

CITATION: *Sadovy de Mitcheson, Y., and Batibasaga A., 2017. 79 Fiji Fisher interviews on fishes that aggregate to spawn; original data and summaries 2003-2005. Science and Conservation of Fish Aggregations and Fiji Ministry of Fisheries and Forests, Research Division. Unpublished compilation report pp. 127*

Fiji Fisher Interviews on Fishes that Aggregate to Spawn; original data and summaries 2003-2005, with additional notes on Napoleon wrasse

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INTRODUCTION AND METHODS

This document is a compilation of 79 interviews conducted in Fiji between 2003 and 2005 in the Yasawas, Vanua Levu, Lakeba, Viti Levu and Vanuabalavu.

Communities were selected partly on the basis of recommendations from contacts in Fiji to reflect a wide range of locations and fishing intensities but also partly determined by travel logistics and opportunity. Communities were initially visited in the Yasawa Is, northern Vanua Levu, north, south and eastern Viti Levu, and the northern Lau group in 2003 and 2004. Fifteen additional interviews were conducted in 2005 by Ms. Loraini Sito (WCS), who had participated in the original interviews, to ensure fuller coverage of northern Vanua Levu.

Interviews were conducted in English or Fijian, depending on the decision of the fisher and, whenever possible, individual fishers, rather than groups, were interviewed. Most interviews were completed in less than one hour. Photos of fish were used for species identifications, together with local fish names, and maps associated with familiar local place names. Whenever possible we interviewed older, more experienced fishers; most had at least 10 years, often considerably more, experience. We also targeted fishers who fished regularly from the community visited and depended fully on fishing for their livelihood and aimed to visit at least 5 fishers in each community. We also tried to ensure that several different gear types were covered. We also tried to ensure that fishers had experience fishing species that are known to aggregate to spawn and particularly groupers.

In addition interviewers collected notes from experiences of fishers with the Napoleon or humphead wrasse, *Cheilinus undulatus*, which are documented in separate tables. This was due to concerns over the declines in catches and sizes of the species.

Arriving in each community, we first visited the village head or a representative to explain our project and to present 'sevusevu'. Typically our visits were planned in advance and suitable fishers identified/recommended. Information was collected on gears used, species taken, catch rates, aggregating species, concerns, management issues, etc. There was an opportunity for fishers to ask us questions and we always provided biological, fishery or trade data that might be of interest. Notes were made on the likely reliability of the interviewee, based on consistency of responses and cross-referenced answers and whether or not the interview was conducted through a translator. Interviews were conducted in people's homes or in the communal centre, a token presented in thanks and photos taken of each fisher and interviewer. Fisher names were kept confidential.

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After completing interviews, every opportunity was taken to present the findings back to communities. Where interviews were conducted, discussions at community meetings presented conclusions from the community interviews. Presentations were also given to the Fisheries Dept. in Suva, at meetings and conferences and at the offices of the Wildlife Conservation Society and WWF-Fiji, among others.

Regularly involved in conducting/organizing interviews were Loraini Sivo, Yvonne Sadovy, Aisake Batibasaga and many of his Fishery Research Division Staff. The Research Division, the research vessel crew and drivers, and the 15 communities visited provided excellent and much appreciated support for this project. Many others helped in different times and places and their support is acknowledged. We are also most grateful to the 79 fishers who allowed interviews and for the wonderful meals we had in our travels.

RESULTS

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SUMMARY

General Observations

- Catches of most aggregating groupers during the spawning season (full of eggs), indicated as mainly June through September (although this is species-dependent), are very high and are being exposed to increasing fishing pressure, particularly in response to export. Timing of spawning, however, varies a little by location.
- Demand for chilled grouper exports is increasing. Fishers often have to move further to maintain catches (increases fuel cost).
- Overall catch rates have been going down across wide range of species over the years there is much concern expressed in communities about declines in fish sizes and catches in general. Concerns that some species becoming threatened.

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- Domestic traders are very concerned about the availability of fish for domestic markets and often unable to get enough for their local trade. This is partly, they say, due to growing competition with exports and decreasing fish supply in general.
- Many of the passages/reef channels in the area are now being directly targeted for groupers in season with pressures increasing through targeting of newly discovered spawning aggregation sites.
- Notably, Mali Passage is no longer a productive spawning aggregation site, which is a worrying sign and strongly indicates that action is needed if other passages are not to follow suit. This passage has a long history of fishing and is particularly susceptible since it is so close to Labasa. More distant locations are likely to follow suit
- Night diving and fishing with SCUBA is a growing and serious problem and elsewhere has accelerated overfishing. Local fishing communities, in particular, are extremely concerned about these practices and the impacts it will have on their fisheries.
- Awareness is clearly needed in all sectors of society regarding the issues of sustainability of groupers, from communities, to schools, through to the media, traders, fishery officers and politicians.
- Fishery regulations need to be modernized, made relevant to today's pressures, penalties strengthened. and enforcement and monitoring increased. Much needed is a strong Fishery Management Plan for Reef Fishes and control on exports.



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TABLE 1 SUMMARY BY COMMUNITY

TOTAL 79 INTERVIEWS

N=67 interviews in Fiji in 2003 and 2004

Vanua Levu, Vanuabalavu, Viti Levu

and 12 interviews Lakeba in 2005

*For coded individual fisher responses used in compiling this table
see Tables A-D in Appendix 1*

Community (date, area in Fiji)	Number of interviewed fishers, years of experience, village profile & typical catch rates	Main fishing gears	Main species	Fishery status	Management and concerns
Kiuva (16/10/03) (Viti Levu)	3 fishers 30 + years In community, 8 fishers market fish and all others fish for subsistence (< 100 households).	Hook & line, spear**, nets; small or no outboards	E. merra, E. fusco, P. leopardus, P. areolatus, P. laevis, L. fulviflamma, L. fulvus, Lethrinus spp. E. ongus, Yellowfin surgeonfish, rabbitfish, Scarids, mulletts, bumphead parrotfish	Catches have declined from 20 bundles in 1970s (1 bundle=1.2 kg) a day to 2-3 per day for one fisher. Also declines in fish sizes noted.	Declines due to increased fishing nets (now 10), outsider Indian-Fijians and need help with enforcement. Concerned about fishing with poison (derris='duva') and need to increase fish mesh size

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	Typical catch about 2-4 kg fish per trip.		(=Bolbometopon muricatum), Naso, milkfish		
Navutulevu (17/10/03) (Viti Levu)	5 fishers 10-30+ years Subsistence and some marketing. 10-20 fish per trip typical catch.	Spears, nets, boat with paddle, small outboard, or fish from shore	Naso unicornis, Lethrinus spp. mullet, goatfish, bluefin trevally, rabbitfish, barracuda, milkfish, parrotfish, misc. groupers, triggerfish, E. merra, E. hexagonatus, P. areolatus, soldierfishes, porcupine fish, Lutjanus gibbus, Plectorhinchus, E. fuscoguttatus	Variable catches but over long term (10 years) a decline, partly due to night-fishing (newer activity) and catching fish, like mullets, that have lots of eggs. Fish also seem to be getting smaller.	Community needs to better protect resources. Ladies successfully petitioned for a protected area recently (250x300 m) for 5 years. Problems with outsiders coming in, use of poison, night-diving and nets perceived to be problems.
Malake Is. (1/11/03)(north Viti Levu)	5 fishers 20-45 years commercial and subsistence	Moved from goggles and traditional spear, mask and fins. Boat improved from 6 to 25 to 40 HP and hook and line added. Spearguns introduced.	L. mahsena, L. elongatus, Naso, Batfish, Goatfish, Anyperodon, surgeonfish, rabbitfish, yellowfin surgeonfish Plectorhynchus, Trevally, Small grouper,	Extensive movement out from fishing area (as far as SW Vanua Levu) to maintain catches and growth of night diving. Catches have declined but greatest declines in P. leopardus and P. areolatus especially over last 20 years or so,	Should not let young divers take small fish. There are no compressors in the area. Despite declines not too much concern since there are plenty of other fish and the fisher said he did not 'plant the fish'. More and more people moving further away to fish – feel income is declining. Feeling that an

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		Price for aggregating fish lower than non-aggregating (5 versus 5.5 FJ\$). Fish are higher in price now but this does not compensate for higher costs of fishing.	mackerel, Kyphosus, tuna, E. polyphemadion, E. malabaricus, E. fuscoguttatus, P. leopardus, P. areolatus, scardis, trevally, Monotaxis, L. gibbus	declines in numbers (20-50%) and sizes, and in Plectorhynchus. Still good catches of Lethrinus mahsena. Symphorus nematophorus almost disappeared – once very easy to catch, now almost disappeared.	MPA would be good and agreed that protecting aggregation sites would be a good idea. Increase in fishing pressure a problem and the community needs to discuss this. Believe that some fish will disappear completely if not protected. Need to protect fish in their reproductive season and help to do this from fishery department. Thinks there are too many fishers active both day and night now but also that fish are moving away.
Muaria (21&24/10/03) (Naviti Yasawas)	5 fishers 7-30+ years about 50 households, subsistence and market.	Spear, handline, net, motor boat (community), day and night,	P. leopardus, Naso, trevally, yellowfin surgeon, scarus, batfish, E. fuscoguttatus, E. polyphemadion, Plectorhynchus spp., Lutjanus species, Bolbometopon muricatus, scarids, small groupers, barracuda, mullet, needlefish, Lethrinus spp.	Catches variable, depends on weather, some fishers have seen declines in fish size and numbers over time; others note no particular trend. Feel that too many fishers and scare fish away.	Compressor diving not allowed but used by some outsiders and some villagers – started in area early 1980s for sea cucumber. Feels that tourism will replace resources once these decline*. Concerned about use of dynamite and derris. Chiefs cannot easily refuse requests for licences but need community committees to consider what to do. More gears and more fishers than before.

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Malevu (22/10/03) (Naviti, Yasawas)	5 fishers About 20 fishers in village – commercial and subsistence	20-30+ years spear, hook and line, 49 hp engine on boat	P. areolatus, P. leopardus, E. fuscoguttatus, Lethrinus spp., Spanish mackerel, Caranx spp. batfish, barracuda, Plectrorhynchus, naso, scarids, rabbitfish, yellow surgeonfish, Bolbometopon muricatus, small grouper species, batfish, flatfish, E. maculates, morays.	Declines noted, some by up to 60% in 20 years, but much variability in catches over time, Compressors arrived mid 1980s or so and impression is that declines began around then. Especially declines noted in P. areolatus and 2 aggregating Sweetlips. Also declines in Bolbometopon muricatum.	Chiefs must stop compressors. Mainly younger divers and sometimes accidents occur. Declines due to many more boats and high fishing pressure and dynamite. Compressors came for sea cucumber. Some concern for next generation but feeling that tourism will provide more income. Interest in MPA and protecting fish at aggregating site but concerned about enforcement. Gear improvement, even mask, fins and wetsuit, added pressure on resources as allows for more catches.
Somosomo (23/10/03) (Naviti, Yasawas)	3 fishers 10-30+ years commercial and subsistence	Spear, boat with outboard 150 HP, hook and line, some use communal boat.	Spanish mackerel, trevally, triggerfish, P. leopardus, E. fuscoguttatus, P. areolatus, Acanthurus, Plectrorhynchus, E. polyphkadion, Lutjanus spp. Lethrinus spp. scarids	Declines have occurred due to improved fishing gears, such as wetsuit, face mask, etc. Some declines up to 60-70% over 40 years (less obvious to fishers with shorter experience)- need to protect Naviti reefs. Worried about outsiders and need	Should go back to using traditional gear and reduce dynamite use, and derris use. Need help from government.

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				alternatives to fishing (such as coconut and ecotourism)	
Susui (26&28/10/03) (Vanuabalavu, Lau Is.)	5 fishers 20 + years, commercial and subsistence. Prices for live fish include a royalty payment to local chiefs – good quality live fish FJ\$10/kg (dead fish FJ\$5/kg). SCUBA began about the 1980s and compressors came in about 1990s.	Spear, net, hook and line, boats with outboards to 8-40 HP, night diving is for commercial sale only. Dynamite was once used but not any more.	Lethrinus spp., L. elongatus, L. mahsena, P. laevis, P. areolatus, P. leopardus, Lutjanus spp., G. robinsoni, E. fuscoguttatus, E. polyphkadion, E. merra, E. corallicola/spilotoc eps, yellow surgeonfish, Naso unicornis, Bolbometopon muricatum, Acanthurus spp. smaller groups. Spanish mackerel, trevally, Plectorhynchus, Barracuda, Aprion, porcupinefish, rabbitfish, Scarus spp. Lutanjus bohar, large eye bream.	Catches have declined in general. Some compressor diving (for beche de mer) but some boys died. Some SCUBA is used – boys with a single trader. With declining catches, fishers go out further than before. Declines in E. polyphkadion might be due to increase in night-diving that began in the 1990s. Declines noted in sizes and numbers of P. leopardus, P. areolatus, E. polyphkadion and Plectorhynchus. Thinks that different declines due to fish being easier or harder to catch, including at nighttime.	Problems noted with live fish trade since food fish were used to feed fish in cages waiting for export, and there were problems with payments. Can hold fish several months to make 15t shipment but up to 20% mortality occurred. Use of SCUBA illegal. Concerned about declines in catches of grouper but not sure what to do – used to protect one aggregation site physically but so many people go out there from different communities (some from Viti Levu) that it is hard and live fish are also being taken. Outsiders mainly fish for Spanish mackerel, barracuda and trevally. Very concerned about declines and issue of ownership of fishing grounds and enforcement. Many more fishermen now and many more divers than before. Many people are upset about

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					compressors and solutions are difficult because of conflicts at qoliquoli boundaries. Believe that once this is solved, community is motivated to protect resources with help from fisheries dept. Thinks they should ban night-fishing.
Daliconi (27/10/03) Vanuabalavu, Lau Is.)	5 fishers 6-35 years – all but one over 16 years	Hook and line, spear (especially at night) boats changes from 8 to 30 to 40 HP over 35 years. Some just have rowboat and go out with others if occasionally. Subsistence and market. Fj\$ 2 per kg for grouper and lethrinus = grade 1 fish and 4-5 FJ\$/kg in Suva.	Pristipomoides, mackerel, E. polyphekadion, various grouper, P. leopardus, P. areolatus, Lethrinus spp. L. elongates, L. mahsena, Spanish mackerel, Sambutu, barracuda, P. laevis, Priacanthus, E. fuscoguttatus, Lutjanus fulvus, L. gibbus, L. bohar, Plectorhynchus	Catches variable over time and there are declines noted but attitude expressed is more that can still get what they need even if numbers have declined. More boats are coming than before with more market than subsistence activity now than before.	Feel no SCUBA or compressors should be used and that aggregating area should be protected for four weeks. Community needs to consider protection but very concerned about enforcement – particularly worried that fishing pressure is increasing. Recognize that focusing on aggregations could be problematic. Community only recently realizing problems with aggregation fishing and needs to discuss options.
Cikobia (28/10/03) (Vanuabalavu,	5 fishers 20-30+ years,	Hook and line, 4-40 hp, some no boat and go	L. elongatus, Green jobfish, E. polyphekadion, P.	Some species have declined a lot, such as E. polyphekadion and	Compressor is prohibited because it drives down resources. Aggregations are

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Lau Is.)	subsistence and market – village has 13 households and about 5 active fishermen – also work with copra and fish supplies about 30% annual cash income to village.	out with others, changed from goggles no fins and wooden spear to sling spear.	laevis, P. leopardus, Lutjanus bohar, E. fuscoguttatus, E. merra, P. areolatus, Surgeonfish, L. mahsena, L. variegates, L. nebulosus, Plectorhynchus, scarids, Kyphosus, yellowfin surgeonfish, Naso, black trevally, batfish, E. maculates, barracuda.	others not so much such as L. mahsena	not essential for annual catches and could stop fishing them but could not stop others. Would be good to have a law but need fisheries dept. to enforce. Feeling that the community has to discuss declines.
Nukusa (4.11.03) north Vanua Levu)	4 fishers 10-40 years experience. Community has 6 people with boats, engines and nets.	Hook and line, net, spear, 10-30 hp	Gymnocranius, triggerfish, Monotaxis, trevally, Lethrinus nebulosus, L. harak, L. mahsena, L. vareigatus, L. elongatus, P. leopardus, P. areolatus, L. bohar, E. polyphekadion, E. malabaricus, Naso, Siganus spp. Scarids, mullets, mackerel, garfish,	E. hoeti used to be caught in large numbers, now almost gone. Catches generally declined particularly mullet, E. polyphekadion, Bolbometopon muricatum and Cheilinus undulatus, and especially after 1980s or so when night fishing increased. Another perspective is that fish are not	Community recognizes need to act and has surveys of fishery to be conducted and has own MPA.

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			small groupers, <i>Bolbometopon muricatum</i>	declining but fish are disturbed so move away. More predictable species decline most, e.g. <i>E. polyphekadion</i> , <i>L. mahsena</i> , <i>Plectrorhynchus chaetodontoides</i> and <i>Lutjanus gibbus</i> .	
Druadrua Is. (6.11.03) (Salevuoso, north Vanua Levu)	4 fishers In community, 15 households and 30 fishermen. 5-30+ years, subsistence and market. Catches have declined from 40 to 10 kg per trip in 20 years. Night catches 3 times day catches.	Hook and line, 30 HP	<i>Lethrinus</i> spp. <i>E. polyphekadion</i> , small groupers, <i>P. areolatus</i> and <i>P. leopardus</i> , scarids, <i>Plectrorhynchus</i> , <i>L. bohar</i> , small groupers, triggerfish, batfish, <i>E. hoedi</i> , <i>Bolbometopon muricatum</i> , <i>E. malabaricus</i> , trevally, <i>Naso</i> , yellowfin surgeonfish	In 20 years a clear decline in fish due to increasing gear and increasing fishermen and also fishing at night. Some species particularly reduced, e.g. <i>E. polyphekadion</i> and <i>Plectrorhynchus</i> which stay at predictable places. There are also more fishers than before. Fewer fish and smaller than before.	Community needs information and help from government in enforcement. Not much discussion in community but should be. There is a real need for alternatives to fishing. Thinks that larger fish no longer available since have gone deeper. Night diving is a big problem but communities need more information.
Mali Is. (7.11.03) (Nakawaga, north Vanua Levu)	3 fishers 15-20 years 24 households, 17 fishermen	Spear, hook and line, 25 HP, occasionally net	<i>P. leopardus</i> , scarids, <i>E. malabaricus</i> , small groupers, garfish, <i>E. hoedii</i> , <i>Lethrinus</i> spp. <i>Kyphosus</i> ,	Catches have dropped 50 % or more in 20 years. Particularly declined is large <i>Plectrorhynchus</i> as predictable when has	No compressors in the area but lots of boats come to fish at the aggregations nowadays. Want to set up MPA to protect the reef passages. The village is

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	commercial and subsistence		Plectorhynchus, L. bohar, P. areolatus, Porcupinefish, batfish, Acanthurus, Naso, rabbitfish, triggerfish, Spanish mackerel, Bolbometopon muricatum, trevally	eggs. Aggregating fish declining since fish are taken with eggs. Live fish traders tried to enter area but were rejected because prices were too low.	discussing the issue and especially means of keeping other fishers out. Need help with enforcement. Want to see number of licences limited but also wants to catch more fish. Some looking to travel further to find more fish. No night diving here.
Yaro (6/2/04) (Kia, Macuata, north Vanua Levu)	5 fishers 25-30+ subsistence and commercial.	Hook and line, boat and 5- 40 hp, throwing spear used before but move to spear gun – hp increase ed 5 to 18 to 25, gill net	E. fuscoguttatus, L. mahsena, L. elongatus, P. leopardus, Caranx malampygus, C. ignobilis. Sphyræna P. laevis, E. polyphekadion, E. malabaricus, L. variegatus, Plectorhynchus spp. C. undulatus, C. minuatus, L. nebulosus, L. variegatus, Lutjanus gibbus, Acanthurus zanthopterus	Fish numbers have declined because so many caught with eggs. Many groupers are caught particularly in spawning period. E. fuscoguttatus and E. polyphekadion, much smaller fish are not targeted. Need support from fisheries dept. P. areolatus decreased – fish now found deeper and there is more pressure on aggregating fish. Bolbometopon muricatum and Cheilinus undulatus declined greatly.	Quite some concern over declines. Need to protect fish in reproduction month since now lots of people know and come to fish, but there is no serious discussion in communities and it is needed. Sizes and numbers of fish have declined, and fishers started to move further away to fish – got engines and found more fish further away. Concern in community but some not aware that fishing aggregations can reduce fish. Should decrease number of licenses and review license system since may not extend to aggregation site. Should avoid taking smaller fish.

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					They don't want compressors. Only recently has Kia had its fishing boundary formalized. Ban gill nets and decrease number of fishing licences issued and outsiders coming in. Need help from fisheries dept. especially with enforcement.
Yaqaga (11/02/03) (Bua, Vanua Levu)	5 fishers 21-30+ years, subsistence and commercial	From paddle boat then had boat with engine, fishing line and spear. Some provision of boats by live fish traders, such as 15-40 hp, hook and line was increasingly used in the 1990s to get live fish for this trade.	L. nebulosus, L. elongatus, L. mahsena, naso uniconish, Lutjanus gibbus, Sphyræna, Plectorhynchus, Caranx melampygus, C. ignobilis, mackerel and for live fish trade targeted P. leopardus,P. areolatus, P. laevis, E. polyphekadion and E. fuscoguttatus, E. malabaricus. Beche de mer in earlier days when still around	Slowly moved further away from inshore with introduction of engine and to get more fish and for live fish trade fishing. Decrease in size of fish and catch although some fluctuation in catch rates also. Has observed that P. leopardus much decreased due to heavy fishing pressure. Also declines noted in L. nebulosus and L. elongatus and E. polyphekadion and P. areolatus, E. fuscoguttatus declined after 1992. Declines in	Declines due to too many boats, especially in 1990s when live fish trade was active. No discussion but this is needed in community. Should decrease permits to fish. Enforcement of qoliqoli boundaries weak and needs help from fisheries dept to enforce. Maybe some of the groupers declined because they have eggs and so many are taken at that time. Community not always notified on number of permits given out. Needs ownership to ground properly transferred to community. Illegal Chinese vessel without permit has come to buy fish. Size

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				Cheilinus undulatus are marked. Groupers are heavily targeted throughout year. Declines not noted in mackerel size but catches of the species are now less .	controls are not enforced. Need more fish wardens and give them boat. Since the live fish trade now banned, fish should come back.
Niurua (9/02/03) Macuata, Vanua Levu)	5 fishers 8-20+ years	Hire boat with 45 hp in a group, use spear and hook and line, and net, 5hp-15 hp on own boats, large fishing boats 7-8 people in a boat.	Trevally, L. nebulosus, L. mahsena, L. elongatus, E. fuscoguttatus, E. polyphemadion, P. areolatus, P. leopardus, Caranx ignobilis, Siganus spinus, Lutjanus bohar, L. gibbus, L. fulviflamma, Naso unicornis, Siganus vermiculatus, Acanthurus xanopterus, Scarus ghobban, Barracuda	Some declines e.g. L. elongatus. Fishing pressure has increased due to boats that go further, are more numerous, and to poaching. Bolbometopon muricatum has declined. Declines in sizes of Plectropomus chaetodonoides? taken.	Not concerned about the fishery. Have enough to feed the family. Cannot easily sell fish so do not need to catch too many. No discussion of protection in the community. Could decrease number of fishing licenses issued to outsiders and ban duva. Want fisheries dept. to do monitoring and help with regulation of resource use. Could enforce the existing gillnet ban. Should ban compressor use by outside fishermen

- * tourism is already very well developed in the Yasawas
- ** spear not with SCUBA; spear often started as spear with sling several decades ago and then a speargun
- *** all fishers regular fishing activity – at least several times a week, usually more.

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APPENDIX I

Table A of 21 fisher interviews conducted between 16-24 Oct, 2003 in Viti Levu (see community summaries in above Table)

Interview number	Date of interview (fisherman age) and fishing area/how long fishing	Gear(s); major gear, if any, in bold List main species caught	Evidence for spawning in aggregations – identify by species name (if multiple species keep species-specific details intact)	Timing of aggregations and their location (name of site or coordinates if provided) – identify by species name	Information on catch rates and history of the aggregation fishery	Problems and solutions identified by fishermen
A1	16/10/03 (N/A) Navotuvotu/ 1970s onwards	Hook and line <i>Epinephelus merra</i> , <i>E. fuscoguttatus</i> , yellow surgeonfish, <i>Plectropomus leopardus</i> , <i>P. areolatus</i> , <i>P. laevis</i> , <i>Lutjanus fulviflamma</i> , <i>L.</i>	<i>E. fuscoguttatus</i> : with eggs	<i>E. fuscoguttatus</i> in Oct-Nov, only seen a few at this time but few more than at other times especially in Navotuvotu channel (178°43' E, 18°4' S); 2-3' long.	<i>E. fuscoguttatus</i> : Fish catches per day have declined from 20 bundles/day at 1.2-1.3 kg/bundle to 2-3 barrels/day.	Declines due to increase in fishing nets (now about 10). Fisher concerned about declines; says that Indians come in and feels these incursions

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		<i>fulvus</i> , <i>Lethrinus</i> species such as <i>L. mahsena</i> , <i>E. ongus</i>	<i>Lethrinus harak</i> sometimes with eggs, good catches	<i>Lethrinus harak</i> in Oct-Dec; not lunar driven, come with easterly winds, found in different places		should be reduced; hopes to protect Navotuvotu channel as it is recognized as a good site
A2	16/10/03 (N/A) SW of Kiuva, not far from shore for net; outside reef from Navotuvotu passage northwards, and along outer reef for speargun/ 20 years	Free-diving with spear in the 1980s; fishnet in the 1990s Yellowfin surgeonfish, humphead parrotfish, rabbitfish, <i>Scarus</i> species, <i>P. areolatus</i> , <i>P. leopardus</i> , <i>Lethrinus</i> species, <i>Cephalopholis argus</i> , <i>E. fuscoguttatus</i> , mullets probably <i>Mugil cephalus</i> and <i>M. liza</i>	<i>E. fuscoguttatus</i> with eggs	<i>E. fuscoguttatus</i> fisher clearly recalls seeing this species during just a month or so and often for a short time with eggs, but cannot be sure of the month. Fisher recalls catching fish up to 2 feet long and saw along with <i>P. leopardus</i> and <i>P. areolatus</i> in the 1980s on edges of outer reefs and at edges of channel north of Navotuvotu.	A good catch <i>E.fuscoguttatus</i> : 4-6 fish/day but decreased during the 1980s. Had heard of fishing site for good catch (northern site) from community elders.	Declines caused by fishers coming from all over and taking fish. Fisher worries for younger generations, wants the government to enforce regulation and needs help to protect area.
			<i>Siganus vermiculatus</i> : good catch	Oct; site for good catch 178°41' E, 18°4' S	<i>Siganus vermiculatus</i> : catch 300 fish full of eggs one night in 1989. Numbers have decline since. Easy to catch at this time.	
			Mullets probably <i>Mugil cephalus</i>	Oct		

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			and <i>M. liza</i> : eggs			
A3	16/10/03 (50y) from community Kiuva, Viti Levu to reef crest/35 years	Spear, net (Both gears:) milkfish, <i>Siganus vermiculatus</i> , <i>Naso</i> species, surgeonfish, <i>E. merra</i> , <i>E. fuscoguttatus</i> , <i>E. fulvus</i>	Milkfish <i>Chanos chanos</i> : with eggs	Oct	Milkfish: 10 years ago, a good catch would be 30 fish; 10 or so large fish caught last week considered a good catch	Fisher noted declines in catches and sizes in his lifetime; aware of much use of poison fishing – derris used with gill nets and rabbitfish with eggs herded into nets and then poisoned; derris mainly used by outsiders but also widely used by children and women for fun. The use of derris is not permitted. Fisher recommends to stop using fish poison and reduce fishing pressure; to increase mesh size on nets from 1’’/2’’ to
			<i>Siganus vermiculatus</i> : with eggs	Oct; Navotuvotu	<i>Siganus vermiculatus</i> : in the 1960s, fisher could catch 4 boatloads of fish and good numbers were available until about 10 years ago; now, numbers very few. These numbers were taken in Oct when fish have eggs.	
			Surgeonfish: with eggs	Oct/Nov. Less information available since this is not a major target species.		

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			Groupers: mainly <i>E. merra</i> , <i>E. fulvus</i> , <i>E. fuscoguttatus</i> :	heard of stories of large numbers along outer reef off Kivva in Oct-Nov	Groupers: not in large numbers now.	much bigger size; to reduce outsiders coming in and to enforce regulations.
A4	17/10/03 (N/A) 2.5km to west of village Navutulevu, Viti Levu and out to nearby reef crest is passage/20 years	Spear, gillnet All gears catch: <i>Naso unicornis</i> , Bluefin trevally, <i>Lethrinus</i> species including <i>L. harak</i> , <i>Lutjanus gibbus</i> , <i>Mugil cephalus</i> and <i>M. liza</i> , goatfish, rabbitfish, <i>Sphyraena</i> species, silver biddy, milkfish	<i>Mugil cephalus</i> and <i>M. liza</i> : both have eggs	Aug-Sep. Fisher thinks come from these fish in creeks and mangroves; and notes fish with eggs for just a few days in week before new moon – just a short time. He is the only one catching these fish and showed 2 places on the map where he would always be able to catch good numbers.	<i>Mugil cephalus</i> : 10 years ago could catch 100; now about half in season with eggs of (1' – 2'- long fish) <i>M. liza</i> : 10 years ago 200 fish; now less	Overall, his catches are very variable but in the long term he has noted a decline – he thinks this is partly due to night fishing, and in the case of mullets, he recognized that catching fish with eggs would harm populations. He asked how community could better

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			<i>Siganus vermiculatus</i> : with eggs	Oct-Dec; could catch with eggs in one particular month but does not remember which month.	<i>Siganus vermiculatus</i> : 10 years ago, can catch 35 fish/day; now 10 fish/day but numbers variable	protect resources.
A5	17/10/03 (N/A) inshore sites only – note there are not many net fishermen/20 years	Speargun – night fishing, free diving, 3 hours per night Parrotfish, rabbitfish, groupers, porcupine fish, <i>E. fuscoguttatus</i> (up to 1.5 feet) and <i>E. merra</i> , goatfishes	Rabbitfish: with eggs Goatfish: with eggs	Sep but not a fish the fisher catches much. Fisher thinks in Apr.	A good catch one night is 30-40 fish, often 1-1.5 feet long. Fishing for 3 hours, 1-5 people in boat.	
A6	17/10/03 (N/A) nearby reefs, Vavutulevu, Viti Levu/4 years	Spear at night <i>Lutjanus gibbus</i> , <i>Naso univornis</i> , <i>Siganus vermiculatus</i> , yellowfish surgeonfish, <i>Plectorhinchus</i> spp, <i>E.</i>	<i>Lutjanus gibbus</i> : with eggs	Sep-Oct; has seen 100 in a group on outer reef, only has seen groups of the species at this time.	20-50 fish per trip, one hour per night	

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		<i>fuscoguttatus</i> (esp around Oct, about 1.5 feet max length)				
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A7	17/10/03 (N/A) off beach, west of community Navutulevu and out to channel/ two ladies fishing together for 10 years	Hook and line <i>Lutjanus gibbus</i> , <i>L. fulvus</i> , <i>Lethrinus</i> spp including <i>L. harak</i> , <i>L. mahsena</i> , <i>L. elongates</i> , triggerfish, <i>E. merra</i> and <i>E. hexagonatus</i> , soldierfishes	<i>E. merra</i> and <i>E. hexagonatus</i> : with lots of eggs	in cold season, mainly Jun-Sep. Sereana says that when with eggs does not catch a lot but catch more at other times while Vasiti says mainly Aug/Oct with eggs, especially 2 nd week of Oct catches a lot with eggs around top of outer reef and reef flat, up to 1.5 feet long and on outer reef slope, and especially for <i>E. hexagonatus</i> in passage; has fished concertations for many years, about 4-5 people in one boat fishing them.	<i>E. merra</i> and <i>E. hexagonatus</i> : can catch 70-80 fish in one trip with eggs. Most recent catches 10-20 fish per trip.	Both noted declines over the 10 year period. However, Vasiti feels that catches may have increase in??? Sinu?? protected area. The area (250x300 m ²) was agreed to this year and came about because 14 ladies petitioned for it. Community agreed and is waiting for government to gazette it. Past problems included outsiders coming in to fish and use of poison. Also increase in night diving and increase in nets.
			<i>Lutjanus gibbus</i>	also found in one or		

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			and <i>Lethrinus mahsena</i> : with eggs, good catch	two places inside lagoon (has many rocks) in Sep/Oct and catch many fish at this time.		
A8	17/10/03 (N/A) inside lagoon, passage and outer reef in Novutulevu/since 1966, part time	Spear and nets including <i>L. harak</i> , <i>Lutjanus gibbus</i> and <i>L. fulvus</i> , <i>E. fuscoguttatus</i> to 1.5 feet, <i>E. merra</i> , <i>E. polyphkadion</i> , <i>Plectropomus areolatus</i> in channel apron, mullets		with eggs.	Typically catch 10-14 fish.	Cannot enter MPA for 5 years and feels this is a good idea to help fish recover. Has seen fish decline in size and sees fish are scared. And thinks this is a problem.
			<i>E. polyphkadion</i> : with eggs	Sep/Oct	<i>E. polyphkadion</i> : catch a lot: 2-3 fish a trip of 1-2 feet all over the reef which can be quite shallow (waist deep)	
			<i>P. areolatus</i> : with eggs	in channel apron in Jan, sees in reasonable numbers but not a lot.		
			Rabbitfish: with eggs - does not know all species with eggs.	Saw eggs early Sep this year.	Rabbitfish: 130 fish in a net/trip, fish 1 foot long.	
A9	21/10/03 (N/A) outer reefs and top of reefs in eastern Naviti,	Free diving and spear <i>P. leopardus</i> ,	<i>P. leopardus</i> : with eggs	Sep/Oct/Nov - not clear on the timing, sees together with <i>E. malabaricus</i> (?)	<i>E. polyphkadion</i> : on bomboras and around reefs In March??	Compressor diving forbidden in Mvairia but allowed in other places for sea

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	Muaria-Naviti/7 years	trevally, yellowfin surgeonfish, <i>Scarus</i> spp, batfish, <i>E. fuscoguttatus/polyphkadion</i> , <i>Plectorrhinchus</i> spp, <i>Lethrinus harak</i> , <i>Lutjanus gibbus</i> , <i>Bolbometopon muricatum</i>	<i>L. harak</i> and surgeonfish: recalls with eggs	In many months	catch 20-30 fish/trip but depends on weather, sees widespread but especially along channel, 1-1.5' fish up to 10 caught a trip. Numbers declining because ground is heavily fished. When he spears a fish, others come over. 11 people can fish in these aggregation places.	cucumbers, which started in 1982. Will come a time when resources declines and tourism can be a way to earn money.
A10	21/10/03 (N/A) outer reefs and top of reefs in eastern Naviti, also near shore, Naviti-Muaria/20 years	Spear <i>E. polyphkadion</i> , <i>P. leopardus</i> , <i>Acanthurus nigrofuscus</i> , needlefish, <i>E. fuscoguttatus</i>	<i>E. fuscoguttatus</i> : with eggs, good catch	<i>E. fuscoguttatus</i> : sometimes in year; but does not know which months Knew of many groupers (species unclear) coming in from passage ('Pita's bommie') as a child.	<i>E. fuscoguttatus</i> : catches 1-3 a trip which is a lot	Sees change in catch over time with decline in number and size of fish.

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A11	21/10/03 (50y) along eastern reefs mainly – all along to north and souther of Naviti, also inner reefs and all the way east to Lavtuka. ‘Pita’s bommy’, Muaria-Naviti/35 years	Spear Yellowfin surgeonfish, <i>Scarus</i> spp, <i>Naso</i> spp, <i>Plectorrhinchus</i> spp, <i>E. fuscoguttatus/polyphkadion</i> , <i>P. areolatus</i> , <i>P. leopardus</i>	<i>E. fuscoguttatus/polyphkadion</i> : eggs	Not sure when - Oct?, does not recall particular places , max about 2’ long	Feels numbers of fish might have increased but not clear on trend. Much better catch at Naviti and eastern reefs than Lautoka.	Concerned about use of dynamite and compressors for sea cucumber but also for fish and has affected fish.
				<i>P. leopardus</i> : on top of reefs, shallow down to 10m, appear with large shoals of little fish		
			<i>P. areolatus</i> : eggs, large numbers underwater	<i>P. areolatus</i> : large numbers – 20/30 fish underwater in one view especially at ‘Pita’s bommie’ (17°12’797S, 177°16’303E). also sees along edges (outer) of reef just around from edges of channel and on bommies in channel and a little outside. Thinks with eggs in May around full moon. Saw eggs every year for 2-3 consecutive months. Heard about the aggregation site from another community on Naviti. Several communities fish there – up to 10 boats, fish up to 2’ long. Also notes		

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				clusters on reef promontories.		
A12	22/10/03 (N/A) up and down eastern reefs and off eastwards on scattered reefs on the way to Lautoka, Malevu - Naviti/from 1988-2003	Spear/free dive, hook and line <i>P. areolatus, P. leopardus, E. fuscoguttatus, Lethrinus spp</i>	<i>P. areolatus</i> : eggs Another grouper (unknown species) has many eggs and numbers in Oct.	<i>P. areolatus</i> : May, particularly at Cakau Udulevu reef (see western apex interview #17) Best fishing time is around full moon.	<i>P. areolatus</i> : used to get 20 bundles per trip; now about 15 bundles – so a small decline noted. About 15 boats also fish the site. Learned about the site from villagers of nearby island. The site is known since 1980s. Has seen declines overall although much variability over time in 1988, there were plenty of fish and very few compressors. (my impression is that compressors arrived between 1985-95.s)	In 1988, few compressors; now many compressors taking beche de mer but also taking fish. To improve catches, chiefs much stop compressors. In Malevu, 3 boats have compressors mostly younger divers and sometimes accidents occur.

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A13	22/10/03 (N/A) all along eastern waters on outer edges of outer reefs and moved quite widely N and S along reefs, and Pita, Naviti - Malevu/36 years	1967-1995: spear/free dive; after 1995, net, hook and line <i>Caranx ignobilis</i> and <i>C. lugubris</i> , Spanish mackerel, <i>P. leopardus</i> , <i>E. fuscoguttas</i> , barracuda, batfish, sweetlips	Sweetlips: big groups and have eggs	Sweetlips: full moon in Jun at certain places along the reef	Declines in two aggregating sweetlips.	Compressors increasing along outer reefs – came for sea cucumber. Before compressors, could get 100-200 sea cucumbers a day; after compressors and diving on air, get 10-15 kg per day.
			<i>P. areolatus</i> : fish behavior as being quite lazy, a lot of fish with eggs. Sometimes sees 400 fish at a time oriented into the current – 1-1.5' long.	<i>P. areolatus</i> : Nov and May, identifies 4 places – one place we dived (see marks on the map); another is the apex on the western end of reef on interview #17. Has known about the dived site (Pita) since 1974. 1-2 weeks coming up to full moon.	1975, 140-150 fish per trip; 1985, 15-20 fish per trip; 1990, 10-20 per trip. Declines in <i>P. areolatus</i> over time. Increase in shark populations so divers do not want to enter water. Also thinks they go inside rocks when without eggs and so cannot see them much at other times.	
					Mullets: father used to catch 100 mullets and just eat the eggs – smoked dried the rest. He could catch 500	

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					over short time as they migrated along NE coast – one afternoon, 8 Oct 2003, 500 fish 3’’ mush 1 km long 2 spp around 1’long.	
			<i>P. leopardus</i> : in big numbers with eggs when small fish (‘matewara’ cardinal fish?) come	Jun-Oct		
			<i>E. ongus</i> ? In large numbers with eggs	1-2 months on dead corals		

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					Overall feels that there are declines in all catches and especially in <i>P. areolatus</i> and the 2 aggregating sweetlips due to many boats and high fishing pressure and also must decrease dynamite use.	
A14	22/10/03 (N/A) between Naviti and Lautoka and eastern Naviti and outer reef areas N and S/from 1975-1998	Spear/free dive <i>Naso unicornis</i> , <i>Scarus</i> spp, rabbittfish, yellowfin surgeonfish, <i>Bolbometopon muricatum</i> , sweetlips, <i>P. leopardus</i> , <i>P. areolatus</i> , small <i>Epinephelus</i> spp such as <i>E. maculatus</i>	<i>P. leopardus</i> : sometimes sees eggs but not sure which months. <i>P. areolatus</i> : have eggs and good catch	<i>P. leopardus</i> : generally along outer reef areas <i>P. areolatus</i> : short period during one month, not sure which month. Sometimes inside eastern part of Soso Bay, close to shore. The interviewee has returned many years to the same site, which	<i>P. leopardus</i> : 5-6 fish would be good catch around this time. <i>P. areolatus</i> : one night can catch 10-15 fish, 5 boats or so at site. Fish numbers have declined between 1984-2000.	Overall catch has declined over time due to increase in number of fishermen which come from all over. Interviewee not concerned about these declines but is concerned for next generation. Feels that help for the

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				was first discovered in 1984 and fished to 200.	Interviewee sells fish mostly in Lautoka.	community would be from more tourism.
A15	22/10/03 (N/A) along outer edges of reef from Naviti to Lautoka, and Pita/from 1977-2000	Free dive, hook and line <i>P. leopardus</i> , <i>Lethrinus</i> spp, <i>Naso unicornis</i> , <i>E. polyphkadion</i> , <i>Scarus</i> spp, <i>P. areolatus</i> , <i>E. maculatus</i>	<i>P. areolatus</i> : with eggs and higher catches.	<i>P. areolatus</i> : Jun-Jul, in certain places such as bommies in the channel we visited and a site near Viti Levu.	<i>P. areolatus</i> : could catch in early days 30-40 fish on average per person per trip and there would be 4 people in boat. Number of fish declined and in recent years almost no fish (almost 100% decline)	Advice is to impose MPA and protect fish at the aggregating site, thinks that community would accept this. Asked us how the protection could be enforced.
			<i>P. leopardus</i> : with eggs; this fish has eggs when clouds of little fish, probably cardinal fish, are around noted by this fisher and many others.	<i>P. leopardus</i> : 1-5 days before full moon. Jun-Jul. Quite spread out on outer reef edges.	<i>P. leopardus</i> : 20-30 fish per trip but declined by about 50% over time.	
					General patterns	

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					of fish catches: declines of about 60% overall.	
A16	22/10/03 (N/A) outside the passage off the community, up and down outer reef and N and S beyond Naviti island/from 1960-1980	Spear/free dive, hook and line <i>P. leopardus</i> , <i>P. areolatus</i> , <i>E. polyphekadion</i> , <i>E. maculatus</i> , sweetlips, <i>Lethrinus</i> spp, moray eel, Batfishes, flatfish	<i>P. areolatus</i> : with eggs and very many fish. Saw 30-40 fish and another 30-40 more fish in short distance.	<i>P. areolatus</i> : Aug-Nov (interviewee very clear about this). Could not readily identify a lunar phase other than ‘at 10-11 pm moon rising and see moon in the day’. In passage we visited – inside passage and along opening and sides. Learned about this site from his parents in 1960s, does not know when they discovered it.	<i>P. areolatus</i> : 15-20 fish per trip. From 1960-1980, catches similar, then increased in 1980-90 because of better gear (mask and fins and wetsuit) the declines occurred in 1990s because fishermen could stay in water too long with better gear and take too many fish. About 4 boats and 4-5 fishers per boat fished the site regularly.	During spawning season, community should forbid fishing on spawning aggregations.
A17	23/10/03 (82y) E and W waters of Naviti but	Spear Spanish mackerel,	<i>P. areolatus</i> : with eggs, in large numbers, are lazy and are easy to	<i>P. areolatus</i> : Oct-Apr. Seems to be only between full and new moons and for this two	<i>P. areolatus</i> : 1950-early 1970, 3 sacks of fish per trip with	Feels declines due to improved fishing with snorkel and fins

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	especially out to BA, Lautoka, Tavua and Rakiraki, also S of Naviti at Taba Ni Oarau reef/36 years	triggerfish, trevally, P. leopardus, E. fuscoguttatus, E. areolatus, Scarus spp, <i>B.muricatum, Cheilinus undulates, Lethrinus</i> spp, mullet, barracuda, halfbeak, <i>Lutjanus</i> spp, <i>E. polyphkadion</i>	catch. Underwater he sees a lot of fish all around and as far as you can look. <i>E. polyphkadion:</i> eggs and high numbers, too many to count underwater.	week period only. Particular places were ‘Cakau Udu levu’ reef and nearby ‘Vakarale’ reef between Lautoka and Naviti especially in one location (see * and ** on map over). Other places also on outer reefs but smaller than **. Found main site ** in 1950s by chance. <i>E. polyphkadion:</i> Oct-May, at the end of the reef.	one sack = 200kg. In 1970s, noticed a decline so moved on to other fishing grounds.	and wetsuit and facemask. Should go back to traditional gear to solve overfishing problem. Also too much dynamite has really affected habitat and also problem with Derris – need help from government.
A18	23/10/03 (N/A) Somosomo	Spear, hook and line	<i>P. areolatus:</i> with eggs and in groups	<i>P. areolatus:</i> months and locations unclear		Government should help improve

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	<p>and towards Lautoka including reefs of Naviti especially NW and NE reefs /1963-2002</p>	<p><i>Acanthurus</i> spp, <i>Plectorhinchus</i> spp, <i>E. fuscoguttatus</i>, <i>E. polyphkadion</i>, <i>P. leopardus</i>, <i>P. areolatus</i>, trevally, <i>Lutjanus</i> spp, <i>Lethrinus</i> spp, <i>Scarus</i> spp</p>	<p><i>Epinephelus</i>: sees small species with eggs = more or less 12'' max length. Thinks it is <i>E. maculatus</i> or at least alike.</p>	<p><i>Epinephelus</i>: in concentrations close to Lautoka. Reefs edge Nakubu reef.</p>	<p>Overall decreases in catches by 60-70%, attributed to lots of fishing pressure, dynamite and night fishing. Interviewee started nightfishing 20 years ago for commercial sale; compressors started about 7 years ago.</p>	<p>protected areas for example all reefs of Naviti could be protected. Outsiders come in with dynamite (also identified as major problem by community chief). Other alternative to fishing are ecotourism and coconut.</p>
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A19	23/10/03 (N/A) NE and outer reefs of Naviti especially on the outside /10 years	Spear A wide range of reef fishes	<i>P. areolatus</i> : with eggs; 12 fish at most with eggs, which is high numbers.	<i>P. areolatus</i> : months unclear. Around bommies in channel (like one we visited). Learned about the area from other people fished at this site about 4 years.	<i>P. areolatus</i> : best catch would be 10-11 per trip. Did not notice any decline.	Management is not necessary although (on prompting) agreed that dynamite is bad at it affects habitat.
					In generally pattern of fishing, noticed increasing number of fish because they are giving birth most of the time.	
A20	23/10/03 (56) Nativi waters, Waya all the way to Lautoka /1966-77	Diving with spear, free dive <i>P. leopardus</i> , <i>E. fuscoguttatus</i> , trevally, yellowfin surgeonfish, <i>Scarus</i> spp, <i>Plectorhinchus</i> spp, <i>E. polyphkadion</i>	<i>P. areolatus</i> : eggs, good catch	In several months but cannot recall. Saw in groups of 4-10 in a small area around bomboras close to opening of channel to E of Mauira. In shallow areas, similar to <i>E. polyphkadion</i> . Also a little along outer reef east and west of channel opening. He heard about the site from other people in	1960s, 60 bundles per fisher per trip; 4 fishers on his boat. 10 years later, only 3-4 bundle per fisher per trip; but saw 5-6 boats with 5 fishers each. Believes that after eggs come out, fish go	Thinks that chiefs from villages should not give so many fishing licenses; dynamite is also a problem, used to be more derris but now more dynamite. Also increase in compressors used to catch

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				1960s.	deeper.	fish by spearing (no live fish), which is introduced by Chinese businessman some years ago, used by outsiders and villages.
			<i>E. polyphekadion</i> : eggs	<i>E. polyphekadion</i> : same time and place as <i>P. areolatus</i> . A little deeper and also more over the sand than <i>P. areolatus</i> . Hides more than <i>P. areolatus</i> .	<i>E. polyphekadion</i> : good catches less than <i>P. areolatus</i> ; at most 4-10 bundles per fisher per trip.	
			Sweetlips: eggs	Sweetlips: May; many places around bummies	Sweetlips: have decreased.	
			Trevally, Spanish macherek, and barracuda	Trevally, Spanish macherek, and barracuda: Oct-Dec, same months		
					Overall catches have declined; more fishermen and more gear.	
A21	24/10/03 (60y) Nativi waters, all along Yasawas	Hook and line, net, spear Mullet,	2 spp of rabbitfish: eggs, good catch	Sep-Dec but mainly in muddy areas on main island	Generally, declining due to many people fishing and	There are plenty of fish; chief cannot easily refuse licenses

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	especially E side. W side more for pelagics/10 years	barracuda, needlefish, <i>P. leopardus</i> , sweetlips, <i>E. howlandi/hexagonatus</i> , surgeonfish, rabbitfish, <i>Lethrinus</i> spp			scaring them away.	and community committees responsible for fisheries should their job properly. My impression is that he fished mainly inshore for much of the time.
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Interview	<i>Cheilinus undulatus</i>
A1	A special net used for this species. In the 1960s and 1970s, 2-3 big fish caught occasionally; now only a few small ones can be seen, though not often.
A2	Saw occasionally but did not catch; became few over time.
A4	Only sees a few fish and considers it uncommon.
A5	In Beqa where he lived (1984-1997) before he saw this caught in the community – about 6 fish per month, mix of sizes, and fished both days and nights.
A11	Sometime catch but only 0-1 a month. And only one big one in 35 years, sees on outer reefs on edges but hard to catch.
A12	Just one or so a month, uncommon.
A13	Hard to catch and need to use derris. Sees many but catch one large fish a year which gets good price.
A14	
A20	Hard to catch, numbers have declined.

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Table B of 31 fisher interviews conducted between 26 Oct-11 Nov 2003 in Vanuabalavu, N Lau

(179°17'E, 16°18'S).

Interview number	Date of interview (fisherman age) and fishing area/how long fishing	Gear(s); major gear, if any, in bold List main species caught	Evidence for spawning in aggregations – identify by species name (if multiple species keep species-specific details intact)	Timing of aggregations and their location (name of site or coordinates if provided) – identify by species name	Information on catch rates and history of the aggregation fishery	Problems and solutions identified by fishermen
A22	26/10/03 (NA) between eastern point of Yanuyanuisau island and east to Munica Island, sometimes outside reed and to American passage/23 years	Spear, net, hook and line, night diving <i>Lethrinus</i> spp, <i>P. areolatus</i> , <i>P. leopardus</i> , <i>Lutjanus</i> spp., <i>Gymnocranius robinsoni</i> , <i>E. fuscoguttatus</i> , <i>E. polyphkadion</i> , <i>E. coraicolla</i> or <i>spillotosceps</i> , trevally, chub	<i>E. polyphkadion</i> : eggs, catch in large numbers.	Mainly in Aug, some in Sep-Oct. Before and up to full moon. Yalalevu (Togan) to Munia passage in centres of channels. Also site on western side of Gilagila passage. At same site Yalalevu and times caught	Gilagila passage first fished by her in 1990 when she got a boat and got 87 fish and in 2001 got 26 at Yalalevu (Togan) to Munia passage in centres of channels. Recently 6-10 boats in good weather each with 4-5	General catches have declined. Notes that dynamite was once used but now no more – some boys were dying due to compressor used for beche de mer. Noted problems with LRFFT used for feed and for waiting fish (FJ\$1-1.5/kg,

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		mackerel, <i>Scarus</i> , <i>Bolbometopon muricatum</i> (night), <i>Naso unicornis</i> , rabbitfish (net), yellowfin surgeonfish		especially <i>P. areolatus</i> (7 in 1990s and 1 in 2001) not so common. Also found <i>E. fuscoguttatus</i> (Sep/Oct), <i>E. ongius</i> and <i>P. leopardus</i> (Oct-Nov) and <i>P. laevis</i> . Timing of different species a little different.	fishermen. Learned about the site ‘from experience’ but she knew that people were aware of it for a very long time by elders. No divers at the site.	would get 5/kg in market). Prices for live fish include a royalty to local chiefs, prices for good quality live fish is FJ\$10/kg. Can hold fish several months make 15t shipment; 20% mortality possible.
			<i>Naso</i> : eggs	Oct-Dec.		
			<i>P. leopardus</i> : eggs	Oct-Nov in lagoon around bommies.	Does not catch so many when with eggs.	
A23	26/10/03 (NA) around Susui island to Munia Island-	Speargun <i>P. leopardus</i> , <i>Bolbometopon</i>	<i>E. polyphekadion</i> : eggs in big groups.	Aug-Oct or so. Before full moon and coming up to	Heard about the aggregation site from other	Thinks fish are declining and biting less partly because

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	<p>Yalalevu channel and to the west inside outer reef/25 years</p>	<p><i>muricatum, Naso unicornis, Acanthurus spp, Lethrinus spp, E. howlandi, E. fuscoguttatus, Spanish mackerel</i></p>	<p>Saw with facemask hundreds of fish at the site in 1987.</p>	<p>it. Also at the same site with eggs is <i>E. fuscoguttatus</i>, which can only be caught at this time in channel with strong currents. See many <i>E. fuscoguttatus</i>. Also <i>P. leopardus, P. oligacanthus</i> and some (few) <i>P. areolatus</i>.</p>	<p>people as a child and first fished it in 1987 when he got 150 fish (with one other person). In 2001, got 30 fish and noticed decline. Now about 5 boats with 2-10 people a boat. This site is gilagila passage.</p>	<p>of increasing fishing pressure including with SCUBA – one company supplies tanks to locals. SCUBA is a problem – its use is illegal. General catches have declined and fishermen have to go out further than before. Concerned about declines of groupers but not sure how to solve. Does not go out anymore to protect the site since so many people go out there from</p>
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						different communities and is concerned about live fish being taken from there.
A24	26/10/03 (NA) Susui out to Tongan Passage as other from Susui/19 years	Hook and line, net	Rabbitfish: eggs, large numbers	Oct.		Very concerned about declines. Thinks should not dive with tanks but some boys do and are supplied by trader with tanks. Fishing pressure very high in passage. Fishermen even come from Viti Levu in the months when fish have eggs. They are after Spanish mackerel, barracuda and trevally. Only the villagers go
		Hook and line: <i>P. areolatus</i> , <i>E. polyphkadion</i> , Spanish mackerel, <i>P. leopardus</i> , <i>Lethrinus</i> spp, trevally, sweetlips, barracuda, bream, <i>Aprion</i> , Porcupinefish Net: rabbitfish	<i>E. polyphkadion</i> : eggs	Jul-Aug within lagoons and also in the passage. Most catches a week before new moon.	Last year got 30 fish and 15 <i>E. fuscoguttatus</i> at Tongan passage. First fished passage in 1985, heard about it from other fishermen. Best catch ever was about 50 fish/trip but not sure when that was. For <i>E. polyphkadion</i> , first caught a lot of large fish but since	

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					1980s has been a decline in size and number. People come from all over to fish – now 6-7 boats with 3-4 people a boat.	for groupers. Has seen changes (declines) in overall catches and is very concerned about the problem. One big issue is ownership of fishing areas and its enforcement.
			<i>Monotaxis, L. mahsena</i> : eggs	Oct-Dec particularly big Dec-Jan. On bommies on inner reefs.		
			Barracuda: eggs	Oct-Dec mainly Dec.		
A25	27/10/03 (NA) Dravicoi reef, Qilaquila=Ngil lagilla reef, Nambila reef and N and S along east coast inside and outside/35 years	Hook and line <i>Pristipomoides</i> , tuna mackerel, <i>E. polyphkadion</i> , <i>P. leopardus/areo latus</i> , several lethrids and varied groupers	<i>E. polyphkadion</i> : eggs, hydrated eggs	Jul-Aug. sees ‘clumping’ hydration the second week of Aug, second to third week of lunar cycle. At 3 areas: Na(m)bila outside of reef at point, small area. Fish were	First fished in 1974-6, found Na(m)bila or at least had not been told about it. Fished with hook and line and first few times got 200 fish per trip 1.5’ and up to 4kg. By 1980s	Thinks that numbers of <i>E. polyphkadion</i> have gone down because of increase in number of boats and demand higher now, there are commercial interests

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				many and swimming just off the bottom. Depth about 30m. Other sites are Kanacea 4 (Vilivaki reef) and Wakaloa passage 6.	typical catches were 100 and by 1990s about 80. Boats changed at site from 5-6/day in 1980s to 10 a day (3-4 pax a boat) in 1990s. Weather determines which site he goes to. Also sometimes gets a few <i>E. fuscoguttatus</i> , <i>P. areolatus</i> on same sites.	especially since 1980. He is not too concerned about the declines since he simply changed his fishing ground as more boats came to aggregation sites.
				<i>P. leopardus</i> : eggs	Jul and Dec.	In general, catches have been variable over time. Feels no tanks or compressors should be permitted. Should protect the aggregating place for 4 weeks. More boats are coming in than before and more activity
					<i>L. mahsena</i> in Qilaquila passage varies with 200-300 fish a trip 5 boats go.	

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						is market rather than subsistence driven.
A26	27/10/03 (NA) eastern reefs north, south and Kanacea and Malima />20 years	Speargun at night, hook and line <i>L. elongatus, L. mahsena, P. areolatus</i> (better caught at night also H and L), <i>E. polyphkadion</i> , Spanish mackerel	<i>L. elongatus, L. mahsena:</i> eggs	2 weeks in Oct.	Catch many.	Does not perceive that reduction in fish is a problem, notices the declines but even 50 fish is enough. Concerned that fish are caught with eggs and thinks that community should make decisions to protect fish somehow. However, a real problem with enforcement. He noticed general
			Walu: eggs	Nov-Jan.		
			<i>E. polyphkadion</i> : eggs	Aug-Sep. Found with <i>E. fuscoguttatus, P. areolatus</i> on 4 sites: Nambila reef, a promontory just 200 m south of ngillagilla passage. Promontory at Kanacea and promontory #8. Aggregations last 4 weeks. At other times <i>E.</i>	Aggregation site discovered in 1970 by chance by a leader – caught in big numbers of about 500 fish a boat with about 20 <i>P. areolatus</i> and 10 <i>E. fuscoguttatus</i> . Last Aug he went out and they caught 50 <i>E. polyphkadion</i> , 3-4 <i>E. fuscoguttatus</i> ,	

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				<p><i>polyphekadion</i> found around inner lagoon and taken with spear and hook and line.</p> <p>Mid Jul fish move to aggregation sites then with eggs in Aug then disappear in 3-4 weeks.</p>	<p>10 <i>P. areolatus</i>. All hook and line, too deep to dive. The 3 species are found together at the same site. Knows of 4 sites. Fishes at all sites are declining and Nambila is the most heavily fished.</p>	<p>declines in fish catch due to diving at night and compressors in the area. These have been forbidden because of people dying.</p>
			<p><i>L. mahsena</i>: eggs</p>	<p>Aggregates for 2 weeks outside ngillagilla passage entrance after <i>E. polyphekadion</i> (Aug-Sep).</p>	<p>First fished in 1974, found it by freediving, went back and got 200 fish by hook and line. In 1980s and 1990s 10% decline and got 100 fish last Aug. Hard to get timing right so declines not so big.</p>	

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A27	27/10/03 (NA) eastern reefs north, south and Kanacea/6 years	Hook and line <i>E. polyphkadion</i> up to 2', <i>P. areolatus</i> , <i>E. howlandi</i> , <i>P. leopardus</i> (easiest to catch with speargun)	<i>E. polyphkadion</i> : eggs; only occur in groups with eggs.	Aug. Sites identified 3 (best side), 4 and 8.	Found sites by following other fishermen in 1996 and got 300 fish a boat (3 people). More recently 250 fish/boat and a few other species from same site <i>P. areolatus</i> = 20, <i>E. fuscoguttatus</i> 10, <i>E. howlandi</i> = 15. Numbers vary a little from year to year.	Recognizes that there may be a problem focusing on aggregations and that it may not be good for the fish.
			<i>L. mahsena</i> : eggs	Sep. Ngilla Ngilla passage along the sides of the channel and just inside the reef entrance at Kanacea.	In 1998 when first caught fish at site got >100 fish and in 2003 got 70-80 fish/trip.	
A28	27/10/03 (NA) eastern side and Kanacea	Hook and line Barracuda, <i>L.</i>	<i>E. polyphkadion</i> : eggs	Second week of July and second week	First fished Ngillagilla 10 years ago and	Overall his catches have been good

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	and Malima />30 years	<i>mahsena</i> and other spp, <i>E. polyphkadion</i> , <i>P. laevis</i> , <i>P. leopardus</i> , <i>Priacanthus</i>		of Aug. Site Ngillagilla, also Kanacea (Naveluvaki reef). Also a third site which one fished depends on weather. At the same sites, get a few <i>P. areolatus</i> , <i>E. fuscoguttatus</i> when <i>E. polyphkadion</i> is spawning.	got 200 fish in one boat then mid 1990s 60 fish a boat and in 2001 50 fish. Have noted the declines and fishers are now very aware of them. Outside aggregation can catch fish inside red. Many boats now on site, sometimes a yard apart. Fish occur on both sides of the channel.	during his fishing career but have shown a general downward trend. The community and fishermen like him are beginning to realize the problems of too much aggregation fishing.
			<i>L. mahsena</i> : eggs	Aug-Sep, also in reef channels.	Catches have not changed much over time.	

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			<i>Priacanthus:</i> eggs	Oct.		
A29	27/10/03 (NA) eastern side and Kanacea and Malima /16 years	Hook and line <i>L. mahsena</i> (most in 'season'), <i>E. polyphkadion</i> and <i>E. fuscoguttatus</i> (most in 'season'), <i>P. areolatus</i> , <i>P. leopardus</i> , <i>Lutjanus fulvus/gibbus/b ohar</i> , sweetlips	<i>E. polyphkadion</i> : eggs	Jul-Sep (maybe Oct). Best site is ngillagilla.	Site ngillagilla was first discovered by a teacher in 1976. First time he fished in 1976 got 90 fish in one boat; there were 7 boats. In 1989, 50 fish/boat and 5 boats. Catches in recent years much lower because fish are targeted during spawning season when fish have eggs. No other group is caught at this	Feels that community should sit and talk about it and avoid fishing (ban) in the egg months. Concerned about the sue of SCUBA which can lead to overfishing – a possibility is a selling control.

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					aggregation site. Catches 20-30 fish a month outside of spawning season and on inner reef/lagoon area.	
			<i>L. mahsena</i> : eggs	Sep-Oct following <i>E. polyphkadion</i> at the same site.	Landings of fish have not declined as much as <i>E. polyphkadion</i> since few people fish on it.	
A30	28/10/03 (38 years old) from American passage along middle of lagoon and to far side of Tonga passage (their neoligoli)/20 years	Hook and line <i>L. elongates</i> , <i>L. mahsena</i> , green jobfish, <i>E. polyphkadion</i> , <i>P. laevis</i> , <i>P. leopardus</i> , <i>Lutjanus bohar</i>	<i>E. polyphkadion</i> : eggs	Jul-Aug especially second week of July to first week of Aug. At Tongan passage, large concentrations occur especially in the middle of the main channel and	He first fished it in 1982 and discovered it himself by chance. First time caught 80 fish. During 1980s catches were about 120 when good per trip and in 1990s about 70 at most. This	In his 20 years of experience, some species have declined such as <i>E. polyphkadion</i> not such as <i>L. mahsena</i> . Compressor is prohibited because it drives down resources.

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				<p>also in the side channel.</p> <p>Also <i>P. laevis</i> at same time and place.</p> <p>Gets biggest catch before full moon when eggs are 'clumped' (probably hydrated).</p>	<p>year he got 40 fish and overall has noted declines in fish numbers as well as sizes from 2'-1' when fish have eggs. Sees about 3-4 other boats at this place.</p> <p>Outside spawning season catch on bommies in lagoon fir this species. He discovered the American passage site in 1992-3 and thought it would be a good place as it was like Tonga passage. Caught about 150 fish the</p>	
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					first time and 70 fish this year. His is the only boat.	
			<i>L. elongatus, nebulosus, mahsena</i> : eggs	Last week of Sep to last week of Oct. inside smaller channels and reefs (see 'O' on map) both channels.	1 boat can get about 100 and site was first fished in 2000.	
			<i>P. leopardus</i> : egg	Mar he thinks.	In March gets 30/trip and gets 10/trip other times.	
A31	28/10/03 (72 years old) general area of the island and to Tongan passage and as far as American passage but not commonly/30 years	Hook and line, speargun <i>E. polyphekadion, E. fuscoguttatus, E. merra, P. leopardus/areolatus/laevis, L. surgeonfish, L. mahsena, L. elongates, L. variegatus</i>	<i>E. polyphekadion</i> : eggs	Jul-Aug in Tongan passage.	First fished in 1956 and got 30-40 in 2 hours. Could catch all these fish very easily and quickly. Now it takes much longer to catch the same number of fish. He found the site for himself and noticed that he got	Thinks the decline is due to increased fishing pressure. The aggregations are not essential for annual catches and could stop fishing it but could not stop others. He

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					high catches at certain times. Typically 2-3 boats at the site at a time. Catch was pretty stable when he fished the site. In 1980s and 1990s have been seeing a big decline in catches of this fish within the community – a pretty recent realization of the problem.	feels it would be good to have a law (written law) but would need for fisheries to do this and it might be hard to enforce.
			<i>L. elongatus:</i> eggs	Sep-Dec.	Catch a lot around Sep-Dec 50 fish a trip.	
			<i>L. mahsena, P. leopardus</i>	Do not have a season.		

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A32	28/10/03 (NA) from Tongan passage up to American passage outside and inside reef including lagoon bommies/20 years	Hook and line now; before, free dive Free dive: sweetlips, <i>P. areolatus</i> , <i>P. laevis</i> , <i>P. leopardus</i> , <i>Scarus</i> spp, <i>Kyphosus</i> spp, yellowfin surgeonfish, <i>Naso unicornis</i> , <i>Bolbometopon muricatum</i> , black trevally, batfish, <i>E. maculatus</i> . <i>E. polyphekadion</i>	<i>E. polyphekadion</i> : eggs	Jul-Sep. 3 channels in the map with names (Togan passage). Also American passage. At the same time and places catches <i>E. hoedti</i> , <i>P. areolatus</i> , a few <i>E. fuscoguttatus</i> .	Can catch with hook and line and spear. Would see 2-3 boats at same site and catch 30 fish/day. First fished there in 1990, learned of site from village elders. Even in short fishing experience sees declining numbers and sizes of fish. Thinks it is best to protect the aggregation when fish has eggs and can still catch a lot at other times. When fishes aggregation does so just for selling and is worried about declines since	
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					it is a good selling fish. Notes that sharks sometimes come take fish from hooks.	
			<i>L. xanthochilus</i> , <i>L. elongatus</i> , <i>L. mahsena</i> : eggs	Sep-Oct. Not exactly at the same site as groupers but in passage and nearby.	Per species gets from 20-80 fish, feels landings probably about the same over the time he has been to Tongan passage since 1998.	
			<i>L. gibbus</i> , <i>L. bohar</i> : in groups with eggs but not so predictable.			
			Trevally: eggs	Jul-Sep.		
A33	28/10/03 (39 years old) Tongan channel, inside of reef and around waters	Hook and line <i>Lethrinus mahsena</i> , <i>L. xanthochilus</i> , <i>L. nebulosus</i>	<i>E. polyphekadion</i> : eggs	Jun-Jul, mainly end of Jul and in last week of Jun start to catch a lot fish.	Best catch this year in season is 16 fish. First fished in 1976. Just went with adults and later	Reports compressors are banned.

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	between the island and the passage/29 years	(in season), <i>E. polyphkadion</i> (in season), <i>Lutjanus gibbus</i> , <i>L. fulviflamma</i> , <i>L. bohar</i> , <i>E. merra</i> (every month), <i>P. laevis</i> , <i>P. leopardus</i> (catch throughout the year), green jobfish			alone. Just found in Tongan channel but has seen decline of the species in season by 50% in her fishing career. About 5 boats go out to the site. Catches about 10 of this species/month in non-aggregating time.
			<i>P. leopardus</i>		Catches both in season and out of season. Not so many.
			<i>P. laevis</i> , <i>P. leopardus</i>		10 per month. Has a season but cannot recall.

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			<i>L. mahsena</i>	After <i>E. polyphkadion</i> aggregates get this and <i>L. elongatus</i> in season on bommies and in Tongan channel.	Catches appear stable and there are not caught by hook and line much outside spawning season.	
			Green jobfish	Aug-Sep.		
A34	28/10/03 (NA) Togan passage, along inner reef to American passage and inside lagoon />20 years	Hook and line <i>P. areolatus</i> , <i>L. mahsena/elongatus</i> , redbtail snapper/blue-lined snapper/ <i>L. gibbus</i> , <i>L. harak</i> , <i>E. hoedti</i> , <i>E. polyphkadion</i> , <i>P. leopardus</i> , <i>P. laevis</i> , <i>Sphryraena</i>	<i>E. polyphkadion</i> : eggs	Aug. in the 3 passages (main and 2 sides) of Togan passage where curenets are very strong and in American passage to release eggs.	Heard about the sites in 1977 and catches in 1970s were 50-60 fish; 1980s 40 fish; 1990s 30 fish; 2003 26 fish/trip. About 3 boats at site in general. Declines in aggregation catches noted. Also outside of aggregation season catches of same	Concerned about the declines and community has to discuss them.

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					species are declining (inside lagoon). 1977 only fished American passage a few years – too far to go.	
					For other species in his catch had no noticed any particular trend over time in catches.	
			<i>L. elongatus:</i> eggs	Aug.	Trends in catches is down by about 20% similar to <i>L. mahsena</i> .	
A35	28/10/03 (NA) Susui to Munia, inner side of outer reef plus bommies in lagoon/21	Hook and line <i>E. polyphekadion, L. mahsena, P. leopardus, P. laevis, E.</i>	<i>E. elongatus:</i> eggs	Sep.		There has been a big decline in catches that he is aware of due to fishing pressure. There are now many
			<i>E. polyphekadion:</i> large gonads	Oct. On bommies inside lagoon and along inner reef.		

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	years	<i>merra</i>		Coiuld get 20-30 fish per trip in this month and these numbers have declined enormously.		more fishermen and especially more divers. Thinks that delcines in <i>E. polyphkadion</i> has been due to an increase in night diving. This started in 1990s and makes fish much easier to catch. 1980s he thinks SCUBA diving began and 1990s saw compressors come in. the issue of compressors was brought up as one of concern but its use continues and many are upset about this. There have been 3
			<i>L. mehsena:</i> eggs	Sep.	Can catch 20-30 at a time when aggregated catches have declined a lot since his day.	

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						<p>deaths he knows of in another community as a result of compressor use. Worried that solutions to overfishing harder to reach due to conflicts with ngoligoli boundaries and other fishermen coming in. if this is solved believes fishery problems could be solved by community protection; he feels that there is enough interest to succeed. Then they would ask fisheries for help.</p>
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A36	28/10/03 (NA) between Susui and Munia and out to Tongan channel both inside and outside of the reef/> 20 years	<p>Freediving, hook and line</p> <p>Freediving: <i>P. leopardus</i>, <i>P. areolatus</i>, <i>Scarus</i>, <i>L. xanthochilus</i>, <i>E. polyphkadion</i>, <i>Naso unicornis</i>, sweetlips, yellowfin surgeonfish</p> <p>Hook and line: <i>L. mahsena</i>, <i>L. bohar</i>, <i>E. polyphkadion</i>, largeeye bream, Spanish mackerel</p>	Spanish mackerel: eggs	Oct-Dec. 2 sites below.		<p>General catches he has noticed declines in sizes and numbers of fish especially in <i>P. leopardus</i>, <i>P. areolatus</i>, <i>E. polyphkadion</i> and sweetlips. He thinks different species are differently affected – some are easier to catch and there is increased fishing pressure especially at night. Concerned and the community is sometimes concerned. Should try to</p>
			<i>E. polyphkadion</i>	Aug-Sep. Aggregates in front of Tongan channel entrance, seaward side and along outer edges of entrance.	<p>Sees nowadays 5-6 boats. Can be quite spread out or quite close. Does not catch <i>E. fuscoguttatus</i> or <i>P. areolatus</i>. Before used to catch species at Gilagila passage and decided to try Tongan passage since similar. His best catch for this species is 20 fish and has heard stories of many more.</p>	

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					Only started recently at these sites.	ban night fishing he thinks but is not sure if it could work.
			<i>E. merra</i> ; eggs he remembers.			
A37	01/11/03 (>60 years old) around Malake and then extending to other areas east and west partly out of interest but also to maintain	Speargun with mask and fins, sometimes hook and line <i>L. mahsena</i> , <i>L. elongatus</i> , sweetlips, trevally, <i>E. chlorostigma</i> ,	<i>E. malabaricus</i> ; eggs	Sep.		Thinks that night diving on the site which started about 10 years ago is pushing down the numbers. General catches have
			<i>E. polyphekadion</i>	Oct.		
			<i>P. areolatus</i> : eggs.	Sep-Dec particularly Nov full with eggs. Nananu	Found about this site 20 years ago and at first caught	

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	<p>catches particularly started extending between 1965-75/43 years</p>	<p>mackerel, tuna, <i>Kyphosus</i>, <i>E. polyphkadion</i>, <i>E. fuscoguttatus</i>, <i>E. malabaricus</i>, yellowfin surgeonfish, <i>B. muricatum</i> (net), <i>P. areolatus</i>, <i>P. laevis</i>, <i>P. leopardus</i>, <i>Naso unicornis</i></p>		<p>passage and does not move by moon phase but according to wind and tide.</p>	<p>many fish 1.5' long and 10-20 bundles in 2 hours (2 fish a bundle and 2 fishers). 5 years ago particularly noticed a big decline only got about 3-5 bundles. In 2002, got 5 fish and this year none at Nanau passage. About 5-6 boats each with 8 people have been going for a number of years. Catches larger numbers inside and outside mouth of passage and a little along the outer edges. Other fish caught in</p>	<p>declined but greatest declines have been <i>P. leopardus</i> and <i>P. areolatus</i> (declined most about 50%) and sweetlips. Still good catches of <i>L. mahsena</i> at promontories with eggs and grouped. Very concerned – should not let young divers take small fish.</p> <p>No compressors in area – found more in South and West of Viti Levu.</p>
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					<p>the passage: <i>P. leopardus</i> in deeper waters, <i>P. areolatus</i> shallower and <i>E. polyphekadion</i>, <i>E. fuscoguttatus</i> appear when the <i>Plectropomus</i> are being caught. Also <i>E. polyphekadion</i>, <i>E. fuscoguttatus</i> 10 fish taken when <i>P. areolatus</i> 10-20 bundles, none now. 20-30 <i>P. leopardus</i> and 6-7 <i>E. fuscoguttatus</i> when fishing was good. 2 other passages in the area showed similar</p>	
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					trends.	
A38	01/11/03 (NA) Thakau moi, Thakau Vatu Latha and environs and Charybdis reef; now SW Vanua Levu after fish declined locally. Also western reefs as interview A36/> 20 years	Speargun most at night; hook and line During daytime: sweetlips, <i>P.</i> <i>leopardus</i> , <i>P.</i> <i>areolatus</i> , trevally, <i>Scarus</i> , <i>Monotaxis</i> Night: <i>Lutjanus</i> <i>gibbus</i> , <i>Lethrinus</i> <i>mahsena</i> , <i>L.</i> <i>elongatus</i> , <i>L.</i> <i>xanthochilus</i> , <i>Naso</i> , <i>B.</i> <i>muricatum</i> , <i>E.</i> <i>fuscoguttatus</i> , <i>Scarus</i> , <i>P.</i> <i>areolatus</i> , white-lined	<i>P. areolatus</i> : eggs and large numbers.	Sep-Nov. With eggs especially at night along edges of reef and at Nananua passage around openings of passage (outer). Also on promontory to the north of Vatu I Ra reef and in Malake passage as well as Nukurauvula passage but the latter 2 no more. Also found with a few <i>E.</i> <i>polyphekadion</i> , <i>E.</i> <i>fuscoguttatus</i> , <i>P. laevis</i> .	Last trip to Nananua or Nanavu? passge got 50- 60 kg and first time was 1990 when discovered site although has known of large catches previously. 1995-2000 about 8-10 boats fish on the aggregation and fish numbers are declining because so many eggs are removed.	General catches vary throughout across years but <i>P.</i> <i>areolatus</i> has declined more than other fish. Outside of aggregation has declined in number and size from 1.5- 1'. Declines in <i>P.</i> <i>areolatus</i> because fish taken with eggs. Not rally concerned because they are plenty of other fish and he did not plant? the fish.

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		grouper	<i>P. leopardus</i>			There are no compressors in the area.
A39	01/11/03 (43 years old) well beyond ngoligoli, well over to outer reefs and up to SE Vanua Levu, does not always have permission/30 years	Speargun, hook and line <i>Anyperodon,</i> <i>P. areolatus</i> (night), <i>P. laevis,</i> <i>E. malabaricus,</i> largeeye bream, <i>Lethrinus</i> spp (some at night), <i>Naso,</i> some	<i>P. areolatus:</i> eggs	Sep-Nov coming up to the full moon. Found Thakau Vatu Latha outside of this reef channel Malake.	First fished last year because the price increased so interest grew in fishing it. Prices went up because becoming hard to find the species. Last year got 200kg.	Extended fishing area because of declining fish and improved horsepower on boat. General catches trend in fishery is decline in some species and in general

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		<i>Bolbometopon</i> , surgeonfish, <i>P. leopardus</i> (day), sea bream, <i>L. fulvus</i> , <i>L. gibbus</i> , <i>Kyphosus</i> , <i>Gymnocranius</i> , batfish, goatfish, <i>Scarus</i> , sweetlips	<i>P. leopardus</i>	Oct-Nov. SW Vanua Levu.	Not so common now but lots in SW Vanua Levu. Has declined locally but does not know why probably increase fishing pressure. Best caught with spear at edges of reef and hard to get with hook and line. Seems to be especially common when small bait fish (Daniva = sardine?) around.	would feel his general income is declining as a result. More and more people going out further to fishing grounds. Concerned about the situation and feels a MPA would be good to cause fish to increase. Best to put it all around Malake Island because that used to be good fishing. Agreed that protection of aggregation site would be a good idea and would not decrease income (although he himself does
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						not fish much on the site).
A40	01/11/03 (mid 40s) with coastal areas of Viti Levu close to Malake, out to shelf edge and in small stoll to east of main island around Vatu I Ra /about 20 years	Speargun (day and night) Several <i>Lethrinus</i> spp, sweetlips, <i>P. areolatus</i> , <i>E. malabaricus</i> , <i>P. leopardus</i> , <i>Naso</i> , rabbitfish, few <i>Bolbometopon</i>	<i>P. areolatus</i>	Sep and mainly Oct. at mouth of Nananu passage and outer bommnies in area and outside and east of Nakuravalu passage on promontory.	First time fishing on aggregation was 2001 and caught many of this fish at night. In 2002 caught 40 fish. Knew of the site before 2001 but did not go.	General catches have declined over his 20 years experience about 20% in number with also some site decreases. Due to increase in fishing pressure but although

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				Nok(?) Malake passage.		concerned have not yet discussed it in the community. Believes some fish will disappear completely if nothing is done and suggests need to protect species that aggregate in their reproductive season. Need help from fishery department.
			<i>P. leopardus</i>	Oct-Sep. especially around bommies outside and east of Nakuravalu passage and on promontories.		
			<i>E. polyphkadion, E. fuscoguttatus</i>	Oct-Sep. hard to catch.		
A41	01/11/03 (59 years old) out east to Vatu I Ra atoll and north to Yadua Island as well as local reefs to Malake Island/45 years	Speargun, hook and line <i>Lethrinus</i> spp, trevally, <i>P. areolatus</i> , <i>P. leopardus</i> , <i>Lutjanus</i> , <i>Scarus</i> , sweetlips, <i>L. bohar</i> , mackerel, tuna,	<i>P. leopardus</i> : eggs. Underwater can see tens of fish per bommy.	Sep-Nov on inner reef bommies and also along outer reefs at particularly known areas.	One day catch would be 60 fish using hook and line (6 boat in boat) in about early 1970s. in 1980s and 1990s saw decline in catches and in	Thinks that fish heard of disturbances and moved away from the site which is why less are seen. In general, catches have

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		rainbow runner, yellowfin surgeonfish, few <i>Bolbometopon</i> , <i>Naso</i>			sizes - about 30% decline.	clearly declined.
			<i>P. areolatus</i> : big numbers	Just before full moon at night in Sep-Nov (approximate, not absolutely sure). Especially big numbers in Nananu passage – eastern part of channel where strong currents run. Also Malake passage and Nukurauvula passage.	Fish go deeper in day and move shallower at night. First fished aggregation and got about 20 fish. More to be seen but rather deep. In 1970s, fewer fish but similar sizes. Remember fishers coming back with bags of gonads. Found aggregation himself and has seen similar trends in all 3 passages close to Malake.	Recalls catches were pretty stable until about 1980s, then saw a big decline. Now fewer fish but with higher prices but increased price does not compensate for increased cost of fishing so earnings decline. Thinks fish are moving away so less fish but also thinks there is overfishing. In general, sees much increase in fishing both

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					<p>Tevulu (probably blue-lined seabream) almost disappeared. Very easy to catch and now rare.</p>	<p>day and night and feels that it is impossible to stop young fishermen who want to earn good money. Concerned about declines but community has not discussed it. In 1960s, remembers Vatu I Ra area with so many fish. As catches decline, locally moved to fish in more distant areas. About 1980s, going out to SW Vanua Yadua Island and Lamaviti area.</p>
A42	04/11/03 (NA) 40 years	Hooke and line, net Hooke and	<i>E. polyphkadion</i> : eggs	Jul, 1-5 days before full moon. In Nadamu	First fished about 10 years ago when passage was	Concerned about declines. Declines are due to catching

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		<p>line: <i>Gymnocranius</i>, triggerfish, <i>monotaxis</i>, trevally, <i>L.</i> <i>xanthochilus</i>, <i>L. nebulosus</i>, <i>L. harak</i>, <i>L.</i> <i>mahsena</i>, <i>L.</i> <i>variegatus</i>, <i>P.</i> <i>leopardus</i>, <i>P.</i> <i>areolatus</i>, <i>P.</i> <i>elongatus</i>, <i>L.</i> <i>bohar</i>, <i>E.</i> <i>polyphekadion</i>, maybe <i>E.</i> <i>malabaricus</i></p> <p>Net: <i>Naso</i>, rabbitfish, <i>Scarus</i>, mullet (especially yellowtail), chub mackerel, garfish, <i>L.</i> <i>elongatus</i></p>		<p>passage (179°50'E, 16°11'S) and Davetamusa passage (179°55'E, 16°11'S) plus a couple of small ones close to there. Navosi (179°45'E, 16°9'S) also with many fish but he now uses Davetamusa.</p>	<p>newly discovered. He tried this passage since already knew about the Navosi passage, which has been discovered in the mid 1980s when alrge fishing boats were fishing in the area. First fished Nadamu passage 1985 and mid 1990s catching here 100 kg (4 fishers) and 2002-3 about 12 fish (4 fishers). There are the best catches he remembers. Outside the aggregation months they catch <i>E.</i></p>	<p>fish with eggs.</p> <p>Catches have declined over the years in particular of yellow tail mullet, <i>E.</i> <i>polyphekadion</i>, <i>Bolbometopon</i> and HHW. <i>Bolbometopon</i> declined a bot after 1980 when night fishing increased.</p>
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					<i>polyphekadion.</i> Also have found big reduction in number but not size of fish.
			<i>L. mahsena:</i> groupings	Side reef at Davetamusa. Months not sure.	No declines in numbers. Special places can find.
			Yellowtin mullet: eggs	4 days or so after new moon. Every month with eggs but most eggs in Nov-Jan.	Caught in migrations along the coast. Sleep in a special place. 8 years ago caught 500-1000 fish in one haul, now only 180-200.
			Rabbitfish	Nov-Jan. No lunar phase, only tidal pattern.	No change in numbers. Has been taking 400-500 fish per haul for many years.
			<i>E. hoedti</i>		Used to be a lot now it is almost completely gone.

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A43	04/11/03 (NA) mainly west of Nukusa but not too far/>30 years	Net, speargun, hook and line Rabbitfish, mullet, <i>Lethrinus nebulosus,</i> <i>Naso, L. harak.</i> Chub mackerel, <i>Bolbometopon</i> esp with net	<i>E. polyphkadion</i>	Jul, in Nadamu passage	First learned about aggregation in Nadamu passage in 1989 when somebody told him. Caught about 30 fish then. Caught less fish in later years but does not mean fish are declining, only that not fishing at the right time since he sees others get more fish. About 5-6 boats go to aggregations.	In last 10-13 years, catches have not changed too much over time – as ust one example in 1990 got 80- 100 kambutia with eggs in group and still catches are the same. Fish not going down but too many people disturb fish and they go away even if no overfishing, the fish that go away are a problem (I suggest) but there is no real concern about the fish.
			Mullet: eggs	New moon all year but mainly October.	Has been fishing on mullet for 12- 13 years. 5 years ago got 300-400 fish and in 2000 got 500 fish a	

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					haul or trip (3 people involved). In general, however, feels catch has declined because type of net now used not as efficient as before. More people fishing for mullet now than before. Thinks school is same site but youngsters think numbers less because of net change.	
			Rabbitfish: large numbers	Nov-Dec, determined by the tide.	Caught 600 fish a haul in 2000-2001 and 400 12-13 years ago. Catches not changing. Fishes are bigger when aggregated – a	

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					foot or more than at other times.	
A44	04/11/03 (NA) east of Nautundamu/> 10 years	Net , fishing line <i>L. mahsena</i> , <i>E. polyphkadion</i> (in season only), <i>E. malabaricus</i> , <i>L. variegatus</i> , <i>L. gibbus</i> , trevally	<i>L. mehasena</i>	Full moon in each of Mar-Jun. 2 specific places (see map). Low tide. Normally on reefs.	Got 20 kg of 200 g fish himself 5 years ago. 30 kg availability at other times depending on wind.	Concerned that everybody fishes and it is the biggest source of income. Fish may be depleted. Should look to other sources of income such as piggeries, new crop and pineapple.
			<i>L. gibbus</i> : eggs	Full moon to full moon, rock in reef area.		
			<i>E. polyphkadion</i> : with eggs	Biggest in Jun-Jul (Jul: no moon phase). Navosi-Nadamu.	Started 3 years ago, (story heard) got 50 kg. Also wirenetting cod <i>E. chlorostigma</i> and eggs. Site was revealed 6 years go, all fish 100 kg at that time. Depleted by 75% . .	

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			Bluefin and black trevallies:	Oct-Dec, no particular place.		
					Overall catches down by about 50%. Fishers note down predictability and get good at catching. Some species such as <i>L. mehasena</i> and <i>L. gibbus</i> more declined than others.	
A45	04/11/03 (NA) Laqi and up to SE tip of Vanua Levu/4-5 years	Speargun <i>E. polyphkadion</i> , <i>Nso</i> , sweetlips, <i>Cephalopholis argus</i> , <i>P. leopardus</i> , <i>P. areolatus</i> , <i>L. mahsena</i> and <i>Lethrinus</i> spp	<i>E. polyphkadion</i> : with eggs	Roughly Aug he thinks. For 8 days up to full moon. At Nadamu and Davetameso passages. With mask, saw a lot of fish e.g. one rock would contain 10-20 fish each.	25 fish at Nadamu is one trip a couple of years ago. Last year, got 20 fish. Learned about the site as a child from relatives and about 8-10 other boats from same community now go to the site, sees	

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					plenty of sharks there.	
			<i>P. leopardus</i> : with milk. Only 3 or 4 at most in groups together.	Jul.		
			<i>L. mahsena</i> : large numbers in a hole.	Mar. In channels.	Catches a lot in the hole. Spear 100 fish a day.	
			<i>P. chaetodontoides</i> : with eggs in large numbers. Fish in declining, found in groups of different sized fish.	Special habitat – both this and other common one of this species – congregates in caves.		

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A46	06/11/03 (NA) Nadamu passage to Saosao passage /21 years	Hook and line Various <i>Lethrinus</i> spp, <i>E. polyphkadion</i> , small groupers, <i>P. areolatus</i> , <i>P. leopardus</i> (Did not ask all species)	<i>E. polyphkadion</i> : large numbers with eggs and in large groups.	Particularly in Jul in outer reef passages. Also learned about Sausau passages from Indian fishermen who he thinks have known it for a long time.	Two years ago learned about aggregations sites from fishermen in Kia. In Tilanigo passage 4 people caught 30 fish in a trip which is a lot of fish. Knows of fishermen coming from outside in a big boat (28') to fish aggregation.	Has seen a big change over his 20 years of fishing. Used to be able to select the fish you wanted – plenty of fish in the 1970s. even in 1980s, big schools of fish seen close to shore. But more recently have been big changes in fishing gears and in fish numbers, also increase in number of fishermen. Fishing not only in day but also in the night – anticipates seeing major changes in next 10 years.
					Only other species he recalls in large numbers is barracuda. 24 Dec 1972, NE tip Vanua Levu, saw tons and tons of barracuda together.	

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						Recognizes need for information and help from government in regulations. Thinks older men talk about the issues but he has not himself.
A47	06/11/03 (47 years old) Nadamu passage to Mali passage/32 years	Spear <i>Scarus, P. areolatus</i> , 2 sweetlips, <i>L. bohar</i> , <i>Epinephelus</i> with large orange spots and other groupers including <i>C. argus</i> , <i>Lethrinus</i> spp, triggerfish, batfish, morays, soldierfish, bigeye	Sweetlips: docile when it has eggs, large numbers in certain places	certain places of large numbers are where coral spreads out like a tree.	So many before, now so few. Can catch a lot especially in 'warm season'. Can still get but fish are deeper.	Some species have become particularly reduced e.g. sweetlips, occur in predictable locations. Attributes declines in <i>E. polyphkadion</i> to fish going elsewhere to spawning and also an increase in number of boats fishing them. Also there are a lot
			<i>E. polyphkadion</i>	Jun and mainly Jul.	Catches a lot of fish in passage and notices that they are no longer on the reefs. Goes to Sausau and Navosi passages. Has known about	

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					<p>the passages for 10 years and learned about Sausau passage by word of mouth. 1993, 4 people got >60 fish using hook and line. 1998, only 10-15 fish and many more boats (6-10, mainly outsiders, Indians). 2002, 3 people got 16 fish.</p>	<p>of sharks. Notes catches of aggregating species decline outside of aggregation period.</p> <p>In general, his catches (spear) have declined especially for sweetlips, <i>E. polyphekadion</i>, <i>E. malabaricus</i> (?) especially from more inner reef areas.</p>
			<p><i>P. areolatus</i>: with eggs</p>	<p>Jun-Jul. a little before <i>E. polyphekadion</i> in timing but same depths and passages. Numbers are about half of those of <i>E. polyphekadion</i>. Several other groupers occur but are less</p>	.	

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				common.		
			<i>P. leopardus</i>		Catches variable, good if find right rock.	
A48	06/11/03 (30 years old) Nadamu passage to Sausau passage/about 20 years	Speargun , net 2 sweetlips, batfish, <i>E. hoedti</i> , <i>C. argus</i> , <i>Bolbometopon</i> , trevally, <i>E. polyphkadion</i> , <i>E. malabaricus</i> , <i>P. areolatus</i> , <i>P. leopardus</i> , <i>Lethrinus</i> spp, <i>L. bohar</i> , largeeye bream, Spanish mackerel	<i>P. chaetodontoide</i> s: also seems to have eggs <i>E. polyphkadion</i> : eggs	Particular places on inner reefs – large coral rocks Jun-Jul for about 1 week. Sausau. Navosi. At the same site, <i>P. areolatus</i> but slightly different timing and numbers about the same; also some few <i>E. fuscoguttatus</i> , whose numbers are declining because too	Catch a lot when low/small tides. First knew about in 1980s when went out with people to Sausau site, got 100 fish on boat. Went also in 2000/2001, got hardly any fish although another boat got 20. In mid 1990s, boat with 3 people got 15 fish each. There are	In general, few fish and smaller than before. He does not shoot small fish and thinks larger ones have gone deeper. Average catches have decline from 40 to 10 kg. He is very concerned and thinks night diving is a big threat and should be banned. People are aware of

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				many people take too many eggs. Occur shallower than <i>E. polyphekadion</i> . Also sees <i>E. chlorostigma</i> in small numbers with eggs and same place with <i>E. polyphekadion</i> .	in recent years 8-9 other boats at same site. Also knows that Navosi is good for this species. Also at the same site	the problems but need more education, and community awareness.
A49	06/11/03 (NA) Sausau to Nadamu passage/5 years	Spear <i>E. polyphekadion</i> , <i>Naso</i> , yellowfin surgeonfish, <i>P. chaetodontoides</i>	<i>P. chaetodontoides</i> : eggs <i>E. polyphekadion</i> : eggs, went to only one aggregation place 2 years ago and saw 20 fish all staring at him with fish around	Sep Jul; a large rock with a strong current. Last year, went back and saw the fish but a bit deeper – 40 feet deep. Fish around the rock and in a trench. Also with <i>E. howlandi</i> .		Several boats at site. Can catch 3 times as much at night.

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				Many sharks (YS: not sure which passage; assume Sausau for now)		
					<i>Bolbometopon</i> : new moon could catch a lot before, now rare.	
A50	07/11/03 (NA) Mali passage to Sausau passage and west to easter KIA area/20 years	Spearfishing (did not have time to ask for all species)	Sweetlips: with eggs	Nov-Jan in Mali passage.	Many can be caught; numbers have declined a lot.	General catches declined by >50%.
			<i>E. polyphkadion</i> eggs	Jul-Aug, mainly Jul. Sausau, Saliarua and Mali (179°17'E, 16°18'S). none of this fish remains is Mali. At the same sites, <i>E. miliaris</i> ? To 1.5' is numbers	Mali was known by his father's generation since at least 1980s. 10 year ago he could catch 50 fish a trip and last few years catches much declined so he has gone to Sausau. Can get 100 of	Particularly declined is sweetlips because with eggs can catch a lot. Notes that aggregation prices are FJ\$ 2-2.8/kg and non-aggregation price FJ\$3.5/kg. No compressors are in the area.

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				<p>similar to <i>E. polyphekadion</i>, also some <i>E. hoedti</i>, <i>E. howlandi</i>, <i>E. maculatus</i> also with eggs.</p> <p>Also at sites, <i>P. areolatus</i> similar in numbers <i>E. polyphekadion</i> and more common than <i>E. fuscoguttatus</i> but at Mali numbers of all species have declined a lot. At Sausau, also a similar species with equal numbers of <i>E. polyphekadion</i> and <i>P. areolatus</i>.</p>	<p>each of <i>E. polyphekadion</i> and <i>P. areolatus</i> a trip.</p>	<p>But lots of boats turn up at the passages e.g. nowadays 3 at Mali and 5 at Sausau. Numbers of fish declining at aggregations in the fish are taken with babies. They want to set up a MPA and protect Sausau and Mali passages. Village is discussing options. They try to chase other fishers away from passages.</p>
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			<i>P. leopardus</i> : not in groups with eggs			
A51	07/11/03 (NA) Mali passage to Sausau passage around insdei and outside reefs between them/15 years	Speargun, hook and line <i>P. leopardus</i> , <i>Scarus</i> , <i>E.</i> <i>malabaricus</i> , <i>C. argus</i> , garfish, <i>Lethrinus</i> spp, <i>Kyphorus</i> , <i>P.</i> <i>chaetodontoide</i> <i>s</i> , <i>L. bohar</i> , <i>P.</i> <i>areolatus</i> , <i>Acanthurus</i> , <i>Naso</i> , porcupinefish, batfish, rabbitfish	Rabbitfish:	Dec-Jan	100 fish per net haul just for a few days during each month.	Thinks that too much fishing effort for <i>E.</i> <i>polyphekadion</i> and its aggregation sites need to be protected. Thinks aggregation sites should be protected. In general his catches are <50% of before. There are too many boats. Wants to see fish protected during spawning and the number of licenses limited.
			Trevally: with eggs	Oct-Nov in areas of inner reefs	Fairly regularly caught with net	
			<i>E.</i> <i>polyphekadion</i> : eggs	Jun-Jul.	In 1980s, went to Fausau by chance and saw hundreds of fish of <i>E.</i> <i>polyphekadion</i> , <i>P. laevis</i> , <i>E.</i> <i>howlandi</i> and <i>P. areolatus</i> . First time fishing would get 50 <i>E.</i> <i>polyphekadion</i> / boat, then 1990s, 20/ boat then recently 19/boat. Boats have increased from 2-3 in	

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					1980s, to 5-8 in 1990s, to about 10 now.	
			<i>P. areolatus</i>	Similar time and place to <i>E. polyphkadion</i>	About 50% in numbers.	
			<i>E. fuscoguttatus</i>		Now being caught; before was not preferred. In Aug, about 20 fish per trip.	
			<i>Lethrinus variegatus</i> and other	Jul-Aug inside of reefs for hook and line.	About 10 fish caught per trip at these times now; used to be 30/ trip well inside months of channels.	
A52	07/11/03 (>30 years old) Sausau passage, Nadamu near KIA, inner reefs/15 years	Spear, hook and line Hook and line: various <i>Lethrinus</i> , <i>L. bohar/areolatus</i> ? trigger fish, Spanish mackerel	<i>E. polyphkadion</i> : large numbers with eggs	Jun-Jul in Sausau and Mali passage, also Nadama (near KIA). In Sausau passage same places with <i>P. leopardus</i> and <i>P. maculatus</i> with eggs. In	From Sausau passage recently could get 20 fish/day over about a week; 6 other boats. Passages with fish have strong currents. In early 1990s,	Very concerned about declines in catches. Much discussion in the community and they want to stop fishing in the passages. Have

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		Spear: <i>P. areolatus</i> , <i>E. polyphkadion/malabaricus</i> , <i>Bolbometopon</i> , porcupinefish, surgeonfish, <i>Naso</i> , <i>E. hoedti</i> , <i>C. argus</i> and various groupers, batfish, trevally, <i>P. leopardus</i>		Mali passage seen with <i>P. leopardus</i> with eggs	got about 30 fish/day and in 1980s, 50-100/day per fish. In Mali passage, there are now no more fish; forefather knew of plenty of fish there. Mali passage was the one first fished on aggregations as far as he knows.	been talking about this will be making a petition to the local provincial office for help. His general catches have hit rock bottom and there has been an overall decline in most species in numbers and sizes. Trying to find more fish and has even hired a big boat to fish west of KIA. There is no night or compressor diving.
			Sweetlips: eggs	Jun-Aug.	Got 20/trip this year; used to get more.	
			Rabbitfish: eggs	Oct- Dec esp for the week following new moon. Vorovoso point.	Last year 150 fish per net haul; recall 1000/haul 10 years ago.	The teacher of the interviewee was very concerned about declines

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						and has given up hope – things have become very bad and there were so many fish before. Mali passage was discovered about 40 years ago; he would fish it with spear and goggles and found it by chance.
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Interview number	<i>Cheilinus undulatus</i>
A22	Not so common – men mainly catch it diving at night.
A23	Say many around 1979; caught 2-3 much later and now hardly any (diving). 1980-80 too many divers caused decline.
A25	Sometimes a bycatch for hook and line. Divers catch them. Live trade is also interested in them.
A31	4 caught in his life with hook and line. Very occasionally caught with spear, a few in a year by others on outer reefs and channels.
A32	Not so common, caught a few inside reef of 2-3' long. Hard to catch. Smaller ones on inner bommies.
A36	Small nearshore, and big deeper water. Only caught for special celebrations (a fatter fish). Used to be tame and easy to catch in shallow water and now much deeper.
A37	About 1 large per month and 3 at most before; 1 at most now. 3-4 per month of smaller ones are caught.

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	Numbers declining because of night catching with speargun. Price is FJ\$3/kg but big fish so get good \$5 per fish, good quality fish \$5/kg.
A38	Nowadays about 5-6 per year of large fish and 20-30 small. 10 years ago more large and not really any small ones. Reason for decline is many more night divers now.
A39	Sees at night and catches about 1 per week. \$3/kg (5 is good price for fish). Not common and hard to find. Used to see many more at night about 5-6 but no change in catches.
A40	3-4 per month of 1.5-3' long. Has declined about 20% as before used to catch and see more. Valuable fish, about \$2.5/kg, not high price per kg but a single fish is weighing so get a lot per fish.
A41	Hard to catch, mostly at edges of outer reef when 20-30 years old would see 10 in an area; now only a few. Thinks must have gone deeper.
A42	Not often caught, only by divers but numbers have declined a lot. Few and far between Got one last month in village.
A45	One large one in two weeks and during daytime. At night knows that small fish bury below the sand.
A46	April 1970 caught a group of them. Used to common but now very hard to find.
A47	Could catch in caves during the day. Caught lots in 1980s, got 16 large ones in one day at most. Only a few fish now caught and only outside reef, no longer inside.
A48	Maybe 5 times a month before and each time dived would get large fish inside reef. Now only outside reef. Feels that reason for decline inside is because hurricane damaged habitat and also man damaged. FJ\$3/kg.
A49	Has only caught twice in 5 years, fish 3-4 feet long rare. Has not seen many in 5 years.
A50	About 20 years ago could get 2 fish in a day of about 25 kg. Now no more, only about 1 per year.
A51	In 1980s just 2-3 per trip, not much market. Last month, 2 of about 10kg each and getting fewer and smaller.
A52	Caught 2 five years ago. Used to catch more. Feel that fish have moved somewhere else, there are few now.

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**Table C of 15 fisher interviews conducted during
06-11 Feb 2004 in Vanua Levu**

Interview number	Date of interview (fisherman age) and fishing area/how long fishing	Gear(s); major gear, if any, in bold List main species caught	Evidence for spawning in aggregations – identify by species name (if multiple species keep species-specific details intact	Timing of aggregations and their location (name of site or coordinates if provided) – identify by species name	Information on catch rates and history of the aggregation fishery	Problems and solutions identified by fishermen
B1	06/02/04 (>70 years old) Nuku and Nagere Passage, sometimes to Mali and Sausau Passage /40 years	Hook and line <i>E. fuscoguttatus</i> , <i>L. elongates</i> , <i>L. mahsena</i> , <i>P. leopardus</i> , <i>P. laevis</i> , <i>Caranx melampygus</i> , <i>Sphyraena barracuda</i> , <i>Symphorus nematophorus</i>	<i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> : eggs compacted.	Jul 18 th to second week of Aug. Middle of channel, strong current and low tide. Also heard about aggregations in Mali, Sausau and Wainikoro passages.	For all species: Nuku passage, Luvubuli and Nadamu. Learned about the site from father; site originally discovered in 1938. In 1980s, good catch: >40 <i>E. polyphkadion</i> , 10 <i>P. areolatus</i> , >10 <i>P. leopardus</i> , >10 <i>E. fuscoguttatus</i>	Concerned about catching fish with eggs before they reproduce. Noticed declines in numbers and sizes especially for <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> . Noticed increasing fishing

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					<p>per trip. 3-4 boats each with 4-6 people at the site. In 1990s, catch rate declined: 20 <i>E. polyphemadion</i>, 5 <i>P. areolatus</i>, 5 <i>P. leopardus</i>, 5 <i>E. fuscoguttatus</i>. 5-6 boats each with 6-10 people. In 1998, number of boat increased by 5-7 times.</p> <p>Size of <i>E. polyphemadion</i>, <i>P. areolatus</i> decreased to 25-30cm.</p>	<p>pressure both during the day and at night. Even small fish are caught using small hooks.</p> <p>Suggests banning fishing fish with eggs, reducing number of permits given to outsiders, having support from fisheries department in protecting community's fishing boundary.</p> <p>No discussion in community over the declines in numbers and</p>
			<p><i>Sphyraena barracuda</i>: eggs</p>	<p>Oct throughout the month. Outside the reef.</p>	<p>Caught >10.</p>	

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			<i>Symphorus nematophorus</i> : eggs	Sep, after groupers.	Caught >10, 45-50cm in length.	sizes. Thinks discussion is necessary.
			<i>Caranx ignobilis</i> and mackerel: compacted eggs, large catches	Nov-Dec.	Caught >10 <i>Caranx ignobilis</i>	
			<i>L. elongatus</i> , <i>L. nebulosus</i>	Jun (eggs forming)		
B2	06/02/04 (>40 yeas old) north of Kia, Nasoso promontory and along reef to Labasa; after 1995 moved to west of Kia from Naqere, Nadamu, Luvaivuli, Nuku Teroro passage/28 years	Speargun; before 1983 traditional spear Speargun: <i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. hoedti</i> , <i>Pletorhynchus chaetodonoide s</i> , <i>A. xanthopetrus</i> Hook and line: <i>E.polyphkadion</i> , <i>E. malabaricus</i> ,	<i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> : eggs. Fish swam tamely, facing strong currents. <i>P. areolatus</i> in shallower area than <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> .	Jul-Aug, especially Jul 18 th to the second week of Aug. Outer edge of the reef wall in the channel, also in the middle of the channel. Same as previous interviews: Nasoso promontory, Naqere and Nadamu passages -> N of Kia and W	Captured in season >20 <i>E. polyphkadion</i> , >10 <i>E. fuscoguttatus</i> and 10 <i>P. areolatus</i> , <i>P. leopardus</i> in season. Site discovered in 1976, learned about the site from his father. In 1976-1996, catch declined: 10-15 fish/day	Decline in for <i>P. areolatus</i> . Decline in catch for <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> . Thinks due to increasing fishing pressure on aggregations. General catches declined. For <i>B. muricatum</i> , being excessively

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		<i>E. fuscoguttatus, L. elongatus, L. mahsena, L. varietus, Caranx ignobilis</i>		or S along reef. Also heard about aggregations in Yamotu, Nadalolevu and Mali passages.	on average. 3-4 boats each with 3-4 people at the site. In 2003, 5/day; 6-7 boats each with 5-6 people.	fished: 1970s-80s, 300-400 fish in schools of 1.5m long were observed; 1990s, 30-40 fish observed; 2000s, 3-4 fish of 1.5m long observed. Casual talk within community over the declines but community does not understand the impact of fishing aggregations. Thinks reducing number of permits and reviewing licensing can help reduce fishing
			<i>Symphorus nematophorus:</i>	Sep.	20 fish in season.	
			<i>P. chaetodonoides</i>	Second week of Nov-Dec. Aggregates around coral head in the middle of channel.	10-20 fish per trip (?) In season, 30 at most.	

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						pressure. Observes that aggregations are sometimes fished on the outer reef edges where community has no control.
B3	06/02/04 (76 years old) Wainikoro passage, Mali passage, inside of reef channel; Naqere and Nadamu passages, outer edges of reef wall/ 40 years	Traditional spear, hook and line Spear: <i>E. fuscoguttatus</i> , <i>C. undulatus</i> , <i>C. miniatus</i> , <i>Pletorhynchus nigra</i> , <i>E. polyphkadion</i> , <i>P. areolatus</i> Hook and line: <i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> , <i>Caranx ignobilis</i> , <i>L.</i>	<i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> : eggs. <i>P. areolatus</i> , <i>P. leopardus</i> Fish swimming tamely.	Jun-Sep especially Jul 18 th to second week of Aug. Eggs forming Jun-Jul, fully compacted in Aug with residues in Sep. Naqera, Nadamu and Nasoso promontory, in the middle of the channel, strong current. <i>P. areolatus</i> ,	Learned about the site from a relative in 1950s. Caught >100 <i>E. polyphkadion</i> , 4 <i>P. leopardus</i> and <i>P. laevis</i> in season. In 1980s, catch declined by 10%. 4-5 boats each with 3-4 people at the site. In 1990s, catch declined by 20%. More	Very concerned about the increasing fishing pressure on aggregations because everybody knows the aggregation months. Community has only discussed the issue of declines casually, no protect has been

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		<i>elangatus, L. nebulosus, L. variegatus</i>		<i>E. polyphkadion</i> found near the reef wall.	fishermen fishing; 7-8 boats each with 5-6 people at site. Since 1970s, size declined to 25-30cm.	suggested. Also recognizes illegal fishing as a problem. Suggests that fishing by outsiders be banned, which will help community monitor the fisheries, and aggregations be protected.
			<i>P. chaetodonoides</i>	Sep.	Caught >100 in season.	
B4	06/02/04 (63 years old) 1980s, Nuku passage; 1990s, Luvaibulu passage; 2000s, inside Lagoon around Kia/25 years	Hook and line , trawling Hook and line: <i>L. gibbus, P. leopardus, E. polyphkadion, L. elangatus, L. nebulosus, L. mahsena, Caranx ignobilis,</i>	<i>E. fuscoguttatus,</i>	Naqera, Nadamu passages and Nasoso promontory in season.		Concerned about catch declines but community only addressed it casually.
			<i>E. polyphkadion:</i> intact eggs	Jun-Aug (eggs forming in Jun). Middle of the channel.	Caught 20-30 of 45-50cm long in season. Easier to catch during low tide.	Thinks catch declines could be due to fishing for times with eggs.

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		<p><i>Pletorhynchus chaetodonoide s, P. areolatus, Sphyraena barracuda</i></p> <p>Trawling: <i>Sphyraena barracuda, Caranx ignobilis</i></p>	<p><i>P. areolatus:</i> eggs</p>	<p>Jun-Aug. Middle of the channel.</p> <p>Also heard about aggregations in Mali passage for <i>E. polyphkadion, P. areolatus.</i></p>	<p>Caught > 10 fish in season. Learned about the site from a relative in 1970s; site probably was discovered in 1930s by village elders.</p> <p>In 1990s, catch number and size declined: was able to catch 10-20 <i>E. polyphkadion, 5 P. areolatus, 5 E. fuscoguttatus, 5 P. leopardus/laevis.</i> Size declined from 45-60cm to 30-40cm for <i>E. polyphkadion.</i> Number of fishermen at the site has increased from</p>	<p>Decline in size and number was observed for <i>B. muricatum.</i></p> <p>Suggests that use of gill (by some fishers in the community) net be banned, permits reduced, fishing by fishers outside the community banned.</p>
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					3-4 boats each with 2-3 people in 1980s to 5-6 boats each with 4-5 people in 1990s.	
			<i>L. nebulosus</i> : eggs	Mar-Apr.		
			<i>L. gibbus</i> : eggs	Feb.		
			<i>P. chaetodonoide</i> : eggs	Aug-Sep.		
			<i>Symphorus nematophorus</i> : eggs	Sep.s		
B5	06/02/04 (65 years old) Mali, Sausau passage, start closer to Kia, then to Sausau/about 44 days	Traditional spear ; since 1990s Hook and line Spear: <i>E. polyphemadion</i> , <i>P. areolatus</i> , <i>P. leopardus</i> ,	<i>E. polyphemadion</i> , <i>E. fuscoguttatus</i> , <i>P. areolatus</i> , <i>P. leopardus</i> : eggs; <i>E. polyphemadion</i> , <i>P. areolatus</i>	Jun-Sep (eggs forming in Jun, compacted in the second week of Aug, released in Sep). Naqera and Nadamu, Nasoso	Learned about Naqera and Nadamu from another fisherman, Nasoso promontory discovered by himself and	Very concerned. Sees fish numbers decrease greatly, thinks due to increasing fishing on

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		<p>A. <i>xanthopetrus</i>, <i>Caranx ignobilis</i>, <i>Pletorhynchus chaetodonoide s</i>, <i>C. undulatus</i>, <i>Pletorhynchus nigra</i>, <i>E. malabaricus</i></p> <p>Net: <i>Bolbometopon muricatum</i></p>	<p>caught in large numbers.</p> <p>Also saw <i>E. polyphkadion</i> and <i>P. areolatus</i> closely located to each other, with plenty around in groups at every 2-3m from each other.</p>	<p>promontory.</p> <p>Also heard of aggregations in a channel adjacent to Nakalai village, Wainisilceli and Wainikero passages.</p>	<p>others together.</p> <p>In 1946, caught >60 <i>E. polyphkadion</i>, >70 <i>P. chaetodonoide s</i>, >40 <i>P. areolatus</i> and 5 <i>P. leopardus</i> per trip. Two boats and 3-4 fishers at the site. In 1976, caught 40 <i>E. polyphkadion</i>, 40 <i>P. chaetodonoide s</i>, 10-20 <i>P. areolatus</i> and 2 <i>P. leopardus</i>. 4-6 boats and 3-4 fishers at the site. In 1986, caught half of the amount in 1976; 6-10 boats and 8-10 fishers there.</p>	<p>aggregations. Community has discussed of protecting fish aggregations in channels/passages but in a very casual manner.</p> <p>Size and catch have greatly reduced for <i>B. muricatum</i>: used to be able to catch 100 fish/day using net.</p> <p>Thinks potential solutions are: seek governmental assistant (funds) to substitute for the money that they gain from selling fish as</p>
			<p><i>E. lancolatus</i>: eggs</p>	<p>Jun-Aug.</p>		
			<p><i>Pletorhynchus chaetodonoide s</i>: eggs, large numbers</p>	<p>Dec-Feb.</p>		
			<p>Great trevally</p>	<p>Nov-Jan.</p>		

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					Observed decline in sizes: from 50 to 35 cm for <i>E. polyphemadion</i> , and from 50 to 25 cm for <i>P. areolatus</i> .	it has been their main source of livelihood, thinks this will reduce fishing pressure, also recognizes that enforcement against illegal fishing in community's fishing boundary is needed.
B6	09/02/04 (79 years old) Utulei reef, Naisoro, Namoli	Spear, hook and line <i>Caranx ignobilis</i> , <i>L. elangatus</i> , <i>L. nebulosus</i> , <i>Siganus spinus</i> , <i>L. mahsena</i> , <i>Lutjanus bohar</i>	<i>Signus spinus</i> : eggs, large numbers	Nov-Dec (eggs forming in Nov and fully compacted in Dec). Mangrove area along Vunisinu bay. Also been to mangroves around Vatuku and Nukuci reef once and caught >50 fish.	Discovered the site in 1950s on a trip along the bay. 30 fish per trip? in 1970s. Catches slight decreased in 1990s. Number of fishers increased from 3-4 at the site in 1980s to 5-6 in 1990s. In 2002, 10-12 boats.	Community is not concerned because the decline in catch is low. Also noticed decline in general catch rate but he does not fish frequently so not much change noticed. Observed decline in

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						catch of <i>L. elongatus</i> and thinks due to increase in fishing pressure because all fishermen have boats and they even come around to the communities fishing boundary.
B7	09/02/04 (66 years old) Niurua: Utulei reef at low tide, Calcaba reef, Vatumaqila mangroves/>20 years	Spear, and hook and line <i>A. xanthopetrus</i> , <i>S. vermiculatus</i> , <i>Naso unicornis</i> , <i>Pseudobalistes</i> spp, <i>Scarus ghobban</i> , <i>L. gibbus</i> , <i>L. fulviflamma</i>	<i>S. vermiculatus</i> : eggs	Sep-Dec (eggs forming in Sep, fully formed in Nov-Dec). Mangrove area along Vunisinu bay.	Learned about the site from other villager in 1970s, originally discovered by a villager in 1960s. Captured 30 fish, large numbers, on one trip, year cannot recall.	Community does not feel the decline in catch as it can feed family. Hard to sell fish in community unless an outside buyer comes to buy. Used to catch a lot of <i>B. muricatum</i> at Utuler reef, but now only 1-2

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						fish/year. Notices increase in number of boats and fishermen. Thinks number of permits given to outsiders should be reduced and fish poisons (duva) should be banned because it kills a lot of fish even the small ones.
B8	09/02/04 (45 years old) Utulei reef, mangrove areas along Vunisau bay, close to village/15 years	Net Corocoro, taea. Sabutulcula, kawalcawa (kasala), mama, senikawakawa, saqaloa, ki, qitawa, <i>P. areolatus</i> , <i>E. fuscoguttatus</i>	<i>Signus spinus</i> :large numbers	Dec-Jan. Soso stream in mangrove areas.	Learned about the site from an older lady in the village. In 1990s, catch slightly decreased.	Not concerned because number of fish he captured is the same because the amount is often enough to feed the family. Just noticed last year

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		(15cm)				decline in size for <i>P. chaetodonoides</i> , No discussion in community over catch declines.
B9	09/02/04 (36 years old) Utulei, Yaweya reef, Nulcu passage, Luvabulu/16 years	Speargun, hook and line, from traditional spear Kawalcawabati tulu, Kasalaninubu, <i>E. fuscoguttatus</i> , <i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphekadion</i> , <i>Sphyraena barracuda</i>	<i>P. areolatus</i> , <i>E. polyphekadion</i> : eggs, large catches. Fishes swim around tamely, <i>P. areolatus</i> seemly facing strong current at one point, <i>E. polyphekadion</i> found along reef wall.	Jul-Sep. Tevovo passage, middle of channel.	Learned about the site from another fisher in 1980s. Could catch >20 fish per trip?? for each at that time. Size of <i>P. areolatus</i> decreased from 75 to 35 cm.	Observed declines in catch for <i>B. muricatum</i> , <i>L. elngatus</i> , thinks due to use of gillnet at the site. Community only had casual discussion.
			<i>Symphorus nematophorus</i>	Heard about its aggregations in Tevulu passage.		Suggests that compressors used by fishers from outside villages be banned, banning of destructive fishing methods

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						(gillnets) be strictly enforced, and reproductive months protected.
B10	09/02/04 (25 years old) Utulei reef, Nuku passage, from Naqere passage down west/8years	Speargun, hook and line	<i>C. ignobilis</i> : eggs	Nov-Jan; with compacted eggs in Dec. Utulei and Cakaba reefs.	Caught 10/trip.	Concerned with declines in numbers and sizes – but not seen in his own catches because fisheries are the only income. Community had only very casual discussion. In the past 8 years, catch still the same but <i>B. muricatum</i> is hard to
		Speargun: trevallies, <i>E. fuscoguttatus</i> , <i>E. polyphkadion</i> , <i>P. areolatus</i> , <i>P. leopardus</i> , Hook and line: Trevallies, <i>L. nebulosus</i> , <i>L. mahsena</i> ,	<i>E. polyphkadion</i> , <i>P. areolatus</i> :	Jun-Sep; with compacted eggs in Aug. Nuku passage. In areas of strong currents or along reef wall. <i>P. areolatus</i> in shallower areas than <i>E. polyphkadion</i> ; around a coral head in the middle of the channel.	Learned about the site from village elders. Caught 20/trip in Aug in 1996.	

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			Trevallies	Heard about aggregations in Calcaba.		capture. Considers increasing fishing pressure and increase in use of nets are problems. Thinks decreasing number of permits used by fishermen from outside Macuata fishing boundary is important.
B11	11/02/04 (70 years old) district's fishing ground close to the island, further to Yaduataba Island in 1990s/about 56 years	Traditional spear, and hook and line <i>L. elangatus, L. nebulosus, mackerel (?), L. mahsena</i> For live trade, using hook and line: <i>P. leopardus, E.</i>	<i>E. polyphkadion, P. areolatus:</i> eggs and large numbers	Months cannot recall. At Vunilcea reef bommies. Also heard of Naqere and Nadumu passages as aggregation sites for <i>E. polyphkadion, P. areolatus,</i>	Site discovered on a fishing trip in 1950s. In 1960s, caught > 20 fish for each on one trip; 4 people on his boat, one other boat on the site with 3 people at most. In	Catch rates were very low since 1995: 2 fish at most for each of the common species. Concerned about catch declines, thinks due to too many boats

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		<p><i>polyphekadion, E. fuscoguttatus, P. areolatus, P. laevis</i></p>		<p>even <i>C. undulatus</i>.</p>	<p>1990s, caught 10 fish together or for each spp?; 8-10 boats each with 2 people.</p> <p>In 1960s, sometimes could catch <i>L. mahsena</i> or <i>C. ignobils</i> when <i>E. polyphekadion, P. areolatus</i> were captured. In 1990s, sometimes captured <i>L. elangatus, L. nebulosus,</i></p>	<p>in 1990s. Greatest decline for <i>P. leopardus</i>, thinks due to it being the most targeted fish given its good taste.</p> <p>No discussion in community. Thinks the permits, issued by Fisheries department and Bua Provincial council, should be reduced.</p>
			<p><i>P. leopardus, E. fuscoguttatus, P. laevis</i>: large number or eggs?? - unlisted</p>		<p>In 1990s, more than 4 fish for each on one trip.</p>	<p>Aware that permits given by Macuata province are not allowed to fish in Yaqaga fishing ground, which belongs to Lekutu (needs to</p>

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						permits from Bua province); but this is not strictly enforced.
B12	11/02/04 (66 years old) Lekutu's fishing boundary, reefs close to the island (Marono ref, Nabulini, Vatunidamu, Vatoa reefs and along monkey face passage)/56 years	Hook and line <i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> , <i>Caranx melampygus</i> , mackerel (?), <i>Sphyraena qenie</i> , <i>P. laevis</i> , <i>E. fuscoguttatus</i> , <i>E. malabaricus</i> , <i>Pletorhynchus chaetodonoides</i> , , <i>L. elangatus</i> , <i>L. nebulosus</i> , <i>L. kallopterus</i>	<i>L. elangatus</i> , <i>L. nebulosus</i> : eggs, large numbers	Months cannot recall. Along monkeys passage.	Discovered the site from experience. 200 kg each in 1980s. In 1990s, catch per trip?? declined by 15kg. Boats increased from 1 boat with 2 people in 1980s to 5 boats each with 3-4 people in 1990s. Catch declined to 10kg; 6-7 boats each with 3-4 people.	Noticed declines in numbers of <i>L. elangatus</i> , <i>L. nebulosus</i> , and severe decline in catch rates after 1992 of <i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> . Very concerned and thinks these are due to fishing months with eggs and too many fishers. Suggests that fishing permits be reduced,

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			<p><i>P. areolatus</i>, <i>P. leopardus</i>, <i>E. polyphkadion</i>: eggs, large numbers</p>	<p>Months cannot recall. Around bommies, NW of island, toward barrier reef.</p> <p>Also heard of Teroro passage and Nuku passage as aggregation sites, but did not fish.</p>	<p>Learned about the site from others. 100 kg of <i>E. polyphkadion</i>, and in another month 150kg of <i>P. leopardus</i> in 1990s.</p> <p>In 1990s, catch greatly decreased.</p>	<p>rights be given from provincial office to the community to monitor fishing.</p> <p>Concerned that the permits are issued without community's knowledge.</p>
B13	<p>11/02/04 (52 years old) Mavono, Vatoa reefs, Colcota reef and bommies located between the barrier reef and Yaqaga island, all within fishing ground of Lekutu/>20 years</p>	<p>Traditional spear, now to hook and line</p> <p><i>P. areolatus</i>, <i>P. leopardus</i>, <i>E. polyphkadion</i>, <i>E. fuscoguttatus</i>, <i>E. malabaricus</i>, <i>L. elangatus</i>, <i>L. nebulosus</i>, <i>L. variegatus</i>, <i>L. mahsena</i>,</p>	<p><i>P. areolatus</i>, <i>P. leopardus</i>, <i>E. polyphkadion</i>: large numbers, eggs</p>	<p>Jun-Jul. Along bommies located between the island the barrier reef (unsurveyed reef).</p> <p><i>P. areolatus</i> gathered around the bommies swimmingly tamely or facing strong</p>	<p>First discovered the site in 1970s. In 1990s, a common site for live trade. Caught >10 <i>P. areolatus</i>, >10 <i>P. leopardus</i>, >20 <i>E. polyphkadion</i> (all about 1/2 arm in length) in 1974.</p>	<p>Concerned about the decreasing number of fish: very easy to catch in 1974 but now cannot catch more than 5 fish/trip in the same months with eggs. Great decline in <i>P. leopardus</i>. Thinks it is because a lot</p>

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		mackerel (?), <i>Pletorhynchus chaetodonoides</i> , <i>L. gibbus</i> , <i>Naso unicornis</i>		currents. Also heard of Teroro passage as aggregation sites, but never fished there.		of people fish spawning season; the live trade in 1990s may also have caused a decline; and illegal fishing from people who do not have the ownership of the fishing ground.
			Mackerel: eggs	Dec. Edges of Manvovo reef.	Caught >10 mackerels in around 1979.	The issue was only casually discussed in the community. Possible solutions are monitoring the fishing grounds, decreasing number of permits, that Rolco Tui Bua transferring the total

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						ownership to community because he issues the permits to outsiders. With full control, community can better monitor sites and enforce regulations.
B14	11/02/04 (54 years old) Yaqaga Island (Movovo, Nabulini, Vatudavani reefs and Monkey face?? passage), also down to Vaganai bay or Rukuruku bay, and bommies	Hook and line <i>L. elangatus</i> , <i>L. nebulosus</i> , <i>L. mahsena</i> , <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> , <i>E. malabaricus</i> , <i>P. leopardus</i> , <i>Pletorhynchus chaetodonoide</i>	<i>P. leopardus</i> : eggs and large numbers	Jul-Sep: eggs forming in Jul, compacted in Aug and very little eggs in Sep. Luvaibulu passage.	Learned about the site from others in 1979, which was already visited by many fishers. Could catch >300 kg at one time in 1979.	Divers were at the site. <i>P. leopardus</i> most captured. Severe size decreases for <i>P. leopardus</i> , <i>P. areolatus</i> . Very concerned about the declines,
			<i>P. areolatus</i> : large numbers			

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	between the island and the barrier reef/>20 years	<i>s, Sphyraena barracuda, Caranx ignobilis</i>	<i>L. mahsena:</i> large numbers		Could catch >100 kg at one time in 1979.	thinks due to increasing fishing pressure at the time with eggs. Community addressed the issue of decreasing catch and size very casually. Thinks potential solutions are decreasing number of fishing permits, increasing fish wardens to nearby communities, and having fisheries department providing support such as a boat for policing. Size limitation
			<i>E. polyphemadion:</i> large numbers		Could catch >100 kg of fish 3—45 cm long at one time in 1984.	
					General catches declined in the past 10 years. In 1984, there were >10 boats each with 3-4 at the site; 1992, 12-15 boats each with 2-3 people; 2000, 15-20 boats each with 2-3 people.	

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						exists for certain fish but not enforced.
B15	11/02/04 (40 years old) Manovo reef, also to Great Sea barrier reef/20 years	Speargun <i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> , <i>L. elangatus</i> , <i>L. nebulosus</i> , <i>Pletorhynchus chaetodonoide</i> s,	<i>Pletorhynchus chaetodonoide</i> s: eggs, very compacted; but not in large numbers	Feb.		Speargun and trawling around Mavono reef. Sharks found as well. Does not see changes in size, still about 50cm long.
			Groupers		Frequently caught all year round for the live trade in 1990s. 5-6 fish/trip/day of <i>P. leopardus</i> , <i>E. polyphkadion</i> .	For mackerel, numbers declined by half.
			Mackerel: large numbers; eggs.	Nov-Dec; eggs forming in Nov and compacted in Dec. Edges of Mavano reef closer to Davuki point.	Learned about the site from an old relative in 1989.	Compared with when first discovered. Size no change. This is probably due to more than knowing of the site. No discussion within the community.
			<i>L. nebulosus</i> : saw >100 fish during a dive for beche de mer.	Unsurveyed and submerged reef close to Sail Rock. Saw them	Did not fish.	

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				accumulating around a coral head of 3-4 m width.		Declines in <i>P. areolatus</i> , <i>P. leopardus</i> , <i>E. polyphkadion</i> , <i>E. fuscoguttatus</i> observed during the years of live trade operation. Now even harder to catch.
					Generally, in 1980s, caught >20 fish per trip in Nov-Dec. 4 boats at the site and each with 4-5 people. In 1990s, 10 fish/trip in Nov-Dec, >20 boats at the site each with 2 people.	No concern since the live trade has been banned for 7 years which is a positive act for the community.

Interview	<i>Cheilinus undulatus</i>
B1	In 1950s, 4 fish/trip of 1.5m long; 500kg/trip (4-5 trips a week). Sold at 30 pounds/kg. Caught using hook and line. In 1980s, catch declined: 2-3 fish/month; divers would spot 3-4 fish/week on a trip. Sold at \$1/kg. In 1990s, 1/month if lucky. Sold at \$2-3/kg. Sells fish himself at market but sometimes sells to middlemen. Never seen an aggregation.
B2	In 1976, caught 3 fish of 3-4 feet in length per day using speargun. Sold at 20 cents per kg. In

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	<p>1986-1990s, 3 fish/month. Noticed a lot of fishing in the commonly fished area. In 2000s, 5 fish of 2-3 feet long/month, catch increased because not much fishing at the current site. Sold at \$2.8-3/kg.</p> <p>Seen aggregation once – 5-more than 10 fish at Naqere and Nadamu passages, on the outer edges of the reef. Fish would swim into holes of the reef wall. Used speargun to catch them. Sell catch to middlemen.</p>
B3	<p>In 1940-50, caught 4-5 fish/day using spear and hook and line. Consumed in the village; rarely sold except when he needed money – sold at 5-6 pounds per fish of 1.5m long. Fish caught often in Nasoso promontory. 1950s to 1980s, 3-4 fish per day. From 1980s, sold fish at \$1/kg, later at \$2-3/kg. in 1980s to 1990s, caught 2-3 fish/month, fish 1-1.5 m in length. Used spear to catch since hard to catch using hook and line. Sell fish himself at Labasa market.</p>
B4	<p>In 1960s, observed other fishers catching 6fish/ month (one day trip). In 1980s-1990s, caught 2 fish per month of 1-1.5m long (male) and 6 females/trip/week. In 2000s, 1/month. Sold at \$2-3/kg at Labasa market either through middlemen or selling himself.</p>
B5	<p>First caught along the inner edges of the reef as some of the patch reefs to Labasa or of the barrier reef; but in 1960s, fishermen have to move out to the breakers. In 1946, caught 6 fish/day of 1.5m long. 1956, 4/week, same size. 1966-88, 2-3 fish/week. 1988-1990, 2-3 fish/month. Never seen aggregation.</p> <p>In 1940s, fish were not commonly sold especially for such a fish as it was a chiefly dish within the community especially for Kia island. In 1970s, began selling at \$1/kg. 1980s to 90s, \$2-3/kg. 2000s, observed that fishermen came back with 1fish/month if lucky.</p>
B6	<p>Catches 1/month</p>
B7	<p>Usually catches 2/year at the size of 4-5 feet. Did not sell catch.</p>
B9	<p>Catches 1-2 fish/month, 15 kg. only during beche de mer diving. Does not use compressor.</p>
B11	<p>In 1990-2, during the live trade operation, caught 4/week of a full arm length. In 1995, hardly captured any, probably 1/year if lucky. Sold at \$25-30/kg if alive and \$2-3/kg dead. Never seen aggregation.</p>
B12	<p>From 1963, caught 4-5/month of 1-1.5m long; did not sell much, price back then was \$1/kg. in 1990s, 3/month of at most 1m long, but frequently caught 7-8 females per week on a 2-3 days</p>

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	long fishing trip. Sold at \$20-25/kg to live traders and \$2-3/kg if dead. Now hardly capture any.
B13	In 1980s, caught 3-4 fish/month of 1-1.5m long, sold at \$20/fish to middlemen. In 1990s, 1/month of 1.5m long if lucky, sold at \$20-30 kg of live ones to live traders; at \$2-3/kg of dead ones to middlemen. Already hard to catch with hook and line. Caught 3-4/week of small ones (elbow length, female) for live trade. Now cannot catch anything.
B14	Only used hook and line to catch; but now can only be caught using speargun. In 1979, caught 2-3/month, 1.5m long, sold at \$1/kg to middlemen. 1989, 1/month of 1.5m long; 3-4/month of 20cm long; sold at \$2-3/kg to middlemen. 1990, 1/year of 1-1.5m long; 2-3/month of 20cm long, sold at \$20-25/kg for live ones and \$2-3/kg for dead ones to live trade companies or at Nakadruoru fish market. Never seen aggregation.
B15	Very rare, 1 fish/month, 1.5 meter in length sold at \$20-25/kg if alive, and \$2-3/kg if dead. Last 5 years, hardly caught any; probably 1 fish/year, 1m long. Never seen in aggregations. Hardly caught in the area he frequently fished so he assumed that they were only found at the barrier reef where he only visited once a month.

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**Table D of 12 fisher interviews conducted between
15-17 Oct 2005 in Lakeba**

Interview number	Date of interview (fisherman age) and fishing area/how long fishing	Gear(s); major gear, if any, in bold List main species caught	Evidence for spawning in aggregations – identify by species name (if multiple species keep species-specific details intact)	Timing of aggregations and their location (name of site or coordinates if provided) – identify by species name	Information on catch rates and history of the aggregation fishery	Problems and solutions identified by fishermen
C1	15/10/05 (N/A) S and E of Lakeba but within atoll/30 years	Gillnet , hook and line (Hook and line:) <i>Lethrinus harak</i> , <i>L. xanthochilus</i> , <i>L. mahsena</i> , <i>L. kallopterus</i> (?), <i>L. nebulosus</i> , <i>Epinephelus polyphekadion</i>	<i>E. polyphekadion</i> (+ a few other grouper): eggs and good catch		In season: got 38 pieces in 1998 Outside: 10-12 opportunistically some days	Commercialization started in 1988/89 after coup when there was a lot of governmental fishing in area. Perceives fish numbers are falling but is vague about the reasons; lists weather, no longer accepting raw fish as bait (needs crab), commercial fishing but
			<i>Monotaxis grandoculis</i> : eggs and good catch	Sep/Oct	In season: 32 a day Outside: hard to catch	
			<i>Liza vaigiensis</i> : eggs and good catch		Used to catch a lot but not now	

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						sometimes suggests that there has been little change. Need to cut down on fishing effort and not sell commercially. Now 50-60 fishermen selling commercially. Needs some governmental subsidy help.
C2	15/10/05 (N/A) mainly Lakeba atoll and occasionally to Aiwa if has a boat/>40 years	Hook and line <i>Lethrinus nebulosus</i> , jobfish, <i>Lutjanus bohar</i> , <i>Lethrinus harak</i> , trevally	<i>E. polyphkadion</i> : eggs	In certain months in reef passage.	Big change in fishery as people want cash for boats and engines and the situation has got worse in the past 5 years. Feels that one problem is targeting aggregation - used to be able to get plenty of fish close to shore but commercialization increased fishing and drove it further offshore. All	Community has not dealt with problems yet but is very aware. They need to develop partnerships and agreements with many people because the power of cash is very strong. Used to get money from copra but work is hard, price is variable and fish are easy
			<i>Monotaxis grandoculis</i> and <i>Lethrinus nebulosus</i> : eggs	Oct		

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					species have declined but especially sweetlips, <i>Cheilinus undulatus</i> and <i>Bolbometopon muricatum</i>	to catch. Fishing also provides immediate money whereas for copra you have to wait a week or so for payment.
C3	15/10/05 (N/A) Lakeba and Aiwa atolls/40 years	Hook and line <i>Lethrinus mahsen</i> , <i>Epinephelus polyphekadion</i> , <i>L. nebulosus</i> , jobfish Walu	Fish with eggs: <i>E. polyphekadion</i> , <i>Lethrinus mahsen</i> , <i>L. nebulosus</i> , jobfish	Aug-Oct (they are hungry so you can catch a lot) <i>E. polyphekadion</i> : Aug-Sep	Aggregation fishery in Aiwa passage: 1972: about 100 fish per person (80% - <i>E. polyphekadion</i>); 2003: about 14-70 fish – feels there was a big decline vs. outside aggregating season: 1-10 fish over 1-2 days	Too many people fishing to sell. Very concerned about the situation and feels that laws/enforcement needed. People need to pay for many obligations and fuel is expensive. Question from the fisher: what could be done to maintain incomes if lower fishing?
			<i>Monotaxis grandoculis</i> : eggs	Oct, various passages where different species go: Davetaluvu Nadawu, Aiwa passages. Fish like the currents.		

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C4	15/10/05 (48y) Vanua Masi, Aiwa, Lakeba, Bukatatanoa atolls/30 years	Hook and line Kawakawa= <i>E. polyphkadion</i> , <i>Plectropomus areolatus</i> , <i>P. leopardus</i> , jobfish, <i>L. nebulosus</i>	All species can be caught in large numbers with eggs.	<i>Monotaxis grandoculis</i> : W and SW of Lakeba in passages with eggs, eg.	<i>Monotaxis grandoculis</i> : Last week got 26 fish in 5 hours 1 person and 5 people got 58 fish in total. Catches variable across years recently. Recalls that from 1970-80 could catch 80 fish per person when only 2 people fished there. Catches have been going down since the 1980s because lots of people discovered the place.	Concerned about declines and feels that government should enforce fishing protection at aggregation time to let fish spawn. Believes this is possible in communities but fishermen need to be taught first about the importance of aggregations. This can then influence the village, then the island meeting for action.
					<i>E. polyphkadion</i> : aggregation has lately declined because of too much fishing. Aiwa passage: 5-6 boats x 4-5 people per boat. Caught >20 fish in biggest	

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					<p>catch but catches have declined. Bakatatanoa: 2003-4, 3 people had >80 fish in 1 day.</p> <p>Vs. outside season: catch 10 fish a day.</p>	
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C5	15/10/05 (45y) ...??/20 years	<p>Diving, hook and line (only started 2 years ago)</p> <p>(Diving:) <i>Plectorhynchus chaetodonoides</i>, <i>Plectropomus areolatus</i>, <i>P. leopardus</i>, surgeonfish, <i>Bolbometopon muricatus</i>, <i>Scarus ghobban</i>, <i>Chlorurus microrhinos</i></p>		<p><i>E. polyphkadion</i>: September, good catch 2 days up to full moon. Some <i>P. areolatus</i> in catches but not major species; <i>P. areolatus</i> in 3-5 m. Fish come out and look at you.</p>	<p>When first fishing aggregation in 1990, got 100 groupers mainly <i>E. polyphkadion</i>.</p> <p>Last time went diving – the passage is in Bukatatanoa atoll – got 80 groupers per boat; at site 3-4 boats with 4 people per boat. Divers catch more <i>P. areolatus</i> than hooke and line fishers. Sometimes in Aiwa passage.</p> <p>Outside aggregation time, 1-10 <i>E. polyphkadion</i> caught on daily trips.</p>	The fish go there to give birth so should not fish these sites.
			Sevaseva - <i>Plectorhynchus chaetodonoides</i>	Has its own special places in rocks and caves and very predictable.	Has declined a lot. Caught a lot with eggs. Declined from 30 per fisher in 1990s to 15-20	

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					per fisher most recently. Easiest to catch by spear.	
C6	16/10/05 (58y) Lakeba and other atolls/30 years	Diving , hook and line (only started 4 years ago) (Diving:) <i>B. muricatus</i> , Ulurua, <i>P. areolatus</i> , <i>P. leopardus</i> , <i>Naso unicornis</i>	<i>B. muricatus</i> : More caught with eggs than no eggs.	Nov-Dec.	Before could get 30 fish per trip at 3-4' in length; did not catch small fish at that time. Early 190s could get maybe 7 fish at most. Catches much declined.	Need awareness and education – have to rain fishers how not to abuse fishery and better protect resources. Need to be informed about what is needed for a better fishery.
			Trevally	Dec		
			<i>P. areolatus</i> , <i>P. leopardus</i>	Sep.	Catch 12 max a trip at spawning times; 3-4 outside season when no eggs.	
			<i>E. polyphkadion</i> :	Aug; site NW of village, see map.	Hook and line. Clear declines in aggregation catches.	
					All species are declining because there are too many fishers.	
C7	16/10/05 (about 50y)	Hook and line	<i>L. mahsena</i> : eggs, good	Oct; inside and outside barrier	2005 last two weeks, 5 boats got	Concerned about declines. Should

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	Lakeba atoll/>30 years	<i>L. mahsena, P. areolatus, P. leopardus, L. nebulosus, L. xanthochilus</i>	catch <i>E. polyphkadion</i> : eggs	reef. Oct; also at the same get blue grouper and <i>P. areolatus, P. leopardus</i> . Local site: the bay north of Lakeba shown with arrow on map; also passages at Butatutanoa and Onata.	twice as many fish at similar time. 20 years ago could get 200 fish about of over 2kg; much less now and smaller. Site has 10-20 boats. Outside season, up to 10 per trip.	reduce fishing on spawning aggregations with Labua. Too intensive fishing activity.
C8	16/10/05 (45y) atolls in area/15 years	Diving <i>Plectorhynchus chaetodonoides, E. polyphkadion, Acanthurus xanthopterus, Naso unicornis, Scarus ghobban</i>	<i>E. polyphkadion</i> : many fish all spread out opening mouth. <i>Acanthurus xanthopterus</i> : eggs	Aug; areas northwest of Lakeba (see arrow on the map) Mar.	Aug 2000, 40-50 fish per pax and 4 pax; 2005, 20-30 each pax and 4 pax. 3-4 other boats on the site. Outside season: 5-10 per trip.	Concerned about declines. Cause is overfishing. Is worried about future generations. Should stop fishing aggregations and allow fish to spawn.

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			<i>P. areolatus</i> , <i>P. leopardus</i> : eggs	Aug-Sep in more shallow water.		
C9	16/10/05 (about 48y) Lakeba and nearby atolls/13 years	Diving A. <i>xanthopterus</i> , <i>P.</i> <i>chaetodonoides</i> , <i>E.</i> <i>polyphekadion</i> , <i>Plectropomus</i> <i>areolatus</i> , <i>P.</i> <i>leopardus</i> , Uluvua,	<i>E.</i> <i>polyphekadion</i> : with eggs	Sep.	Has occasionally caught with eggs but does not focus on aggregations. Can take 5 per day and 10 at night with eggs and 0-3 outside season. Generally notices few fishes and they are smaller also than they were before.	Beche de mer and lobster declining, important for him and also fish. Too much fishing for two long. To protect could make a tabua in certain areas and earn money by cutting copra. Problem is that earnings are not so good.
C10	17/10/05 (N/A) all Lakeba atoll but mainly outside reef in N Lakeba/10 years	Spear <i>N. unicornis</i> , <i>S.</i> <i>ghobban</i> , <i>B.</i> <i>muricatus</i> , <i>P.</i> <i>areolatus</i> , <i>P.</i> <i>leopardus</i> , <i>E.</i> <i>polyphekadion</i>	<i>N. unicornis</i> : eggs	Aug; NW Lakeba, outside reef.	Discovered this and other sites in 1982 when he and many fishermen explored reefs to get many fish for a big church congress held on Lakeba. 1982, 200 max in one day per trip; 1990s, 100	Aggregation site of <i>E.</i> <i>polyphekadion</i> should be protected; at the same site <i>P.</i> <i>areolatus</i> , <i>P.</i> <i>leopardus</i> in shallower water.

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					max per day per trip; last year, 20 fish per trip.	
					Outside season, 10-20.	
			<i>E. polyphekadion</i> : come up to diver	Aug-Sep; outside reef at NokuNuko village.	1982, 200 fish over few aggregation days from 4 people; 1990s, 100 fish caught by 3 pax; now, 60 fish 4 pax.	
					Outside season, 4-5 max per day.	
					Numbers and sizes have declined because more than 4 boats coming from nearby villages.	
			<i>B. muricatus</i> :		In 'hot season' could catch many with eggs but now almost completely disappeared and also the site has declined. Problem is that the species	

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					is too easy to catch and all in one place.	
C11	17/10/05 (N/A) S of Lakeba/20 years	Hook and line, occasionally spear Skipjack tuna, mama?, <i>E. polyphkadion</i> , jobfish, <i>L. nebulosis</i>	<i>E. polyphkadion</i> : eggs and high catches with tide not moon.	Nadawa and Davetalevu and Aiwa passages.	<p>Heard about aggregation from his father and went to a site in NW Lakeba (arrow) and returned often.</p> <p>NW Lakeba: 1970, 100 fish per trip of 3 people; 1980, 40 fish per trip of 3 people; 2004, 20 fish per trip of 3 people.</p> <p>Aiwa: 120 fish per day. 30 mins distant. Grandfather used to fish there.</p> <p>Outside season, 20 per day before; now only about 5.</p>	Concerned about problems. Needs a village programme me to tell elders to look at this. Has not been discussed before and does not know why.

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			Mama		Aiwa: 1989, 500 fish; 2000, 60 fish Wainiyabia: 1989, 300 fish; 2000, 20 fish.	
C12	17/10/05 (N/A) W of Lakeba, and N Lakeba atoll on the outside/20 years	Spear <i>E. polyphkadion</i> , <i>S. ghobban</i> , trevally, <i>P. areolatus</i> , <i>P. leopardus</i> , surgeonfish	<i>E. polyphkadion</i> : eggs, 5-10 in a group	Outside of village Nasaqalau, also a few places all along outside od northern part of Lakuba complex along to NE Promontory.	10 years ago, 20 per trip in season of 1.5-2 kg; now maybe 10 per trip in season; 5 outside season. Occasionally go to Aiwa and other atolls and find that there have bigger and more fish.	Concerned about changes and should catch few fish.
			<i>P. areolatus</i> , <i>P. leopardus</i> (equal red and black): eggs; catches more at time with eggs because of access and behavior of fish.	N Lakaba shore full moon from Jul-Dec		

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			<i>B. muricatus</i>		Used to catch a lot – 20 in one night of 1.5m; now lucky to get one a month.	
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Interview	<i>Cheilinus undulatus</i>
C5	Large ones have declined a lot since 1980s and 1990s.
C7	In last 10 years, used to get big ones in day time; 1 a trip was a good catch. Now hardly ever get any.
C12	1 time a year now; only a little more common 10 years ago. Does not see them now; used to see often.

Latin name	Yasawas
Needlefish	Kerederedula
<i>Acanthurus nigrofuscus</i>	Dridri
<i>E. fuscoguttatus</i>	Delambulea
<i>E. merra</i>	Senikawakawa
<i>Acanthurus xanthopterus</i>	Balagi
<i>P. leopardus</i>	Donudamu, matanisiga
<i>P. areolatus</i>	Batesai, donu
<i>P. laevis</i>	Donuloa, donubuidromo
<i>L. fulviflamma</i>	Kake
<i>Lethrinus mahsena</i>	Sambutu
groupers	Kawakawa
<i>E. ongus</i>	Dawa bataluto
<i>L. fulvus</i>	Kake
Bolbometopon	Kalia

CITATION: *Sadovy de Mitcheson, Y., and Batibasaga A., 2017. 79 Fiji Fisher interviews on fishes that aggregate to spawn; original data and summaries 2003-2005. Science and Conservation of Fish Aggregations and Fiji Ministry of Fisheries and Forests, Research Division. Unpublished compilation report pp. 127*

muricatum	
rabbitfish	Nuqa
porcupinefish	Sokisoki
Goatfish	Ose, Ki
E. polyphekadion	Kesala, kerekere
Plectrorhynchus	Kolekole, sevaseva
Lethrinus elongatus	Doconi
Liza viagensis	Kava
Chanos chanos	Yawa
Cheilinus undulatus	Draudrau, varivoce
Mugil cephalus	Urolo, koto
Lethrinus nebulosus	Kawago
Spanish mackerel	Walu
Epinephelus ongus	Kawabatulato
Lutjanus bohar	Bati
Symphorus nematophorus	Tevulu