped sweetlips) & *Plectorhinchus oreintalis* (oriental sweetlips): luppe$_b$ [-]; kabulu$_b$ [strong expression of frustration] (possibly related to the ease with which the fish can slip off the hook).

Harpodontidae – Lizardfish

Saurida gracilis (slender grinner): jarah gigi$_b$ [spaced out/teeth]; bisara$_p$ [speak] (because it makes a noise when taken out of water).

Hemiramphidae – Halfbeak

Family or genus groupings/primary lexemes:

Generic halfbeak: oras$_b$ [-] and taruda$_p$ [-].

Hemiramphus far (barred garfish): pilangan$_b$ [-]; taruda nguhu$_p$ [-/charcoal] (colour). The Bajo say that the barred garfish shoal on the reef flats to breed during the easterly winds and is mainly found in lagoons.
H. robustus (robust garfish): oras$_b$ [-]; taruda mohute$_p$ [-/white].
H. affinis (tropical garfish): tampae$_b$ [-]; taruda mohute$_p$ [-/white]. the bajo believe the tropical garfish has a bitter taste.
H. quoyi (Quoy's Garfish): oras silah$_b$ [-/deep-open sea]; urapi$_p$ [-]. The Palo believe they shoal along the coasts during September and October.

Holocentridae – Soldierfish & Squirrelfish

Family or genus groupings/primary lexemes

Generic soldierfish: babakal$_b$ [-] and mbula$_p$ [first] (this fish was the first fish to come to when all fish were invited to a dance by the king of the sea).

Myripristis adusta (blackfin soldierfish): babakal silah$_b$ [-/deep-open sea]; mbula butukeo$_p$ [first/call].
M. murdjan (crimson soldierfish): babakal batu$_b$ [-/coral]; mbula$_p$ [first].
M. pralinia (scarlet soldierfish) & *M. vittata* (whitetip soldierfish): babakal mira$_b$ [-/red]; mbula$_p$ [first].
M. violacea (lattice soldierfish): babakal$_b$ [-]; mbula$_p$ [first].
Neoniphon argenteus (smooth squirrelfish), *N. openrcularis* (black-finned squirrelfish), *N. sammara* (spotfin squirrelfish) & *Sargocentron diadema* (crowned squirrelfish): kakaroe$_b$ [name of thin bird]; kanari$_p$ [name of plant] (leaf shaped like the fish).
Sargocentron caudimaculatum (tailspot squirrelfish): lambe batu$_b$ [wave (hand)/coral]; not known in Palo.
S. cornutum (threespot squirrelfish): kakaroe garas$_b$ [name of thin bird/small branching coral]; kanari$_p$ [name of plant] (leaf shaped like the fish).
Sargocentron spiniferum (spiny squirrelfish): lambe$_b$ [wave (hand)]; wesui$_p$ [thin].

Istiophoridae – Marlin & Sailfish

Family or genus groupings/primary lexemes

All marlin: tumbo$_b$ [sword] and melayare$_p$ [to sail].
Istiophorus platypterus (Indo-Pacific sailfish): layarang$_b$ [sail]; melayare$_p$ [to sail].

Kyphosidae – Drummer

Family or genus groupings/primary lexemes

Generic drummer: ila_b [-] and ilo_p [-].

Kyphosus bigibbus (southern drummer): ila $silah_b$ [-/deep-open sea]; ilo $mohute_p$ [-/white].
K. cornelii (western drummer) & *K. vaigiensis* (low-finned drummer): ila $batu_b$ [-/coral]; ilo $mohute_p$ [-/white].

Labridae – Wrasse

Family or genus groupings/primary lexemes

Generic wrasse: $lampa_b$ [mouth]. most small thin wrasse species: $pello_b$ [weak]. Small wrasse that the palo say never grow to a large size: $tanggili_p$ [-]. Choerodon genus: $lamu\text{-}lamu_p$ [-].

Anampses geographicus (scribbled chisel-toothed wrasse): $pello_b$ [weak]; tanggili olo_p [-/deep sea].
A. lennaroi (blue & yellow wrasse) & *A. meleagrides* (yellowtail wrasse): $pello_b$ [weak]; $timu_p$ [east] (caught in the easterly winds).
Bodianus mesothorax (spiltlevel pigfish): $lampa_b$ [mouth]; $longe_p$ [branching coral].
Cheilenus undulatus (Napoleon or double-headed Maori wrasse): $langkoe_b$ [early to catch]; $menami_p$ [always taste] (because cooks always taste it).
C. chlorurus (yellow-dotted Maori wrasse) & *C. trilobatus* (tripletail Maori wrasse): lampa $biasa_b$ [mouth/normal] or lampa iga-buku $tubba_b$ [mouth/reef wall/reef]; tai $pere_p$ or tai $repe_p$ [faeces/gone off] (does not taste very good and smells slightly like faeces). In Palo it is pronounced tai pere on east coast and tai repe on west coast of Kaledupa. Bajo believed *C. chlorurus* is caught mostly on reef wall. Palo believe they spawn in the seagrass and coral around June.
C. fasciatus (scarlet-breasted Maori wrasse): lampa $terusang_b$ [mouth/deep off shore]; $wakkoru_p$ [-].
C. unifasciatus (whiteband Maori wrasse): lampa $terusang_b$ [mouth/deep off shore]; moturu $oloo_p$ [sleep/sun].
Cheilio inermis (sharp-nosed wrasse): $palugandah_b$ [drum stick]; $wee\text{-}wee_p$ [stye] (it is believed that if you eat the sharp-nosed wrasse the consumer will develop a stye).
Choerodon anchorago (anchor tuskfish): $bukalang_b$ [-]; $torokai_p$ [trapped].
C. cyanodus (blue tuskfish): $lalamong_b$ [-]; $lamu\text{-}lamu_p$ [-].
C. jordani (Jordan's wrasse): not known; lamu-lamu $kakanda_p$ [-/beautiful].
C. rubescens (Baldchin groper): $lalamong_b$ [-]; lamu-lamu $wungo_p$ [-/violet].
Coris gaimardi (red-finned rainbowfish) & *Pseudodax moluccanus* (chiseltooth wrasse): pello $mira_b$ [weak/red]; tanggili olo_p [-/deep sea].
Epibulus insidiator (slingjaw wrasse): lampa $dosa_b$ [mouth/owe]; $medosa_p$ [debtor]. Both the Bajo and Palo tell the story of the borrower/debtor fish, which talks other fish to lend it money which it never pays back.
Halichoeres hortulanus (fourspot wrasse: ip): pello $batu_b$ [weak/coral]; tanggili olo_p [-/deep sea].
H. hortulanus (fourspot wrasse: tp): pello $igabuku_b$ [weak/reef wall]; $tanggili_p$ [-].
H. scapularis (zigzag wrasse): pello alo_b [weak/lagoon]; $tanggili_p$ [-].
Hemigymnus melapterus (thick-lipped wrasse): $baseparai_b$ [-]; $melamu_p$ [-] or $hone\text{-}honeke_p$ [digger].
Oxycheilinus diagrammus (violet-lined Maori wrasse): lampa $igabuku_b$ [mouth/reef wall]; ka $karenga_p$ [name of green and black parrot].
Stethojulis strigiventer (silver-streaked wrasse): $pello_b$ [weak]; pulen $pule_p$ [-]. The Palo believe that the flesh and bones of the silver-streaked wrasse are weak.
S. trilineata (three-lined wrasse): pello $samo_b$ [weak/seagrass]; tanggili olo_p [-/deep sea].
Suezichthy soelae (soelae wrasse): $pello_b$ [weak]; $punto\text{-}punto_p$ [slippery]. palo believe they spawn in the seagrass and coral around June.
Xyrichtys pavo (pavo rasorfish): pello $mongoli_b$ [weak/-]; $hone\text{-}honeke_p$ [digger].

Leiognathidae – Ponyfish

Gazza minuta (toothpony): $bebete_b$ [-]; $loba\text{-}loba_p$ [type of vegetable] (looks like shape).
Leiognathus equulus (common ponyfish) & *Leiognathus smithursti* (Smithurst's ponyfish): $bebete_b$ [-]; $bete\text{-}bete_p$ [break] (looks like broken nose).

Lethrinidae – Emperor

Family or genus groupings/primary lexemes:

Generic emperor: $kadafo_p$ [-]. Specific emperors are eaten on skewers during usu-usu, a 7-month pregnancy celebration and these fish are often called usu-usu as well as species-specific names.

Gnathodentex aurolineatus (striped large-eye bream): totokke tuba$_b$ [head down /reef] (swims with head down); randa moruta$_p$ [chest/thin] (lack of food).
Gymnocranius frenatus (yellowsnout large-eye bream): tatabe$_b$ [-]; not known by Palo.
Lethrinus atkinson (yellow-tailed emperor): sumpa pote$_b$ [difficult/white]; kadafo pudu$_p$ [-/short]. The Palo believe they spawn in the seagrass and coral around October and November on lunar days 27 and 28.
L. erythropterus (longfin emperor): kutamba bannah$_b$ [-/gaff hook]; kadafo onuhi$_p$ [-/allergic red spot] (on skin). The Palo believe they spawn in the seagrass and coral around October and November of lunar days 27 and 28.
L. genivittatus (threadfin emperor): tatam biro [-/-]; kadafo rondo$_p$ [-/seagrass] or usu-usu$_p$ [name for 7-month pregnancy celebration]. Palo believe they spawn in the seagrass and coral around August.
L. harak (thumbprint emperor): kutamba$_b$ [-]; kadafo tanda$_p$ or kadafo salafau$_p$ [-/spot] (both tanda and salafau mean spot). The Palo believe they spawn in the seagrass and coral around October and November of lunar days 27 and 28.
L. lentjan (purple-headed emperor): dara papa alo$_b$ [land/cheeks/lagoon]; kadafo betomba$_p$ [-/-]. The Palo believe they spawn in the seagrass and coral around October and November of lunar days 27 and 28.
L. miniatus (sweetlip emperor): popontu lausu$_b$ [-]; onuhi$_p$ [-].
L. nebulosus (Spangled emperor): andupen$_b$ [-]; kikiaa$_p$ [-]. The Bajo say that the spangled emperor aggregates to spawn in July (yam season) to August (finishes before Boe Pote, a period of "white water").
L. obsoletus (orange-striped emperor): mantirus$_b$ [-]; kadafo$_p$ [-]. The Palo believe they spawn in the seagrass and coral around October and November of lunar days 27 and 28 .
L. olivaceus (long-nosed emperor): lausu$_b$ [-]; saso$_p$ [-]. The Bajo say that the Long-nosed Emperor aggregates to spawn in July (yam time) to August (finishes before Boe Pote, a period of "white water").
L. ornatus (ornate emperor): sumpa mira$_b$ [difficult/red]; kadafo pudu$_p$ [-/short]. The Palo believe they spawn in the seagrass and coral around October and November of lunar days 27 and 28.
L. rubrioperculatus (spotcheek emperor): tatam biro$_b$ [-/-]; tari wande$_p$ [dance/wind] or usu-usu$_p$ [name for 7-month pregnancy celebration]. Palo believe they spawn in the seagrass and coral around August.
L. semicinctus (black-blotch emperor): popontu lausu$_b$ [*l. variegates*/*l. olivaceus*]; kadafo rondo$_p$ [-/seagrass]. The Palo believe they spawn in the seagrass and coral around October and November of lunar days 27 and 28.
L. variegatus (variegated emperor): popontu$_b$ [-]; usu-usu kandole$_p$ [name for 7-month pregnancy celebration/-]. Palo believe they spawn in the seagrass and coral around August.
L. xanthocheilus (yellowlip emperor): kutu$_b$ [-]; ru'u$_p$ [-].
Monotaxis grandoculis (humpnose bigeye bream): bagangan$_b$ [teeth/molars]; tua butu$_p$ [old/open eyes].

Lutjanidae – Snapper

Family or genus groupings/primary lexemes

Most long snappers with jobfish body form: bero$_b$ [-] and lompa-lompa$_p$ [-]. Grouping of small, similar coloured and shaped snappers: sala$_p$ [don't accidentally eat] (causes an allergic reaction in some people, and irritated itching of scabs that form).

Aphareus furca (small-toothed jobfish): kurus bali$_b$ [-/-]; lompa-lompa$_p$ [jump around].
A. rutilans (rusty jobfish): bero babi igabuku$_b$ [-/reef wall]; not known by Palo.
Aprion virescens (green jobfish): guntor$_b$ [thunder] (the fish makes an audible noise in the sea); lompa-lompa$_p$ [jump around].
Etelis carbonculus (ruby snapper): langkuabo mira$_b$ [-/red]; lompa-lompa$_p$ [jump around].
E. radiosus (pale snapper): langkuabo$_b$ [-]; lompa-lompa$_p$ [jump around].
Lutjanus biguttatus (two-spot banded seaperch): bitte jateh$_b$ [pattern/increment markings on weighing scales]; not known by Palo.
L. bohar (red bass): ahaang$_b$ [-]; kotoha$_p$ [-].
L. carponotatus (stripey seaperch): langsuroh alo$_b$ [-/lagoon]; sala$_p$ [don't accidentally eat/coral].
L. decussatus (checkered seaperch): bangaro$_b$ [-]; sala$_p$ [don't accidentally eat /coral].
L. ehrenbergi (Ehrenberg's seaperch): baba banku$_b$ [arab/mangrove]; tumolla$_p$ [bang!] (because the meat bursts noisily when cooked).
L. fulviflamma (black-spot seaperch): baba igabuku$_b$ [arab/reef wall]; sala$_p$ [don't accidentally eat/coral].
L. fulvus (yellow-margined seaperch): sumpehlea$_b$ [weaving] (pattern on the fish looks like weaving); sala wau$_p$ [don't accidentally eat/coral].
L. gibbus (paddletail): daapa$_b$ [-]; dayah meha$_p$ [fish/red].
L. johnii (fingermark seaperch): kumbah buha$_b$ [finning] (movement through water); baga$_p$ [cheek].

L. kasmira (blue-striped seaperch), *L. lutjanus* (bigeye seaperch), *L. quinquelineatus* (five-lined seaperch) & *L. rufolineatus* (yellow-lined seaperch): sasageh$_b$ [-]; sala$_p$ [don't accidentally eat].
L. lemniscatus (dark-tailed seaperch): ine$_b$ [-]; kotoha$_p$ [-].
L. malabaricus (saddle-tailed seaperch): ine$_b$ [-]; koni meinte$_p$ [teeth/spread over] (irregular teeth).
L. monostigma (onespot seaperch): baba$_b$ [arab]; roraga$_p$ [-] or kotoha$_p$ [-].
L. rivulatus (Maori seaperch): sangai$_b$ [fish/wind]; baga$_p$ [cheek].
L. russelli (Moses perch): kumbah buha$_b$ [finning] (movement through water); tumolla$_p$ [bang!] (because the meat bursts noisily when cooked).
L. vitta (stripped seaperch): langsuroh terusang$_b$ [-/deep off shore]; sala$_p$ [don't accidentally eat].
Macolor macularis (midnight snapper): sulai asau$_b$ [reverse/gills]; tonalu$_p$ [-].
Pristipomoides filamentosus (rosy snapper): bero babi$_b$ [-]; lompa-lompa$_p$ [jump around].
P. auricilla (goldflag jobfish): bero babi igabuku$_b$ [-/reef wall]; not known by Palo.
P. flavipinnis (goldeneye jobfish): bero babi alo$_b$ [-/lagoon]; not known by Palo.
P. zonatus (oblique-banded snapper): bero babi terusang$_b$ [-/deep off shore]; not known by Palo.
Symphorus nematophorus (Chinaman fish): mora pisa$_b$ [-/banana]; baga$_p$ [cheek].

Malacanthidae – Tilefish

Malacanthus brevirostris (blanquillo): babala$_b$ [tree species] (has the same colour and pattern as local tree); not known by Palo.

Monacanthidae – Leatherjacket

Family or genus groupings/primary lexemes:

Generic leatherjacket: epe$_b$ [-] and sogoh$_p$ [-].

Acreichthy tomento (bristle-tailed leatherjacket): epe samo$_b$ [-/seagrass]; sogoh pei$_p$ [-/-].
Amanses scopas (brush-sided leatherjacket): epe loong$_b$ [-/black]; sogoh$_p$ [-].
Cantherhines parkalis (honeycomb leatherjacket): epe$_b$ [-]; sogoh olo$_p$ [-/deep sea].
Monacanthus chinensis (fan-bellied leatherjacket): epe samo$_b$ [/seagrass]; sogoh rondo$_p$ [-/seagrass].

Mugilidae – Mullet

Liza vaigiensis (diamond-scale mullet): bonte$_b$ [-] or duppua$_b$ [-]; fonti tambora$_p$ [deflect/-].
Valamugil buchanani (blue-tailed mullet): bonte silah [-/deep-open sea]; fonti$_p$ [deflect].

Mullidae – Goatfish

Family or genus groupings/primary lexemes:

Mulloidichthys genus: banguntu$_b$ [-]. *parupeneus* genus: timbungan$_b$ [-]. *upeneus* genus: balubba$_b$ [-]. Generic goatfish: tio$_p$ [-]. Palo believe all goatfish spawn during the full moon in the seagrass and coral around October.

Mulloidichthys flavolineatus (yellowstripe goatfish): banguntu janggutan tuba$_b$ [goat beard/reef]; tio lumalo$_p$ [-/pass by].
M. vanicolensis (yellowfin goatfish): banguntu janggutan igabuku$_b$ [goat beard/reef wall]; tio lumalo$_p$ [-/pass by].
Parupeneus barberinoides (swarthy-headed goatfish): timbungan igabuku$_b$ [-/reef wall]; tio tandai$_p$ [-/to give a sign].
P. barberinus (dash-dot goatfish): timbungan tubba$_b$ [-/reef]; tio bata$_p$ [-/sunken wood, big or tree trunk] (called tio bata$_p$ because it is the only goat fish that grow to a large size).
P. bifasciatus (doublebar goatfish): timbungan samo$_b$ [-/seagrass]; tio$_p$ [-].
P. cyclostomus gold-saddled goatfish timbungan igabuku [-/reef wall]; tio makuri [-/yellow].
P. heptacanthus (spotted golden goatfish): timbungan igabuku$_b$ [-/reef wall]; tio meha$_p$ [-/red].
P. indicus (Indian goatfish): timbungan tubba$_b$ [-/reef]; tio$_p$ [-].
P. macronema (stripe-spot goatfish): timbungan igabuku$_b$ [-/reef wall]; tio$_p$ [-].
P. multifasciatus (banded goatfish): timbungan tubba$_p$ [-/reef]; tio liku$_p$ [-/out side] (moves from one area to another never staying in one place or has a home).
P. pleurostigma (sidespot goatfish): timbungan$_b$ [-]; tio$_p$ [-].
Upeneus asymmetricus (asymmetrical goatfish): balubba$_b$ [-]; tio tingkuca$_p$ [-/-].
U. tragula (bar-tailed goatfish): balubba samo$_b$ [-/seagrass]; tio tingkuca$_p$ [-/-]
U. vittatus (striped goatfish): balubba alo$_b$ [-/lagoon]; tio tingkuca$_p$ [-/-].
U. moluccensis (goldband goatfish): balubba$_b$ [-]; tio lumalo$_p$ [-/pass by].

Muraenidae – Moray Eel

Gymnothorax fimbriatus (fimbriated moray eel): undoh silah$_b$ [snake/deep-open sea]; kompa bunga moliri$_p$ [local flower] (looks like).

Nemipteridae – Monocle Bream

Family or genus groupings/primary lexemes

Threadfin Bream: lankiaba$_b$ [-]. Monocle breams: tintah$_b$ [-] and tonto$_p$ [see].

Nemipterus celebicus (five-lined threadfin-bream): lankiaba$_b$; not known in Palo.
N. baliensis (Bali threadfin-bream): lankiaba$_b$; not known in Palo.
Pentapodus caninus (smooth-toothed whiptail): tintah$_b$; tonto mohute see/white.
P. trivittatus (three-striped whiptail) & *Scolopsis ciliatus* (whitestreak monocle bream): tintah bonda$_b$ [-/species of short seagrass]; tonto$_p$ [see].
Scolopsis auratus (yellowstripe monocle bream): not known in Bajo; randa moruta$_p$ [chest/thin] (from lack of food).
S. lineatus (lined monocle bream): tintah tuba$_b$ [-/reef]; tonto$_p$ [see].
S. margaritifer (pearly monocle bream): tintah iga buku$_b$ [-/reef wall]; wai-wai$_p$ [-].
S. monogramma (monocle bream): sualala$_b$ [-]; wai-wai$_p$ [-].
S. trilineatus (three-lined monocle bream): tintah$_b$ [-]; tonto buri$_p$ [see/write] ("write" refers to the lines on the fish).

Ostracidae – Boxfish

Ostracion cubicus (yellow boxfish): taburroh$_b$ [-]; falampopa$_p$ [-].

Pempheridae – Bullseye

Pemphperis oualensis (Qualan bullseye): beseh boe$_b$ [generic bigeye/boe pote$_b$] (white water – two week period of large waves when winds change from easterly to northerlies); not known in Palo.

Platycephalidae – Flathead

Cymbacephalus beauforti (giant flathead): kumba buaya$_b$ [internal organs/crocodile]; not known in Palo.
Papilloculiceps nematophthalmus (fringe-eyed flathead) & *Rogadius asper* (olive-tailed flathead): kumba buaya$_b$ [internal organs/crocodile]; kumbou$_p$ [lizard].

Plotosidae – Catfish

Plutosus canius (catfish): not known in Bajo; oitu$_p$ [-]. Palo believe they spawn in the seagrass around September and November.

Pomacentridae – Damselfish

Family or genus groupings/primary lexemes:

Generic damselfish: tibo$_b$ [-] and boku-boku$_p$ [-].

Dischistodus perspicillatus (white damsel): tibo pote$_b$ [-/white]; boku-boku$_p$ [timid].
Hemiglyphidodon plagiometopon (lagoon damselfish): tibo$_b$ [-]; boku-boku$_p$ [timid].

Priacanthidae – Bigeye

Family or genus groupings/primary lexemes:

Generic bigeye: beseh$_b$ [showoff] and bula-bulawa$_p$ [very gold].

Heteropriacanthus cruentatus (duskyfin bigeye): beseh loong$_b$ [show off/black]; bula-bulawa [very gold].
Priacanthus hamrur (lunar-tailed bigeye), *Priacanthus macracanthus* (red bigeye) & *Priacanthus sagittarius* (robust bigeye): beseh$_b$ [show off]; bula-bulawa$_p$ [very gold].

Scaridae – Parrotfish

Family or genus groupings/primary lexemes:

Generic small parrotfish: mogoh$_b$ [close bad mouth] (said to someone who is verbally insulting you). In Bajo parrotfish without mogoh as a primary lexeme (amammar$_b$ taste better to most parrotfish. Generic parrotfish: lehe$_p$ [-]. The Palo believe parrotfish spawn around September.

Bolbometopon muricatum (double-headed parrotfish): angke$_b$ [-]; tofoula$_p$ [-].
Calotomus spindens (spinytooth parrotfish): amammar$_b$ [-]; puto punto$_p$ [-].
Cetoscarus bicolor (red-speckled parrotfish: tp): mogoh borra$_b$ [close bad mouth/angel like spirit and chariot used by Mohamed to visit Allah] (beautiful)]; wangu kakanda$_p$ [violet/beautiful].
Chlorurus bleekeri (Bleeker's parrotfish: ip): mogoh loonge$_b$ [close bad mouth/black]; lehe biru$_p$ [-/black].
Chlorurus bleekeri (Bleeker's parrotfish: tp): mogoh nyuloh$_b$ [close bad mouth/green]; lehe biru$_p$ [-/black].
Chlorurus sordidus (green-finned parrotfish: it): mogoh loonge$_b$ [close bad mouth/black]; fangu ijo$_p$ [-/green].
Chlorurus sordidus (green-finned parrotfish: tp): mogoh nyuloh$_b$ [close bad mouth/green]; lehe watu$_p$ [-/massive coral].
Hipposcarus longiceps (long-nosed parrotfish): ulapai$_b$ [-]; wangu$_p$ [violet].
Leptoscarus vaigiensis (blue-spotted parrotfish): mogoh nyuloh$_b$ [close bad mouth/green]; lehe$_p$ [-].
S. chameleon (chameleon parrotfish): mogoh nyuloh$_b$ [close bad mouth/green]; lehe$_p$ [-].
S. dimidiatus (saddled parrotfish): mogoh$_b$ [close bad mouth]; lehe ijo$_p$ [-/green].
S. flavipectoralis (yellowfin parrotfish): mogoh nyuloh$_b$ [close bad mouth/green]; lehe kakanda$_p$ [-/beautiful].
S. frenatus (six-banded parrotfish: ip): mogoh mira$_b$ [close bad mouth/red]: lehe kakanda karenga$_p$ [-/beautiful/-].
S. frenatus (six-banded parrotfish: tp): mogoh nyuloh$_b$ [close bad mouth/green]; lehe watu$_p$ [-/massive coral].
S. ghobban (blue-barred parrotfish: ip): bataan$_b$ [-]; lehe wangu$_p$ [-/violet].
S. ghobban (blue-barred parrotfish: tp): pandanan$_b$ [palm species]; wangu tambaga$_p$ [violet/copper].
S. globiceps (violet-lined parrotfish: ip): mogoh pote$_b$ [close bad mouth/white]; nama-nama [-]. *S. globiceps* (violet-lined parrotfish: tp): mogoh nyuloh$_b$ [close bad mouth/green]; lehe$_p$ [-].
S. niger (swarthy parrotfish): mogoh loonge$_b$ [close bad mouth/black]; lehe biru$_p$ [-/black].
S. oviceps (blue parrotfish: ip): mogoh$_b$ [close bad mouth]; lehe$_p$ [-].
S. oviceps (blue parrotfish: tp): mogoh nyuloh$_b$ [close bad mouth/green]; lehe watu$_p$ [-/massive coral].
S. prasiognathus (dusky parrotfish): mogoh sasah$_b$ [close bad mouth/white breakers] (Bajo believe the dusky parrotfish comes to seagrass when are white breakers); lehe$_p$ [-].
S. psittacus (palenose parrotfish: ip): mogoh loonge$_b$ [close bad mouth/black]; lehe kofungo$_p$ [-/-] or lehe firiso$_p$ [-/-].
S. psittacus (palenose parrotfish: tp) & *Scarus schlegeli* (Schlegels parrotfish): mogoh nyuloh$_b$ [close bad mouth/green]; lehe ijo$_p$ [-/green].
S. quoyi (Quoy's parrotfish): mogoh nyuloh$_b$ [close bad mouth/green]; lehe kakanda$_p$ [-/beautiful].
S. rivulatus (surf parrotfish: ip): mogoh pote$_b$ [close bad mouth/white]; lehe mohute$_p$ [-/white].
S. rivulatus (surf parrotfish: tp): mogoh nyuloh$_b$ [close bad mouth/green]; lehe$_p$ [-].
S. rubroviolaceus (ember parrotfish: ip): borra$_b$ [angel-like spirit and chariot used by Mohamed to visit Allah] (beautiful); lehe$_p$ [-].
S. rubroviolaceus (ember parrotfish: tp): angke$_b$ [-]; lehe ijo$_p$ [-/green].
S. viridifucatus (greenlip parrotfish): mogoh loonge$_b$ [close bad mouth/black]; lehe biru$_p$ [-/black].

Scombridae – Mackerel & Tuna

The Bajo say tuna species come close to the shore during the northerlies and westerlies and generally tuna come closer to the surface and are easier to catch when it is windy.

Auxis rochei (corseletted friget mackerel): turingah boyo$_b$ [-/cucumber] or babalaki$_b$ [-]; balaki$_p$ [-]. The Bajo believe they shoal round Kaledupa between December and February.
Euthynnus affinis (mackeral tuna): turingah$_b$ [-]; cakala biru$_p$ [-/black].
Grammatorcynus bicarinatus (shark mackerel): ande ande$_b$ [-/-]; talan-tala$_p$ [tray].
G. bilineatus (double-lined mackerel ande ande$_b$ [-/-]; talan-tala$_p$ [tray].
Gymnosarda unicolor (dogtooth tuna): bambulo$_b$ [-]; mambulo$_p$ [bad taste] (like goat).
Katsuwonis pelamis (skipjack tuna): turingah$_b$ [-]; balang$_p$ [-].
Megalaspis cordyla (finny scad): kulli$_b$ [-]; mambulo$_p$ [bad taste] (like goat).
Thunnus albacares (yellowfin tuna): rambayan$_b$ [fillement] (to have); balang kuni$_p$ [-/yellow].
T. obesus (bigeye tuna): bangkunis$_b$ [-]; balang kuni$_p$ [-/yellow].

Scorpaenidae – Scorpionfish

Generic stonefish: kenta watu$_p$ [fish/stone].

Serranidae – Grouper

Family or genus groupings/primary lexemes:

Generic grouper (excluding coral trout): kiapu$_b$ [-] and okke$_p$ [-]. Small groupers: tulareke$_p$ [-].
Coral trout type sunu$_{bp}$ [-]. The Palo say that sunu meat is soft and tastes different to groupers. Commercial grouper fishing only occurs between November and May when most grouper aggregate.

Aethaloperca rogaa (red-flushed rockcod): kiapu popokah$_b$ [-/ghost] (looks like the flying head ghost that comes to kill babies); okke koka$_p$ [-/like black bird]. The Palo believe the red flushed rock cod lives in mangroves.
Anyperodon leucogrammicus (white-lined rockcod): kiapu tallah$_b$ [-/type of thick bamboo]; okke mohute$_p$ [-/white].
Cephalopholis argus (peacock rockcod): kiapu loong$_b$ [-/black]; okke dalika$_p$ [-/three stones used to keep pots on fire] (colour of fish like the stones) or Kenta China$_p$ [fish/Chinese] (the Palo say that this fish is not normally liked in the Wakatobi but fish traders from Sumatra asked the Palo to catch them to sell on to the Chinese).
C. aurantia (golden hind) & *C. sexmaculata* (six-blotch rockcod): kiapu mira$_b$ [-/red]; okke$_p$ [-].
C. cyanostigma (blue-spotted rockcod) & *c. miniata* (coral cod): kiapu mira binti$_b$ [-/red/spot]; okke$_p$ [-].
C. polleni (harlequin hind): kiapu$_b$ [-]; mangkarnia$_p$ [-].
C. sonnerati (tomato rockcod): kiapu mira lempes$_b$ [-/ red/thin]; okke$_p$ [-].
C. spiloparaea (strawberry rockcod): kiapu mira polos$_b$ [-/red/pure]; okke$_p$ [-].
C. urodeta (flag-tailed rockcod): kiapu panenele$_b$ [-/shy]; okke olo$_p$ [-/deep-open sea].
Cromileptes altivelis (Barramundi cod): kiapu kamudi$_b$ [-/rudder] or kiapu tikus$_b$ [-/rat]; okke beka$_p$ [-/cat].
Epinephelus areolatus (yellow-spotted rockcod): kiapu kubah$_b$ [-/small hole]; okke$_p$ [-].
E. caeruleeopunctatus (oscillated cod): kiapu buntar tikolo$_b$ [-/round/head]; okke tulareke$_p$ [-/all warts].
E. cyanopodus (blue Maori cod): lumu tarusang$_b$ [weak/deep off shore] (the fish looks weak but is very strong); okke$_p$ [-].
E. fasciatus (black-tipped cod): kiapu matekuli$_b$ [-/dead skin]; okke$_p$ [-].
E. fuscoguttatus (flowery cod): kiapu tongal [-/-] or kiapu tiger [-/tiger]; okke$_p$ [-]. The Bajo say the flowery cod is mostly found on fringing reefs and very few around atolls. The Bajo say this fish aggregate from November to May, on lunar days 15–20.
E. lanceolatus (Queensland grouper): kiapu mansarunae$_b$ [-/-]; okke$_p$ [-].
E. maculatus (trout cod) & *Epinephelus miliaris* (netfin grouper) kiapu nyarengkeh$_b$ [-/brave] (cocky); okke$_p$ [-].
E. magniscuttis (speckled grouper): kiapu kokoro$_b$ [-/-]; lanti$_p$ [-].
E. malabaricus (Malabar grouper): kiapu$_b$ [-]; okke$_p$ [-].
E. merra (honeycomb cod): kiapu sibbo$_b$ [-/large branching coral]; okke tulareke$_p$ [-/all warts].
E. morrhua (comet grouper): kiapu kokoro$_b$ [-/-]; kurapu meha$_p$ [-/red].
E. polyphekadion (small-toothed cod): kiapu ngaluhu$_b$ or kiapu tiger$_b$ [-/slippery]; okke$_p$ [-]. The Bajo say that the small-toothed cod is found mostly around atolls and very few on fringing reefs and that it aggregates from November to May, on lunar days 15–20. The Palo say the small-toothed cod is very aggressive.
E. tukula (potato cod): kiapu buntar tikolo$_b$ [-/round/head]; okke$_p$ [-] & kenta China$_p$ [fish/Chinese] (the Palo say that this fish is not normaly liked in the Wakatobi but fish traders from Sumatra asked the Palo to catch them to sell on to the Chinese).
Gracila albomarginata (thinspine rockcod): kiapu bandoka$_b$ [-/place name on Wangi-Wangi Island]; okke$_p$ [-].
Plectranthias japonicus (Japanese perchlet): kiapu mira$_b$ [-/red]; okke olo$_p$ [-/deep-open sea].
Plectropomus laevis grey colour morph (Chinese footballer): sunu bantoel$_b$ [-/-]; okke$_p$ [-].
P. laevis yellow colour morph (Chinese footballer): sunu sunurang$_b$ [-/-]; okke makuri$_p$ [-/yellow].
P. leopardus (coral trout) & *Plectropomus oligocanthus* (vermicular cod): sunu mira$_b$ [-/red] or sunu alo$_b$ [-/lagoon]; sunu$_p$ [-]. The Bajo say the coral trout and vermicular cod aggregate from November to May, on lunar days 20–25.
P.maculatus (bar-cheeked coral trout): sunu camba$_b$ [-/sour]; sunu$_p$ [-].
Variola albimarginata (white-edged lyretail): taringang$_b$ [tusk]; okke meha$_p$ [-/red].
V. louti (yellow-edged lyretail): taringang$_b$ [tusk]; sunu$_p$ [-].

Siganidae – Rabbitfish

Family or genus groupings/primary lexemes:

Generic rabbitfish: belowis$_b$ [-]. rabbitfish type: kola$_p$ [-] and borona$_p$ [-]. The Palo believe all kola spawn in the seagrass and coral around August and November during the full moon and all borona spawn in the seagrass and coral around October and November between lunar days 9 and 15.

Siganus argenteus (silver spinefoot): belowis silah$_b$ [-/deep off shore]; monoi$_p$ [-]. The Palo believe they spawn in the seagrass and coral around August and November.
S. canaliculatus (smudgespot spinefoot): belowis samo$_b$ [-/seagrass]; kola biru$_p$ [-/black]. The Bajo say the smudgespot spinefoot aggregate to spawn just before boe pote$_b$.
S. doliatus (doublebar spinefoot): kekea$_b$ [-]; borona$_p$ [-].
s. fuscescens (black spinefoot): Belowis samo$_b$ [-/seagrass]; Kola mohute$_p$ [-/white]. The Palo say the black spinefoot spawn from September to Jannuary.
S. guttatus (golden spinefoot): birra$_b$ [-]; borona$_p$ [-].
S. lineatus (golden-lined spinefoot): birra$_b$ [-]; borona buri$_p$ [-/write] ('write' refers to the lines on the fish).
S. puellus (blue-lined spinefoot): kekea$_b$ [-]; borona makuri$_p$ [-/yellow].
S. punctatus (spotted spinefoot): mangilala$_b$ [-]; borona watu$_p$ [-/coral].
S. spinus (spiny spinefoot): belowis kangkang$_b$ [-/long type of seagrass]; kola bungi$_p$ [-/spring tide] (appears during spring tides).
S. trispilos (threespot spinefoot): kekea$_b$ [-]; borona tanda biru$_p$ [-/marking/black].

Sphyraenidae – Barracuda

Sphyraena barracuda (barracuda): pangaluang$_b$ [-]; alu$_p$ [eight].
S. jello (giant seapike): papalo silah$_b$ [call a lot/deep-open sea]; ndoma$_p$ [-].
S. obtusata (stripped seapike): papalo samo$_b$ [call a lot/seagrass]; falo-falo$_p$ [-].
S. qenie (military seapike): lenko$_b$ [name for natural fibre rope]; sombu woku$_p$ [make hole/-].

Synodontidae – Lizardfish

Synodus variegatus (variegated lizardfish): jarah gigi$_b$ [spaced out/teeth]; bicara$_p$ [speak] (makes a talking noise when it is taken out of water).

Terapontidae – Grunter

Terapon jarbua (crescent perch): kokoreh$_b$ [-]; kalaero$_p$ [-].

Zanclidae – Moorish Idol

Zanclus cornatus (moorish idol): tatape rambai$_b$ [rice shaker (looks like)/thread-like filament]; buku nuo'o$_p$ [bone/-].

Sphyraena barracuda
Image: Les Hata, © SPC