Survey of Marine Turtle Use by Communities in Fiji

Pacific-European Union Marine Partnership Programme By-catch and Integrated Ecosystem Management Initiative

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This project is a joint SPREP and WWF initiative (as detailed in the SPREP - WWF-Pacific MoU (11.10.2019). This report has been compiled and written by the consultant, Mr Aisake Batibasaga, on behalf of WWF. The writing of this report has been undertaken in good faith, exercising due diligence and technical attention. The consultant had duly assisted in the correction and validation of the result of the field survey and identified all technical errors in the original results from each site. Reasonable effort has been made to ensure the accuracy and reliability of the information and data that has been collated. We also wish to acknowledge that a statistician was not engaged in the analysis of the survey results and therefore until such a time this is done, data should be interpreted with caution. As such, WWF will not accept any liability for the contents of this report or for any consequences arising from its use. At the completion of a second round of surveys in 2023, WWF and SPREP will analyse both years of data under its *Turtle Use Project* and publish as such, recognising the financial support provided by PEUMP programme.

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1. Macuata – Macuata Provincial Office, Tikina of Udu (Mata ni Tikina Udu); Island of Kia, Kavewa Dauni-vonu, Emosi Time, and Kavewa Village

2. Lomaiviti – Lomaiviti Provincial Office, Conservation Officer Matereti Mateiwai, Tikina Nasinu, Tikina Bureta, Matani ni Tikina Sawaieke-Kelepi Delai, Opeti Vateite, Tikina Sawaieke, Tikina Navukailagi, Tiki-na Vanuaso, Tikina Cawa, and Tikina Mudu

3. Kadavu – Kadavu Provincial Office, Conservation Officer- Kelera Kuli, Tikina Ono, Tikina Ravitaki, and Mata-ni-Tikina Ono

4. Nadroga –Mamanuca Environment Society and Marica Vakacola - Project Manager, and Tikina Malolo

5. Tailevu – Tailevu Provincial Office. and Roko Tui Tailevu-Mosese Nakoroi, and Tikina Verata-Ucunivanua.

6. Rewa – Rewa Provincial Office, and Senior Assistant Roko-Mr Timoci Ratu, Tikina Suva, Tikina Rewa, Vutia, and Dreketi.

7. Bua – Bua Provincial Office, Conservation Officer-Manasa Vula, Tikina Vuya, and Yadua Daunivonu- Pita Qarau

8. Lau – Lau Provincial Office, Conservation Officer-Viliame Driti, Asst. Roko- Buatavatava Ravoka, Tikina Kabara, Tikina Fulaga, Tikina Oneata, Tikina Moce, Tikina Lakeba, Tikina Lomaloma, Tikina Mualevu.

9. Serua – Serua Provincial Office, Conservation Officer- Elenoa Ravula, Tikina Serua, and Tikina Galoa.

10. Ba – Ba Provincial Office, Tikina Nacula, and Tikina Nailaga.

The report relied on the hard work of the enumerators from the WWF Volunteers Programme who were selected and trained by the WWF-Pacific Office, through the coordination of the project team.

This report is written and compiled by Mr Aisake Batibasaga, with support from Mr Duncan Williams, Ms Christine Madden Hof, and Ms Karalaini Rereavosa of WWF-Pacific.

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Executive Summary

This sea turtle research on the sociocultural use and trade of marine turtles was part of the By-catch and Integrated Ecosystem Management (BIEM) Initiative being implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP), through the Pacific-European Union Marine Partnership (PEUMP) programme in collaboration with WWF-Australia, WWF-Pacific and the WWF-Coral Triangle Program. WWF-Fiji is the implementing partner in Fiji.

The BIEM Initiative, which comprises Key Result Area 5.4 of the PEUMP, aims to understand the marine turtle extinction risk and vulnerability across the Pacific Islands region. In parallel, WWF-Coral Triangle is hosting and leading the *Turtle Use Project* which aims to understand the drivers and motivations of marine turtle use and trade across Asia-Pacific. This project used WWF's sociocultural survey to understand the drivers and motivations of use and trade of marine turtles, and to assess the level of harvest and trade across Fiji. This project builds on the turtle use and trade work SPREP and WWF are undertaking in partnership in Tonga, Vanuatu and Papua New Guinea.

Out of the seven (7) sea turtle species that are found across the world today, five (5) species (green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imdracata),* loggerhead turtle *(Carretta carretta),* olive ridley turtle (*Lepidochelys olivacea*) and leatherback turtle (*Dermochelys coriacea*)) are found nesting, migrating or foraging across the coastal and oceanic (pelagic) waters of the Fijian archipelago. Three (3) species that nest in Fiji are green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imdracat*a) and leatherback turtles (*Dermochelys coriacea*), and there is evidence of mixed genetic stocks in Fiji's foraging grounds. Further genetic studies are underway to characterise the genetic stocks in Fiji so that assessments can be made about which stocks are being threatened and need further protection.

Whilst sea turtles have played an important role in the cultures, legends, and diets of coastal communities in the Pacific Island region, the taboos and cultural restrictions associated with historical sea turtle harvesting and consumptions were likely weakened by the introduction of the hawksbill shell trade (*bekko* or tortoise shell industry) into Fiji in the 1800's, and with it a new cash economy. Indigenous Fijian (i-Taukei) communities were encouraged to hunt and process hawksbills, which continued for at least two hundred years, along with the sales of meat and eggs for both hawksbill and green sea turtles. Although sea turtles face a raft of threats in Fiji, illegal use and trade remains a concern. Sea turtle consumption is largely carried out without fear of legal action or penalty; thus turtle harvest, use and trade are largely unchecked, and is believed to have led to over-exploitation and sea turtle stock decimation. Irrespective of the laws in place (a prior moratorium, now illegal to possess, take, or sell marine turtles even for socio-cultural purposes) there is concern of a continued widespread harvest of marine turtles (primarily green and hawksbill) across Fijian Indigenous rural and maritime communities dampening turtle population recovery.

This sea turtle research project used the WWF's Turtle Use Project community-based field surveys to assess the drivers and motivations of sea turtle use and trade, including harvest levels, and fishing methods used by local fishers and community members in Fiji. The research was conducted across selected districts and villages and was coordinated and implemented by the WWF-Fiji project team.

The project sought to address the following research questions: (i) where are the sea turtle hotspots across the country, including the distribution of nesting and foraging areas? (ii) what is the estimated annual sea turtle harvest across the country? (iii) how are sea turtles and their parts (meat, fat, blood, bones, shells and eggs) used and traded across the country? and (iv) why are sea turtles still being harvested and used, sold or traded in Fiji? Existing fisheries and environment laws clearly protect sea turtles in Fiji waters and prohibit their harvest, consumption, sale and trade. It is anticipated this information will assist decision-makers and community resource custodians, natural resource managers, and conservation practitioners to understand the current use and trade of sea turtles in Fiji and where urgent effort may be needed, including possible alternative strategies that could be employed to halt the increasing illegal harvest, illegal consumption or use, and trade of sea turtles.

With the approval of communities and governments, 136 villages located in 10 coastal provinces, were selected and surveyed during March 2021 and between early December 2021 and late March 2022. The trained community monitors used WWF's Turtle Use Project community snapshot and turtle interaction forms to interview participatory communities resulting in 1,186 interviews. The preliminary research findings are presented herein (refer Result and Discussion section). Of the 1,186 fishers and community members interviewed 27% of respondents confirmed that they had caught one or more sea turtles in the preceding 12 months. Approximately 41% of respondents that caught turtles confirmed they did so intentionally, with 32% confirming the catch was not planned or accidental, and a remaining 27% confirming that catching turtles was opportunistic or were caught when seen. The major turtle harvesting hotspots include the province of Lomaiviti, Macuata, Kadavu and Bua. Approximately 60% of those sea turtles that are being harvested are estimated to be green sea turtles, and less than 40% are hawksbills. The results of this survey showed that green turtles are harvested fractionally more readily than hawksbills, however it is unknown if this is a consequence of availability or community preference due to limited population assessments or studies to confirm sea turtle abundance and distribution. Given the small nesting population of hawksbills in Fiji, the level of harvesting of this critically endangered species should alert significant concern. Whilst farming and fisheries are the primary form of income and livelihood, sea turtles are more readily harvested for ceremonial or cultural purposes and consumption. Turtles are more so targeted on purpose (and at night) than caught incidentally and are targeted consistently year round, with around 2,420 turtles estimated to be harvested over the previous 12 months by 293 respondents (24.7%) surveyed in 136 villages from the 10 provinces. Noting, there are hundreds of villages in Fiji, this estimated figure should raise significant concern that harvesting of sea turtles is likely far greater and likely having an impact on Fiji turtle populations, particularly hawksbill turtles. Both the impact of harvesting of sea turtles and an estimation of annual harvest rates requires further investigation, noting post a second round of surveys anticipated to be conducted in 2023, an annual harvest rate is to be estimated.

Acknowledging the research work and findings are preliminary and should be treated as such, this study provides relevant findings and recommendations to address unsustainable use and trade as it attempts to answer some long-standing questions. It helps address the information gaps on marine turtle harvests, trade and use in Fiji of interest to decision makers, natural resource managers, conservationists, local community members, and conservation-focused non-government organisations, both at the national and regional level.

Key recommendations are provided:

- Strengthen Collaboration and Partnerships;
- Strengthen Enforcement Capacity;
- Conserve, manage and Protect Foraging Sea Turtle Populations;
- Harvest quotas, ban or complete protection; and
- Review current legislation.

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Acronyms

ALDF	Abandoned, Lost and Discarded Fishing Gear
AS	American Samoa
BIEM	By-catch and Integrated Ecosystem Management
CBD	Convention on Biological Diversity
CCL	Curved Carapace Length
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMM	Conservation and Management Measure
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CR	Critically endangered
EPSA	Endangered and Protected Species Act
EEZ	Exclusive Economic Zone
FLMMA	Fiji Locally Managed Marine Area
IUCN	International Union for Conservation of Nature
LMMA	Locally Managed Marine Area
MCS	Monitoring Control and Surveillance
NGO	Non-governmental Organisation
SCL	Straight Carapace Length
TREDS	Turtle Research and Monitoring Database System
WCPFC	Western Central Pacific Fisheries Commission
WCPO	Western and Central Pacific Ocean
WWF	World Wide Fund for Nature

1.0 Background

1.1 The Administrative Divisions in Fiji

Fiji is divided into 4 administrative divisions, which are further subdivided into 14 provinces and one self-governing dependency. The 4 geographical divisions are: i) Central, ii) Northern, iii) Eastern and iv) Western Division. The 14 provinces are: Ba, Bua, Cakaudrove, Kadavu, Lau, Lomaiviti, Macuata, Nadroga (and Navosa), Naitasiri, Namosi, Ra, Rewa, Serua and Tailevu. Each of the provinces are further divided into districts. Larger provinces may have up to 17 districts, and an added number of sub-districts. Rotuma is a self-governing island located in the north of Fiji's archipelago.

10 provinces were surveyed during this WWF-coordinated community-based field survey in Fiji in March 2021 and from early December 2021 until the end of March 2022 (refer to section 2.2.2 on site selection). The four provinces that were not covered in this sea turtle research project are Namosi, Naitasiri, and Ra (located on Viti Levu), and Cakaudrove (the third province that is located on Vanua Levu). Rotuma was not included in this sea turtle survey project due to its remoteness.

The map showing the 10 provinces that were covered in this sea turtle survey are presented below (Figure 1A)

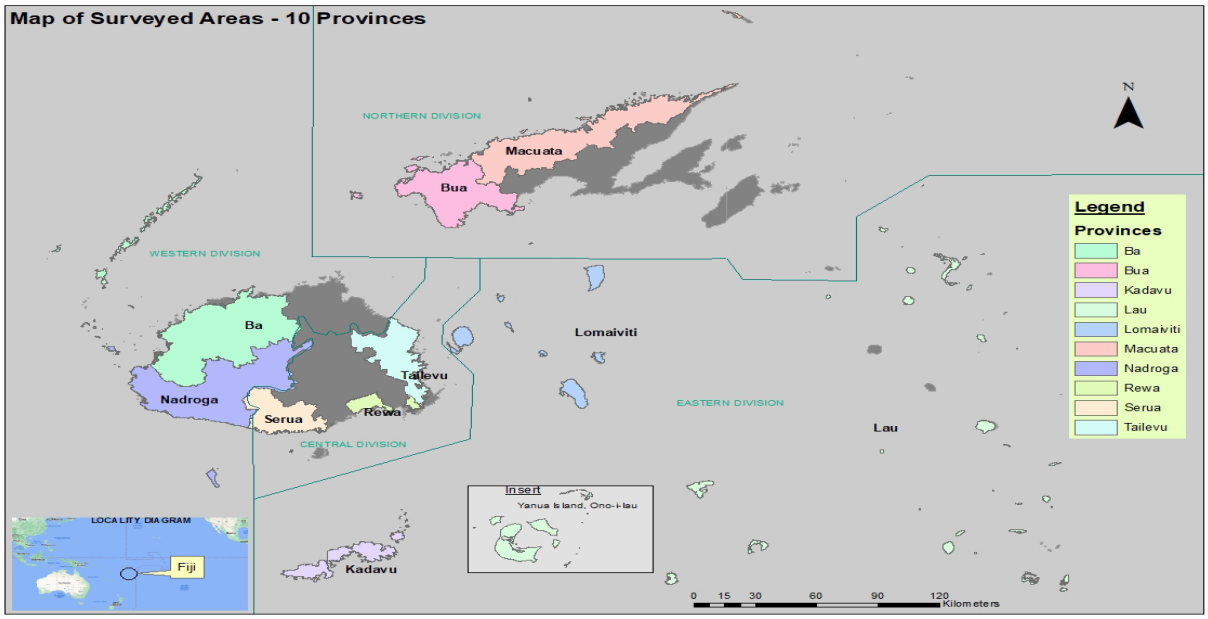

Figure 1A: identifies the ten (10) provinces that were covered in this sea turtle study

1.2 Sea Turtle Species in Fiji

Out of the six (6) species of sea turtles found across the Pacific Islands Region, five (5) species are found in Fijian waters. The sea turtle species are listed, in order of abundance (in Table 1a) and as follows: (i) the green sea turtle (*Chelonia mydas*), (ii) the hawksbill sea turtle (*Eretmochelys imbricata*), (iii) the loggerhead sea turtle (*Caretta caretta*), (iv) the olive ridley sea turtle (*Lepidochelys olivacea*), which are largely found or caught as by-catch by tuna longline vessels in the pelagic zone, well outside territorial waters, and (v) the leatherback sea turtle (*Dermochelys coriacea*), the largest of the sea turtle species. These five species of sea turtles are common residents across both the shallow coastal waters, as well as the pelagic (oceanic) zone in Fiji.

Table 1a. Species of sea turtles that are found across Fijian coastal and oceanic (pelagic) waters and their 2020 IUCN Red List status, CITEs status and EPSA status					
Species	**Common name**	**Fijian name**	**2020 IUCN Red List status.**	**CITES**	**EPSA**
1. *Chelonia mydas*	Green sea turtle	*Vonu dina, Ika bula.*	Endangered-global	Appendix 1	Appendix 1 of CITEs
2. *Eretmochelys imbricate*	Hawksbill sea turtle	*Vonu taku, Takuloa.*	Critically Endangered (CR)-global scale.	Appendix 1	Appendix 1 of CITEs
3. *Caretta caretta*	Loggerhead	*Tuvonu, Guru, Tugale.*	Vulnerable-global but Critically Endangered (CR) South Pacific Sub Population	Appendix 1	Appendix 1 of CITEs
4. *Lepidochelys olivacea*	Olive ridley	*Vonu damu, Vonu tuiloa.*	Vulnerable-global	Appendix 1	Appendix 1 of CITEs
5. *Dermochelys coriacea*	Leatherback	*Vonu dakulaca, Tutuwalu, Tabaiwalu.*	Vulnerable globally but Critically endangered (CR) for both West Pacific and East Pacific sub-populations	Appendix 1	Appendix 1 of CITEs

Three species (number 1, 2, 6 from Table 1a above) nest in Fiji, and all species found to forage and migrate throughout Fiji. Although migration data remains poor, there is evidence Fiji shares its turtle populations with other countries. For example, green turtles found in Fiji have recently been documented to come from an array of offshore breeding areas and nesting rookeries, which include Australia, American Samoa, Cook Islands, and French Polynesia. This recent study provides the only information there is genetic stock assignments and knowledge of stock composition in Fiji, although other genetic studies are underway. A study by Piovano et al. in 2019 on two targeted foraging grounds in Fiji (Makogai Island in the Lomaiviti Province and Yadua Island in the Bua Province), indicated that the majority of the green sea turtle foraging stocks belong to the nesting stock of American Samoa.

1.2.1 Nesting Habitats for Sea Turtle Species in Fiji

Green and hawksbill sea turtles nest on many local sandy beaches and are found across Fijian archipelagic zones. A recent study by the University of the South Pacific (USP) concluded that 27 nesting sites for hawksbill turtles were active during the 2014/2015 to 2018/2019 nesting seasons, the majority of which were not visited by nesting females every year. However, Yadua and Yadua Taba Islands, and Katawaqa and Nukuvadra Islands in the northern division, regularly hosted hawksbill nests almost every year and accounted for 64% of hawksbill nests reported in the five consecutive nesting seasons. Other active hawksbill nesting sites are located in the Lau group, Kadavu, and the Yasawa group (Prakash et al. 2020). Namena Lala is also an unofficially recognised index nesting beaches for hawksbill turtles (Pilcher 2021).

Loggerhead and the olive ridley sea turtles do not nest in Fiji, thus are largely recruits from other locations in the Pacific. Leatherbacks however, which largely traverse pelagic regions between foraging grounds and natal beaches, do nest opportunistically in Fiji.

1.2.2 Foraging Habitats for Sea Turtle Species in Fiji

Sea turtle species have distinct foraging habitats, which may largely be dictated by their special diets or target food preferences. In general, they reside particularly within near-shore coastal waters spanning across both shallow


TURTLE
MONITOR

coral reef ecosystems and associated intertidal and sub-tidal habitat units. This includes mangroves, seagrass, shallow lagoons associated with fringing reefs, and within isolated barrier reef systems that are formed around small, raised volcanic islands, including limestone or coralline atolls.

1.2.2.1 Green Sea Turtles

The adult green sea turtles are herbivorous and feed mostly on seagrass and algal species, which include *Syringodium isoetifoleum* and *Gracilaria, Halophyla, Sargassum, Codium* and other species. They utilize the large seagrass beds that are common in many coastal areas in the Fijian archipelago, notably those in the islands of the Lomaiviti Group, the coastal lagoons and inshore sand flats of Vanua Levu. They also are found throughout the Great Sea Reef, including the seagrass beds of the Udu Point area (notably equally frequented by hawksbill sea turtles and the site where hawksbill and green turtle poisoning occurred from the 1970-1990s). *Note, poisoning in the Udu area was surmised to have been largely due to heavy metal poisoning (mercury, lead and arsenic) that may have leached from the old Nukudamu copper mine since the 1960s, or even before mining began there (Batibasaga et al.2006).*

Seagrass beds are also abundant in the Yasawa and Mamanuca groups, the islands of the North and Southern Lau groups, the Hemskerck and Ringgold Reefs, and in a southwest direction to Vanua Balavu and its isolated sand isles at Duff Reef and other adjoining uninhabited islands.

Other seagrass foraging areas include Viti Levu (north-east areas such as the coastal waters between Suva and north-east to Ovalau), and within the north-west end of Viti Levu, which includes islands with coral reef areas and seagrass such as Beqa, Serua, and Vatulele.

Juvenile green sea turtle stocks are known to have well-established feeding behaviours across shallow coastal waters (from coral reefs, seagrass areas, and even into mangrove habitats). They are, omnivores or having mixed diets, which would include seagrass, algae, ascidians, small bivalves, sponges and other invertebrate species. During post-hatching, and pelagic feeding phases for the first 5-10 or more years (the lost years), these small juvenile greens are largely carnivorous. Seasonal recruitment into neritic or shallow coastal waters are influenced by seasonal sea surface temperatures, and would mostly occur from the summer months in Fiji, from October to December and even across March and April each year (see Piovano et al.2020).

1.2.2.2 Hawksbill Sea Turtles

Hawksbill sea turtle habitats are found throughout the Fijian archipelago, as they are associated with shallow waters of both fringing and barrier reef systems across the country. They are commonly found in the vicinity of coral reefs and seagrass, foraging for food. The diet of hawksbill sea turtles includes sea sponges, ascidians, tunicates, and crustaceans such as reef crabs, jellyfish, bivalves, gastropods, algae and sea grass species. Hawksbills also forage on seagrass and algal beds in the vicinity of coral reefs and associated deep lagoon channels, can be found with green sea turtles, and usually feed at night.

1.2.2.3 Leatherback Sea Turtles

Although the number of leatherback sea turtles occurring in Fiji is very small, its significance is still important due to the overall very low numbers across the south Pacific region. Leatherbacks are likely transient visitors to Fijian waters (both coastal and pelagic areas) as they nest across the western Pacific, for example, in the Solomon Island, Papua New Guinea, Indonesia, and Irian Jaya (and historically in Australia). Leatherbacks are largely oceanic species feeding mostly on jellyfish in the open ocean, traversing great distances (a few thousand 3-7,000 kilometres) assisted by westerly moving ocean currents (Guinea, 1993; Batibasaga et al. 2006).

1.2.2.4 Loggerhead Turtle

Loggerheads are also found in shallow waters within both fringing and barrier reef systems. It is slow moving compared to other sea turtle species. It has a large head and thick jaws for crushing its food, which is made

up largely of crustaceans (mostly crabs), and molluscs (bivalves and gastropod shells), ascidians, tunicates, and sponges and a host of other coral reef invertebrate species. Most of the existing population is found in isolated reef systems, such as the Great Sea Reef, the Hemskercq and Ringgold reef systems, north of Taveuni, and in the Lau group, and other isolated reef systems and uninhabited islands (Batibasaga et al.2006).

1.3 Socio-Cultural Importance of Sea Turtles in Fiji

Sea turtles play an important role in the cultures, legends, and diets of coastal communities across the Pacific Islands. For the i-Taukei (or Indigenous Fijian), sea turtles have traditionally been regarded as sacred, and its harvest accompanied by a sacred lore or ritual. Their consumption was reserved only for paramount chiefs and those of higher social standings in the Fijian society and traditional communal lifestyles of that time. Sea turtle hunting was the responsibilities of the "*Gonedau"* clan, with their head being known as the *Tunidau* (Guinea, 1993). The highly skilled and gifted members of this traditional fishing clan possessed exceptional knowledge and insights in sea turtle fishing and were also conversant with natural history and sea turtle folklore. The hunting and harvest of sea turtles by the local i-Taukei communities at those times were largely conservative, and thus recognized as fully sustainable.

The taboos and cultural restrictions associated with sea turtle harvesting and consumptions across Fijian societies in the early 18th century could have weakened or diminished from the 1840s with the introduction of the hawksbill shell trade (*bekko* or tortoise shell industry) into Fiji. During this time hawksbill shell (*bekko*) was traded for cash (with the introduction of the cash and market economy at that time). The i-Taukei were encouraged to hunt and process the hawksbill shells following declines in the first traded commodities of sandalwood and sea cucumbers from 1865 (William,1878).

The chiefly restrictions and cultural taboos were cast aside, and quickly became eroded in value, and thus widespread harvest of sea turtles followed. Over-exploitation of hawksbill sea turtles to cater for the *bekko* trade continued for at least two hundred years, along with the sales of meat and eggs for both hawksbill and green sea turtles (see Tippett 1968). The colonial administration and governance system had also further transformed the native customs and traditions (Toganivalu &Hunter,1913), and weakened the cultural restrictions associated with sea turtle harvest and use.

In Indigenous Fijian communities, even before Fiji was ceded to the British empire from 1870, sea turtles featured prominently in the traditions and cultures of the local people, where they were regarded as sacred, and were considered as chiefly resources treated with respect and seen as a source of blessings or a curse, and was only reserved for the kings, nobles and chiefs or leaders of the land.

At those times, the hunting or harvest of sea turtles was controlled or regulated by the chiefs and restricted to the fishing clan (Gonedau). Only the men could hunt or fish for turtles, and women were prohibited by customs to be involved in sea turtle fishing or harvesting activities. A specialized fishing net was used for catching sea turtles, which could be easily constructed by the fishing clan, and the special net was called *lawasau*. The sea turtle net was constructed from coconut fibre, and weaved into ropes (coconut sinnet) or using *Hibiscus tiliaceus* (vau) bark for constructing the ropes, and even the tree trunk could be cut into small pieces and used as floaters,

The capture of a sea turtle would be reciprocated by the chiefs with a whale's tooth (tabua) and food offerings of yams, taro and pigs (Tippet,1968). The cultural taboos and respect accorded to sea turtle fishing, and the limited access to who could consume sea turtles, had protected sea turtles in Fiji for centuries.

1.4 Threats to Sea Turtles

Sea turtle populations across the world continue to decline due to anthropogenic or human-induced threats, including loss of foraging and nesting habitats, fishery dependent mortalities or interactions with offshore and coastal artisanal fishing gears, climate change impacts, and unsustainable (legal and illegal) harvest and trade

(Hamann et al.2010; Wallace et al.2010).

Hawksbill sea turtles are largely being driven to extinction because of the global demand for their shells (Wallace et al.2010) which started in the 18th century. Green sea turtles are mostly targeted for their eggs, meat, bones, fat, oil, blood and other parts, of which, apart from the bones and shells, all are edible and highly sought-after for food by local Pacific Island communities, as well as growing Chinese, Korean, and all South-east Asian communities. The over-exploitation of sea turtles continued more or less unchecked until the 1990s and is today exacerbated by ever-increasing human population and market demand. Sea turtle populations are now under immense pressure globally, with some close to extinction from decades of over-harvesting, coastal habitat changes, decadal climatic changes, marine pollution and increasing coastal infrastructure developments encroaching or impacting on sea turtle foraging, nesting and breeding sites.

Irrespective of the laws in place there is concern about continued widespread harvest of marine turtles (primarily green and hawksbill) across Fijian indigenous rural and maritime communities. Urgent steps are needed to understand the level of take and halt the (unsustainable) harvest and general disregard of their highly vulnerable and endangered global status, as we may be driving Fiji's sea turtle populations towards extinction.

1.4.1 Overfishing and Overharvesting in Fiji

Near-shore or coastal fisheries resources in Fiji have always been challenged by the perennial problem of overfishing. Historians, researchers, and fisheries scientists recall the British colonial government in Fiji clearly noting the chronic problem of overfishing from the mid-1800s (18th century) to the 1940s (during and after the 2nd World War). Observations and confirmation of over-exploitation of target commercial or export-market species were made at that time, which included sea cucumbers (holothurian species), target reef fishes (groupers and associated taxa), and sea turtles (targeted for food and the hawksbill shell (bekko) trade. To control and limit the exploitation of coastal fisheries resources, including sea cucumber and sea turtles, the colonial government enacted the Fisheries Act (Cap 148) in 1941. Much recent efforts to protect sea turtles include the formulation and promulgation of several moratoria (since 1995, and from 1997 to 2018), which placed restrictions on the harvest, consumption, sales and trade in sea turtle, as well as the collection of eggs.

The Fisheries Act and the series of fisheries moratorium on sea turtle harvest and use recognized the customary rights for the i-Taukei communities to harvest and use sea turtles, and provided options to formally tender their application through a written letter, to be granted an exemption permit to harvest sea turtles. This allowed traditional or cultural ceremony to continue, whilst being able to record how many sea turtles were needed to be harvested. To be permitted, the Fisheries Department required several criteria to be met, otherwise the request could be denied. Regulations for sea turtle harvest are currently under review (2023).

1.4.2 Interactions with the Tuna Long Line Fishery

The olive ridley, hawksbill, green, leatherback, loggerhead, and flatback sea turtles are caught as incidental or by-catch species by Fiji tuna long line fishing fleets (see *Table 1b below*). Any sea turtles hauled in alive are usually handled by the observers or crew with care, de-hooked, and released back into the sea.

All observers in the Fiji observer program are certified and trained in the mitigation, handling, and safe release of sea turtles under the SPC/FFA PIRFO Standards. Fiji requires all Fiji flagged and licensed vessels use circle hooks, undergo appropriate awareness and training on the proper gear to be used as mitigation and how to reduce interactions (OFD, 2016).

Table 1b. Annual sea turtle interactions with Fiji tuna long-line gears, from 2015-2021 as recorded by the Fiji Fisheries Observers

	2015		2016		2017		2018		2019		2020		2021	
Species	No.	Dead	No.	Dead	No.	Dead	No.	Dead	No.	Dead	No.	Dead	No.	Dead
GR	4	3	17	17	18	10	15	8	18	12	20	10	5	5
LG	6	2	9	5	16	9	24	9	10	7	7	4	0	0
HK	2	0	17	7	20	11	23	8	8	6	6	3	5	0
LB	5	1	7	0	8	8	2	2	3	0	0	0	0	0
OR	23	21	9	8	9	9	5	4	4	2	1	1	1	0
FB	0	0	1	0	0	0	1	1	2	2	1	0	0	0
UN	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Total	**40**	**27**	**60**	**37**	**71**	**47**	**70**	**32**	**45**	**29**	**37**	**18**	**12**	**5**

Key: GR: Green. LG: Loggerhead. HK: Hawksbill. LB: Leatherback. OR: Olive Ridley. FB: Flatback. UN: Unidentified.

The incidental catch on juvenile loggerhead, olive ridley, hawksbills, greens, leatherbacks (sub-adults/adults), and juvenile flatback turtles (*Natator depressus)* (which are in all likelihood carried down into the Fijian EEZ, and high seas pocket by the South Equatorial Current, and brought in by the South-east trade winds) are largely under-estimates, as Fiji Fisheries observer coverage is only around 20% of fishing effort.

The estimated number of olive ridleys taken as by-catch within the Fiji tuna long line fishing fleet for 2021 was only one juvenile, which was de-hooked, and released alive. However, in 2015, the number of olive ridleys caught as by-catch was recorded as 23 juveniles, where 21 were hauled in dead, and discarded back into the sea, whilst 2 were de-hooked, and released alive (see Table 1b). A large number of incidental sea turtle catches recorded in Table 1b. were juveniles and sub-adults. Leatherbacks were mostly sub-adults, with some large adults. Flatback juveniles caught within the Fijian Long line fishing fleet in the high sea pockets as by-catch, are most likely still in an oceanic phase, before being recruited back as large juveniles into Australian coastal waters when they reach a certain size. It is also possible that that there could be incorrect identification occurring by some Fiji Fisheries observers as loggerheads and olive ridleys look very similar at the pelagic. The 2021 data was impacted by low to no observer coverage on Fiji registered longline fishing vessels in the preceding year due to COVID-19 related restrictions, which may have resulted in lower observed turtle interaction numbers for that year.

1.5 Laws Supporting the Conservation, Management and Protection of Sea Turtles in Fiji

All sea turtle species found within all Fiji waters are fully protected under both the fisheries and environment laws of Fiji. Under the *Offshore Fisheries Management Act 2012*, *Offshore Fisheries Management Regulations 2014* Regulation 5 *'applies to all internal, territorial, archipelagic and offshore (pelagic) waters, and does not allow for any exemption on the harvest of sea turtles'*. The current penalty for anyone found guilty of harvesting sea turtles under Regulation 5 is FJD10,000 for individuals and FJD20,000 for corporates.

There have been 3 moratoriums (1995-2000; 2004-2008; 2009-2018) banning the harvesting, killing, or the consumption, selling or trade in sea turtles and their products in Fiji (see Piovano and Batibasaga, 2020). The goal has been the protection of sea turtles following the Government identifying that overexploitation of these species had been taking place since the early 1980s.

The *Endangered and Protected Species Act* 2002 or EPSA-2002 also provides protection to species of special concern or globally threatened and endangered species. This includes all species of sea turtles (via Schedule 1 and 2 of EPSA-2002). Fiji has made international commitments to protect all sea turtle species in Fijian waters under its international obligation as a party to both CMS and CITES, as well as a party to the UN Convention

on Biological Diversity (CBD). As all sea turtle species are listed on CITES Appendix 1 international trade is prohibited.

2.0 Socio-Cultural Use and Trade Survey of Marine Turtles

2.1 Research Aim

Using the WWF Implementation Guide of the Turtle Use Project (compiled by WWF-Australia), the aims of the community-based sociocultural use and trade surveys in Fiji were to gather key insights, perceptions, and information relating to:

a) the patterns and drivers of sea turtle use and trade;

b) socio-cultural and possibly economic dependence of local community members on the use and trade of sea turtles;

c) making a reasonable estimate on the level or quantity of sea turtles that are harvested on an annual basis;

d) acquiring more understanding and information on sea turtle biogeography (e.g. species present, habitat use); and

e) engaging with key partners (communities and governments) to discuss future strategies for addressing key threats (e.g. unsustainable cultural and subsistence harvest, illegal trade, weak enforcement and active flouting of current fisheries and environment laws) resulting in an agreed way forward to reduce reliance on and impact to sea turtle populations in Fiji.

2.2 Methodology and Questionnaires Used in this Study

WWF's Turtle Use Project survey methodology and questionnaires (developed by WWF-Australia in close collaboration with a number of conservation organisations, social scientists, anthropologists, sea turtle conservation experts and statisticians) were used. The socio-cultural sea turtle use survey approach and methodology incorporated information and lessons learnt from previous work undertaken in the Solomon Islands by The Nature Conservancy (TNC), and included information from TNC's sea turtle catch and turtle use data forms (Vuto et al., 2019), and other information sets.

The **Community Snapshot Survey (CSS)**, and the **Turtle Interaction Form (TIF)** were used in this project by engaging a team of trained community monitors to survey participating community members. (refer to Appendix 8.2 & 8.3)

2.2.1 Project Team

The project team comprised a Project Coordinator, working with a Project Facilitator, and a number of Turtle Monitors (or enumerators). The roles were defined as:

Project Team	Role
1. Project Coordinator	To coordinate, manage and supervise the implementation of all aspects of the project, including hiring, budgeting, reporting, and delivery of activities.
2. Project Facilitator	To supervise and help select and arrange the training of the turtle monitors, coordinate the field-based logistics of the survey; initially proposed for 6-12 months of data collection. Supervising data collection activities, collation, and storage of data, and planning and conducting community consultation and workshops.
3. Project Monitors	To deliver the sociocultural use and trade surveys in selected community sites for a period of 6-12 months, and compile and transfer all survey data to the Facilitator.

2.2.2 Site Selection

To ensure accurate information on sea turtle exploitation was collected, study sites were selected carefully after

consulting with the Fiji Sea Turtle Steering Committee (FSTSC) in 2019. For study sites where information on sea turtle use was established or already existed, the FSTSC advised that at least one identified "hotspot" for sea turtle exploitation be included in the list of potential sites.

If such information were not readily available, it was recommended that surveys and workshops be deployed in locations that met at least one of the following criteria:

i. Consistent presence of at least one marine turtle species (e.g. foraging or nesting population);

ii. Evidence or expert knowledge of turtle use and/or trade;

iii. Established local conservation programme or group relating to sea turtles or other marine life; or

iv. Strong relationships with local community members and/or leaders.

Under the supervision of the Project Facilitator, a team of trained turtle monitors carried out the survey work for 6-12 months across the selected coastal communities. The community-based assessment of marine turtle use and trade was undertaken using two separate forms: **i) The Community Snapshot Survey (CSS)**; and ii) **the Turtle Interaction Form (TIF).**

2.2.3 Field Consultations

Prior to project signing and approval to conduct the survey in 10 provincial sites, consultations were undertaken with the Ministry of Fisheries (MoF), the Mamanuca Environment Society (MES) Conservation International (CI), the Institute of Applied Sciences of USP (USP-IAS) and official community representatives and Dau-ni-Vonu (DnV) from Macuata and Bua). Approvals for entering community study sites to undertake the surveys was arranged by the official community representatives and partners, however, field deployments prior to December 2021 were delayed due to COVID-19 restrictions.

Following the lifting of COVID-19 movement restrictions in October 2021, survey sites were reconfirmed following consultations with provincial council officers in November and December 2021. The alternative sites selected included villages in the province of Rewa, Tailevu, Serua and Lomaiviti; in addition to Kadavu, the Mamanuca Islands, Lau, and Macuata. All relevant provincial council representatives were briefed on the amended field logistics with permission to resume fieldwork and enter the communities that had been selected. Consultations and planning with Conservation International (CI) and the Mamanuca Environment Society (MES) took pace during November 2021 to re-confirm the logistics for the commencement of the surveys in the Lau and Mamanuca Islands, respectively.

2.2.4 Training of Volunteer Sea Turtle Monitors

All volunteer Sea Turtle Monitors were undergraduate students with background knowledge in fisheries science and management, marine science, marine biology, marine studies or environmental studies. An expression of interest was advertised through the MoF and USP, with twenty-three applications received. Fifteen volunteers were selected to assist the project team.

The Sea Turtle Conservation Awareness Training Workshop for the Sea Turtle Monitors took place from 25th - 27th February 2021 (Workshop report - WWF, 2021). The objectives of the workshop were to familiarise the sea turtle conservation monitors with national efforts to conserve and manage sea turtles; current community-based sea turtle management actions; ongoing sea turtle research work; and to introduce/or familiarise the proposed activities to the participants, including the sea turtle nesting survey, and the snapshot and use survey forms. The volunteer monitors carried out the community snapshot surveys (CSS), while the turtle interaction forms (TIF) surveys was conducted by community turtle monitors.

3.0 Results

Note, all Provincial results are provided in Appendix 1.

3.1 Respondent Socio-economic background

3.1.1 Sites and the number of people interviewed

A total of 1,186 interviews were conducted by the WWF survey teams. Table 3a summarises the number of interviews conducted per district from within the 10 Provinces that were covered.

Table 3a: Presents the summary of the number of interviews that was undertaken in each of the ten provinces covered in this study.

No.	Name of province	No. of interviews	No.	Name of province	No. of interviews
1.	Ba	116	6.	Macuata	122
2.	Bua	33	7.	Nadroga	65
3.	Kadavu	78	8.	Rewa	80
4.	Lau	53	9.	Serua	131
5.	Lomaiviti	435	10.	Tailevu.	73
	Total interviews: 1,186				

3.1.2 Gender participation in this survey

An assessment of the gender distribution (and participation) from this survey showed that the majority of people interviewed were males (71%), with females (28%), and around 1% of the people were not identified by gender status. Men are largely responsible for hunting and catching sea turtles.

3.1.3 Level of Education

Of the total 1,186 people interviewed from the 10 provinces, 1,177 people responded regarding their level of education attained. Almost all the respondents had gone through some level of education, with the exception of two people who did not go through any formal education. Percentage of responses are provided in **Table 3b**. **Figure 3a** shows the graphical illustration of the different responses stated.

Table 3b. Level of Education attained (Respondent = 1,177)						
	No formal education	Primary	Sec.	Univ. Degree	Trade/ voc.	Prefer not to say
Category (%)	0.17	21.4	64.0	10.1	4.2	0.17
Corresponding no. of people	2	252	753	119	49	2

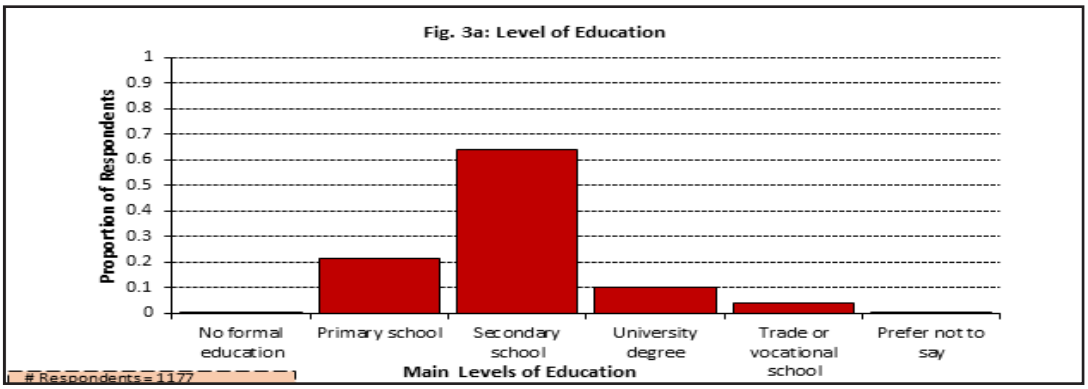

Figure 3a: Level of Education respondents attained

3.1.4 Age distribution of respondents

The total number of people that were interviewed about their age across the study area was 1,184. The majority of people surveyed fell into the 26-35, 36-45 and 46-65 age brackets (as presented on the *Table 3c.*)). There was a mix of livelihoods with most of those in these age brackets had livelihoods recorded as fishing, farming and paid employment or residing within the communities (Figure 3b). The mandated retirement age from active employment in Fiji is 55 years, and 56-65 years and beyond includes the retirement years. Most city-based people would not be involved in active or strenuous manual work expected when one is involved in fishing or farming activities, nor active industry employment involving manual activities. However, it is common in rural and maritime districts across Fiji to have women and men in the 55-65 years plus brackets still very active in fishing, farming, and other manual labour such as carpentry, running their own business, and active on home or community building construction work.

Table 3c. Age distribution of respondents from the survey areas

	<18 years	18-25 yrs.	26-35 yrs.	36-45 yrs.	46-55yrs	56-65 yrs.	>65 yrs.	total
% Age Category	1.6	7.9	19.0	22.6	21.8	19.0	8.1	100
No. per age category.	19	94	225	267	258	225	96	1,184

Figure 3b shows the different age classes of people living within the rural and maritime districts covered in this community sea turtle use survey.

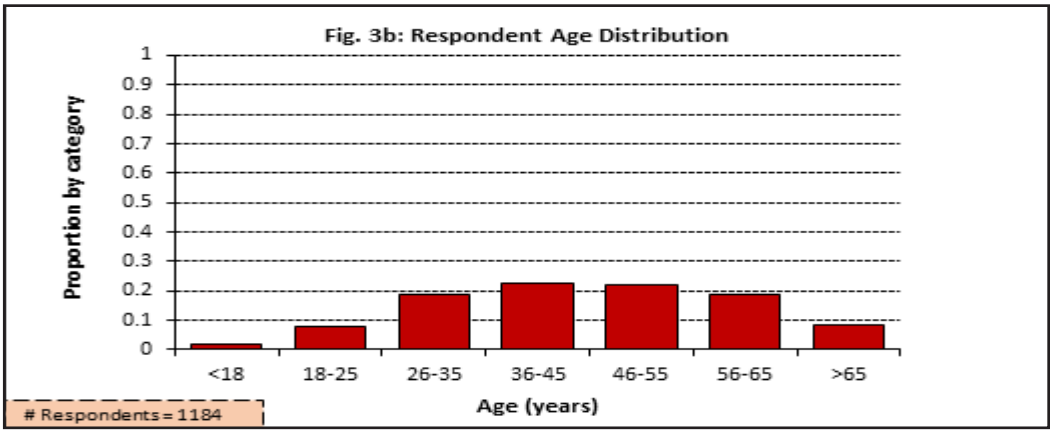

Figure 3b: Respondent age distribution

3.1.5 Primary livelihoods and income sources

From a total of 1,186 community members interviewed during this study across the ten provinces, 1,159 people provided information about key livelihood options and income sources, along with the level of dependence on each primary form of livelihood.

Figure 3c shows the proportion of respondents' primary livelihood and income sources. The livelihoods where more people were involved, as well as having relatively uniform dependence by these local communities were fishing and farming and other livelihood options (which may include running small businesses for women-folks (e.g. operating small canteens from home, small bakeries, mat and tapa making, and traditional wood carving (for men and youths).

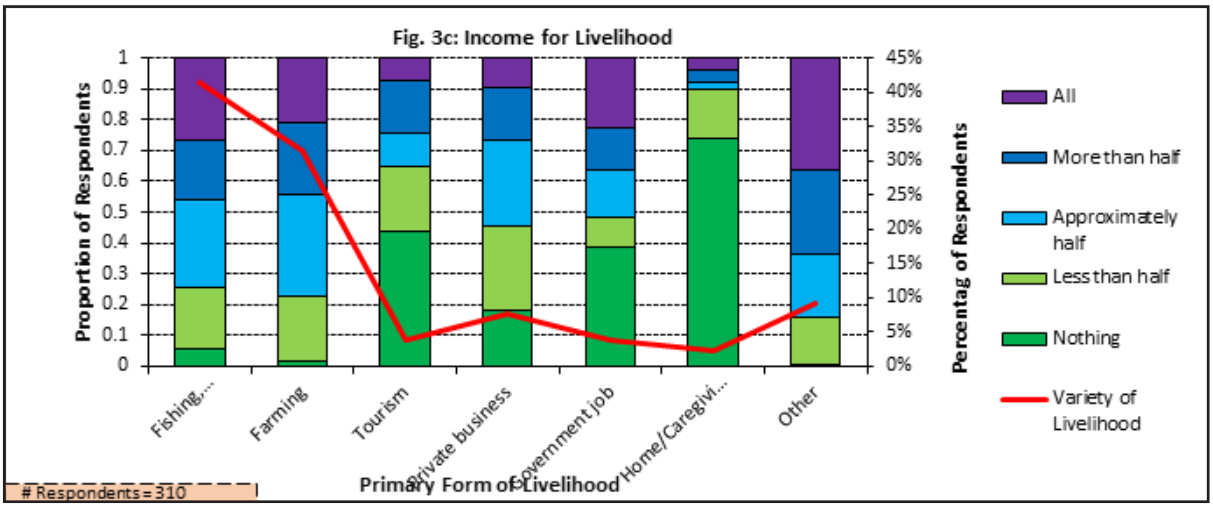

Figure 3c: Primary livelihood and income sources of respondents

3.1.6 Use of Fisheries (marine) resources harvested by local i-Taukei communities

Figure 3d presents the main categories of marine (fisheries) resources harvested across the 10 provinces in this study, and how they are used by the local i-Taukei communities. Marine resources included in this survey were fish, shellfish and crustaceans, sea cucumbers, shark, rays, sea turtles, and other species or taxa. Sharks and rays and sea cucumbers were there most utilised species followed by sea turtles. Sea turtles were reported as being used for eating (local consumption), followed by for special occasions or traditional celebrations in the village or island districts, or given away to relatives or as gifts to the chiefs or leaders of the local community or relatives (when transportation is available by boat for island districts). Interestingly, the results show there is greater use for consumption of sea turtles, sharks, rays and sea cucumbers than for fish, shellfish or crustaceans.

The bar-chart below **(Figure 3d)** illustrates that selling or trade of sea turtles from these communities is not common, or rarely happens. There are strong indications that what is happening on the ground is not reported here. There is evidence of unchecked illegal harvesting, use and sales (or trade) in sea turtle resources by a few male fishers receiving substantial black-market benefits. A sub-adult green turtle above 60-70cm carapace length easily reaches a payment of between $200-300 Fijian dollars or even more; the larger and mature green sea turtle individuals will fetch above $1,500-2,000 Fijian dollars (Batibasaga, unpublished data, 2015).

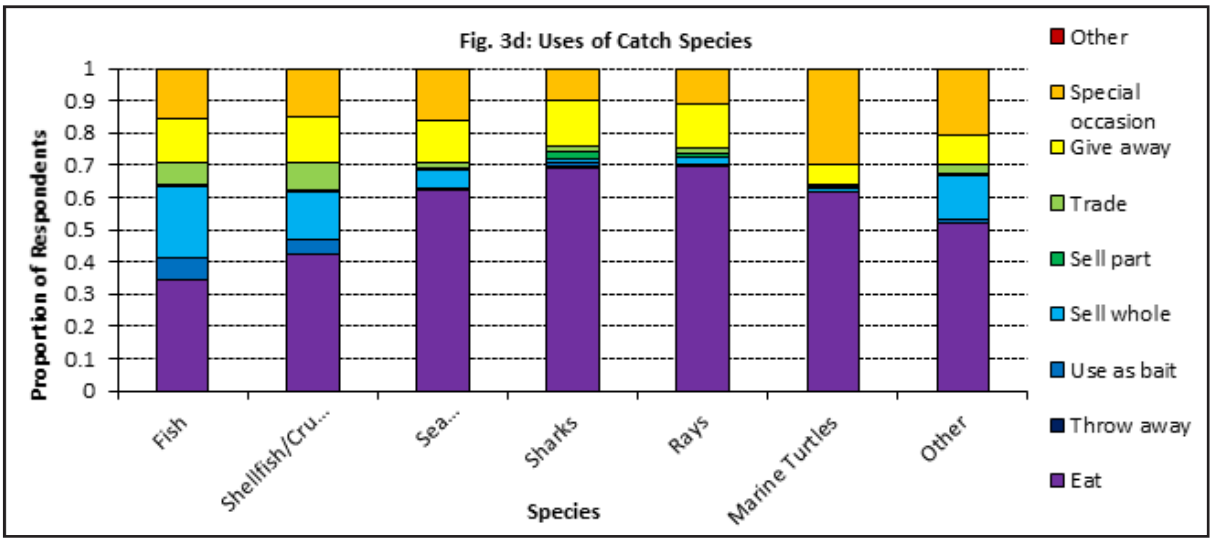

Figure 3d: Use of harvested marine (fisheries) resources

3.1.7 Ability to identify sea turtle species

Figure 3e below shows the proportion of respondents who were able to identify the five species of sea turtles found within foraging grounds or at nesting beaches close to the respective survey sites. Of the 984 respondents that were able to identify sea turtles, 40% identified hawksbill turtles, 31% identified green turtles, 5% identified leatherback, 20% identified loggerheads and 4% identified olive ridley.

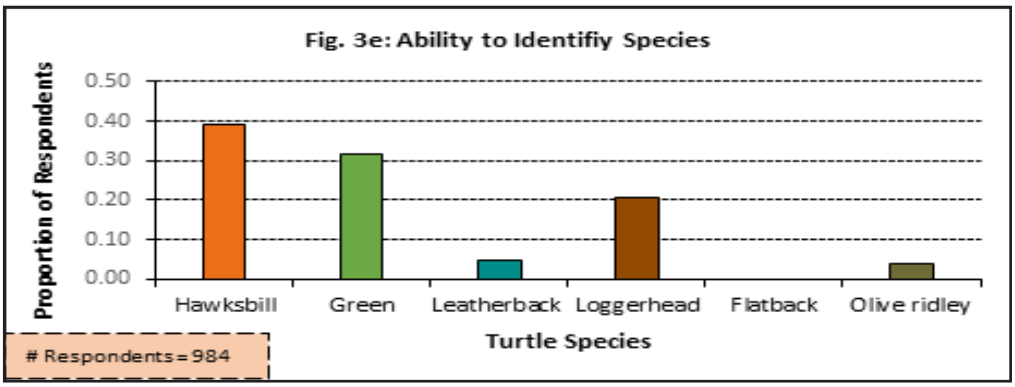

Figure 3e. Proportion of respondents that were able to identify turtles by species

3.1.7.1 Sea turtle sightings in the water

Four sea turtle species were reported as observed in water, with frequency of encounters being higher for both hawksbill (44%) and green sea turtles (36%), followed by loggerheads (18%), and then leatherback sea turtles (2%). However, there seems to be also some very rare sightings of olive ridley sea turtles, which could be a misidentification of juvenile green sea turtles. Fiji's annual reports (Ministry of Fisheries: Annual Report to the WCPFC - Part 1: Information on Fisheries, Research and Statistics) to WCPFC suggests that olive ridley turtles are only seen or encountered within the pelagic or oceanic realm of the Fijian outer margins of the EEZs, and across the high seas, with neighbouring Pacific Island Countries and Territories (PICTs)

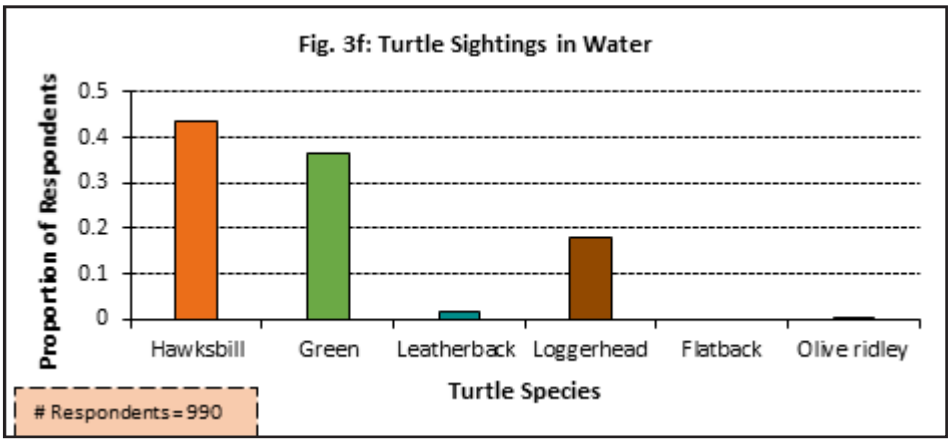

Figure 3f: Proportion of respondent that have sighted turtles in the water

3.1.7.2 Sea turtle encounters and sightings on the beach

Three sea turtle species were reported as observed on the beach, with frequency of encounters being higher for both hawksbill (51%) and green sea turtles (41%), followed by loggerheads (8%).

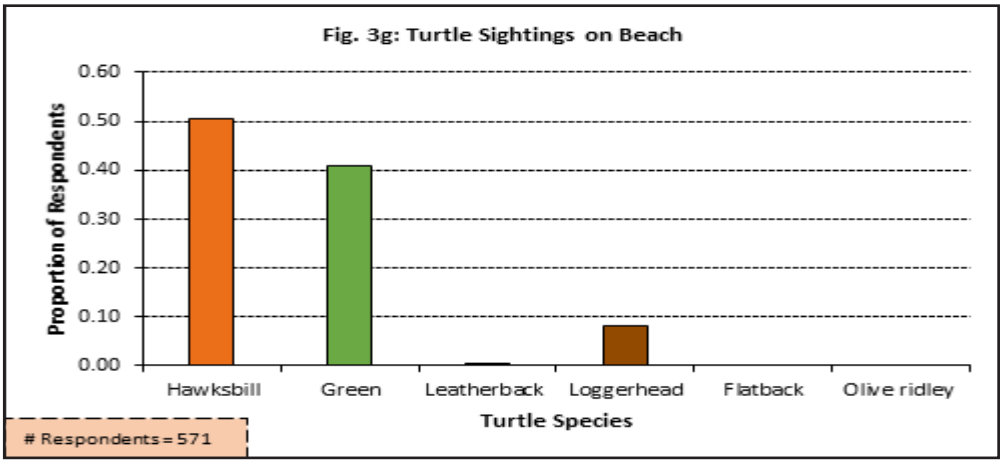

Figure 3g: Proportion of respondent that have sighted turtles on the beach

3.2 Fishing Effort and Resources

3.2.1 Perceived Fishing Effort

The fishers and local community members who fish or harvest coastal fisheries species and associated marine resources, (e.g. reef fishes, shellfish, crustaceans, sea cucumbers, sharks, rays, and sea turtles, and other species for subsistence food and household income sources) fish continuously across each month throughout the year (***Figure 3h***).

For each main group of marine resources being harvested, respondents reported even targeting or harvesting across the year, with monthly effort being (between 8.2-8.5 % for each of the key taxa shown). For sea turtles, fishing effort is consistent across the year, with there not being any particular month standing out as the primary month. Effort is between 8.2-8.5 % throughout the 12 months, and peaking slightly in October, November and December at 8.5%.

This can be interpreted that fishing or harvesting of sea turtles may only marginally rise during nesting period (Oct-Feb) and therefore foraging and migrating turtles are targeted year round.

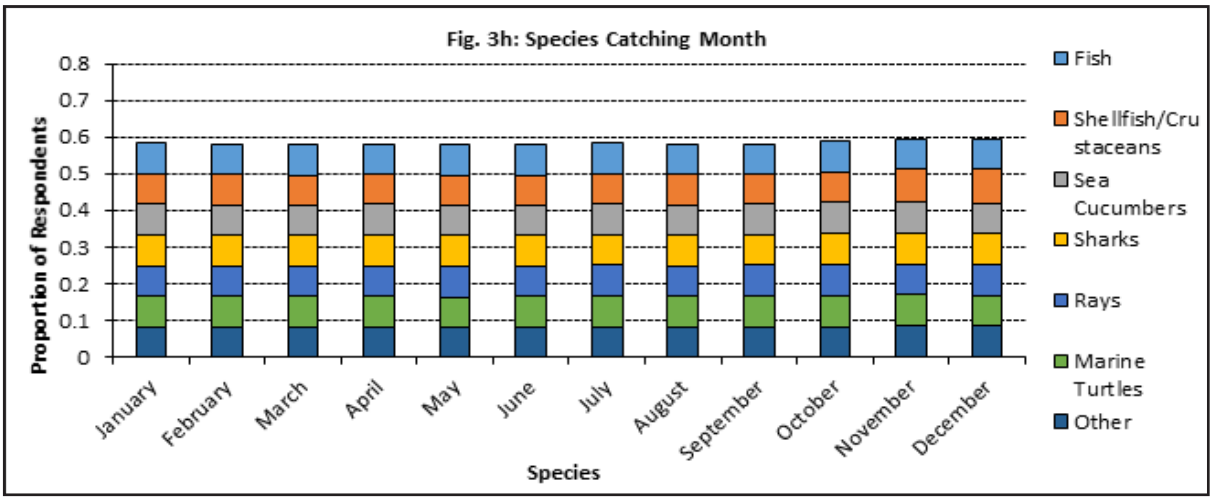

Figure 3h: Marine species targeted or harvested each month by respondents

3.3 Sea Turtle Catch, By-catch and Use

3.3.1 Harvest and use of sea turtles across the survey sites

Respondents indicated that local Indigenous Fijian (i-Taukei) communities are actively engaged in fishing almost on a daily basis or otherwise at least once or twice per week. This is the case across local i-qoliqolis (traditionally demarcated fishing areas) for the purpose of deriving subsistence food fishes and invertebrate species, as well as for household income sources, as has been previously discussed above. Figures 3i and 3j shows that local communities are actively involved in fishing, and that these local community fishers are also actively fishing for sea turtles across their local fishing grounds. The second pie chart (figure 3j) shows that out of a total of 1,141 people interviewed on the question of who is harvesting sea turtles, 56% (or 639) of the respondents said that they are aware of or know that sea turtles are being harvested in their fishing grounds each week or months of the year and being consumed by their communities.

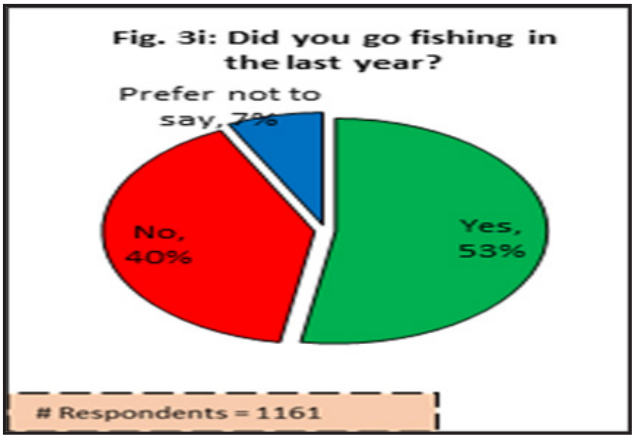

Figure 3i: Percentage of respondents that were actively involved in fishing in the year 2021

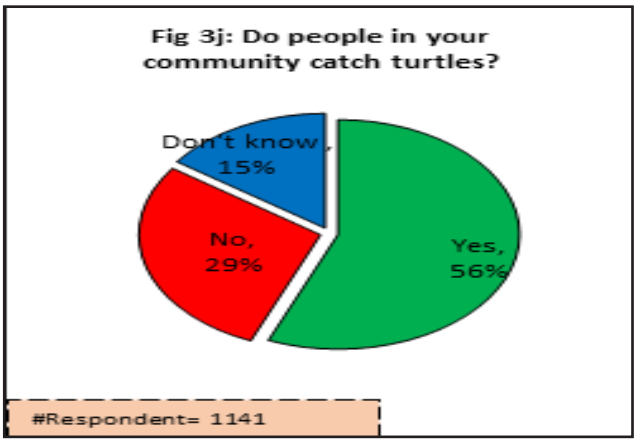

Figure 3j: Percentage of respondents aware of or know that sea turtles are being harvested across their fishing grounds

Figure 3k shows that out of the 1,087 fishers and community members interviewed from December 2021 to March 2022 across the ten provincial sites, 27% (or 289) of those people confirmed that they caught one or more sea turtles in the preceding 12 months.

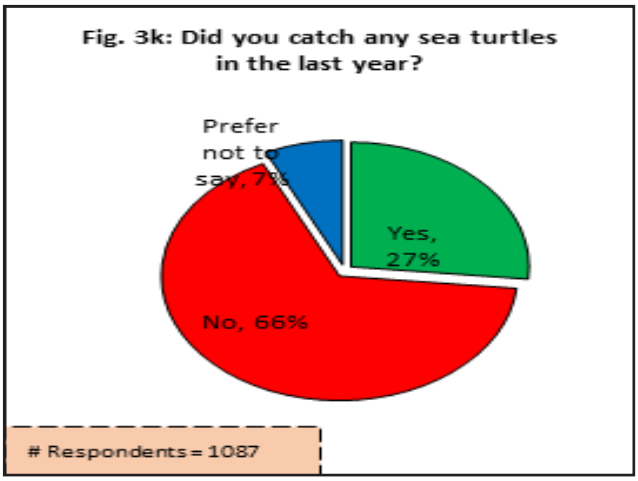

Figure 3k: Percentage of respondents that caught turtles in the last year (2021)

Figure 3l provides an estimate of how many sea turtles were harvested across the 10 selected provinces in 2021 (refer annual harvest section 3.4 for more details). Close to 50% of respondents indicated that they caught between 1-2 sea turtles, whilst approximately 35% indicated that they harvested more than 2 but less than 10 sea turtles and approximately 10% indicating that they caught more than 10 but less than 50 sea turtles in the previous 12 months. A concerning result was from one respondent who had indicated harvesting more than 50 but less than 100 sea turtles in the previous 12 months.

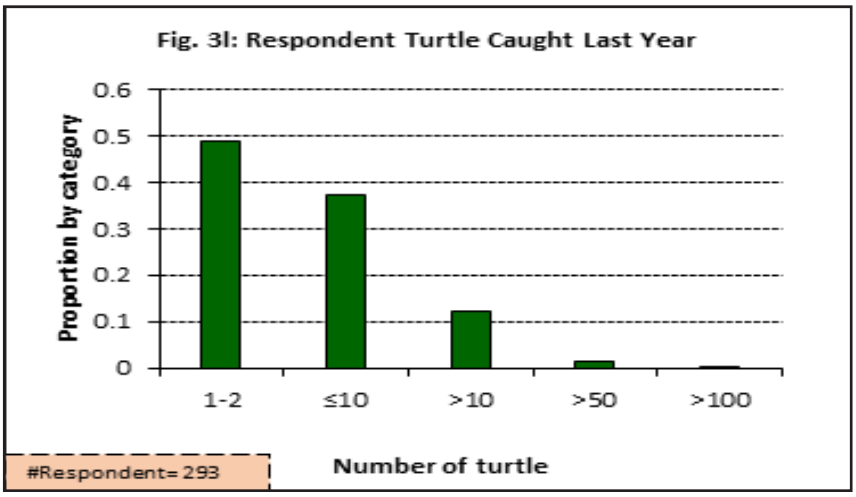

Figure 3l: Proportion of turtle harvest by category

3.3.2 How are sea turtles caught: is it accidental, targeted or both?

Table 3d shows how sea turtle harvest by local fishers may occur during a fishing trip as reported by respondents. The majority of respondents reported that sea turtle hunting and harvest is planned on purpose (41.1%) compared to by accident (32%) or both (26.9%), meaning it may have not been the main targeted species but was caught because it was encountered during that fishing trip. Sea turtle harvests are usually planned in preparation for a village or district function.

However, when encountered during a certain fishing trip, especially at night, respondents suggested it is easy to catch turtles when they are sleeping under coral ledges on the reef. When caught alive, respondents reported they could be kept alive in the village in special enclosures in the water or turned on its back and kept at home under cool shades, or given to others for special family and village functions within a few days of capture. Both ***Table 3d*** and ***Figure 3m*** speak to this same question on sea turtle catch occurrence (and whether it is accidental, planned and intentional, or a mix of both choices).

Table 3d. Are sea turtles caught accidentally on purpose or both? R=309			
Catch occurrence	% R	No. of fishers	Comments
1. Accidental	32.0	99	Catching sea turtles not planned
2. On purpose	41.1	127	Catching is intentional/planned
3. Both	26.9	83	Opportunistic – catch when seen
Total	**100**	**309**	

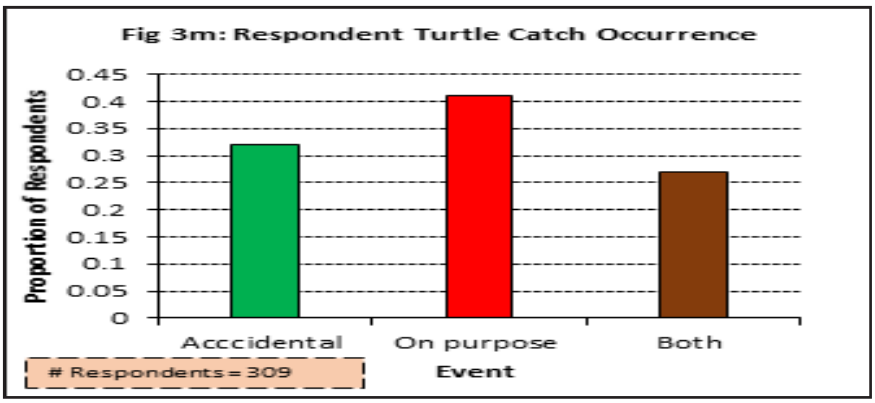

Figure 3m: Proportion of respondent indicating Turtle Catch Occurrence

3.3.3 Uses of sea turtle parts from each province

Figure 3n shows the responses from respondents for how sea turtle parts are used. Respondents indicated the main use of sea turtle meat, fat, eggs, blood, and other edible parts was for eating (local subsistence and cultural use), followed by use at special occasions and giving to relatives and others. Please note that it is very rare or highly unlikely for rural and maritime districts in relatively isolated and hard-to-reach places to sell or trade in the sea turtle (whole or in parts), however there is a high response rate of 'other uses' for turtle shell (***Figure 3n)***. The other uses for turtle shells refer to the placement of the whole carapace in homes as ornaments and trophy pieces. The small amount of trade recorded for turtle meat (0.3%); shell (0.9%); fat (0.1%) and oil, blood or bones (0.1%) were in exchange or bartered for assorted groceries from families living in urban areas. The COVID-19 pandemic may have affected the results relating to use and trade of turtle parts given that movement restrictions were in place for seven months prior to the survey being undertaken.

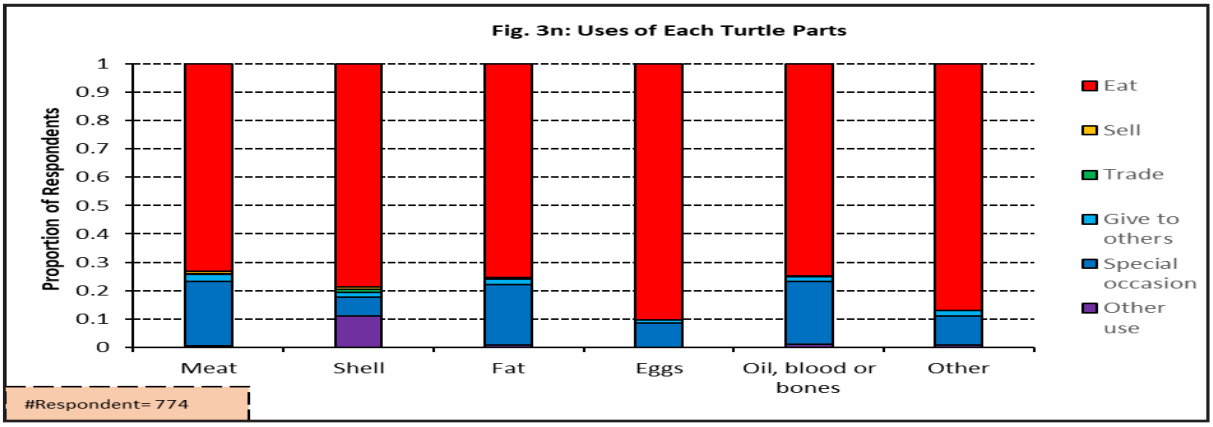

Figure 3n: Proportion of respondents indicating Use of Turtle Parts

3.3.4 Sea turtle species preference

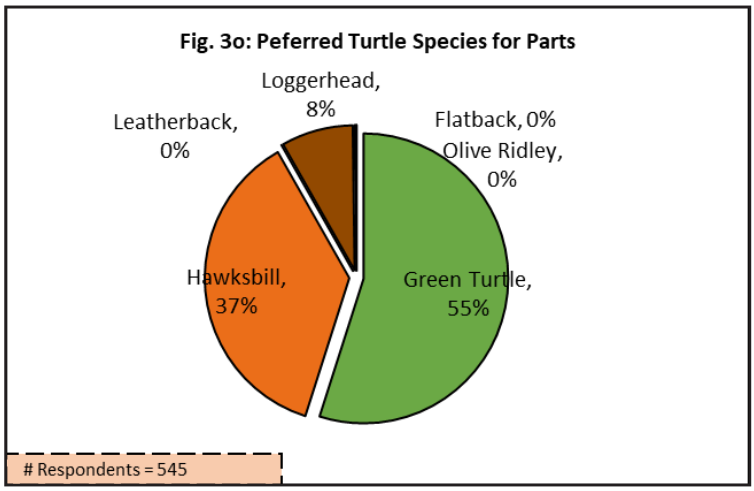

Figure 3o: Preferred turtle species

Survey results indicated, respondents in island or maritime districts living close to very productive and large barrier reef systems prefer harvesting and using (or consuming) green sea turtles (55%) over hawksbills (37%).

This choice for green sea turtles (in comparison to hawksbills or loggerheads) in island districts may be reflective

of availability in the adjacent productive foraging grounds, particularly for green turtles, hawksbills, and in some cases some loggerhead sub-adult and adult foraging stocks. For example, in Gau and Ovalau (Lomaiviti group), Yadua Island (Bua), Udu Point (Macuata), and most islands in the Lau Group). For communities on the two main islands, particularly Viti Levu, it is assumed choice would be limited, so any sea turtle caught and available would be acceptable, meaning fishers could take any turtle they come across during fishing (with very little actual targeting in most cases). The only exception is the traditional sea turtle harvesting sites which includes Verata-Ucunivanua, Qoma and Dawasamu that specifically target green turtles for traditional use. In terms of consumption preference, it is generally known that green turtles are highly preferred because of the abundance of their meat, rich greenish fat, and blood, whilst hawksbill and loggerhead are usually less favoured.

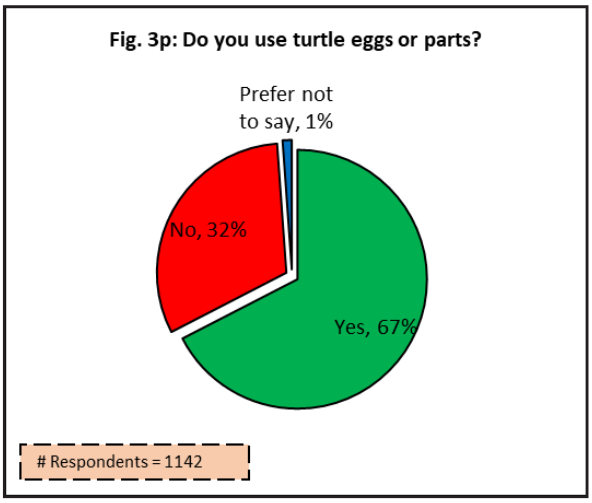

Figure 3p shows turtle eggs and parts are also used. Communities are still harvesting sea turtles and their eggs when the occasional nests are encountered in rural and maritime districts.

3.3.5 Sea turtle use and trade in general

As surveyed in prior questions (refer 3.1.6, Figure 3d), respondents suggested eating or the consumption of the meat, fat, blood and other edible parts were the primary uses of sea turtles, particularly for the two main local sea turtle species, the green and hawksbill turtles (refer 3.3.4, Figure 3o). However, when asked specifically about the importance of sea turtles, respondents concluded cultural tradition and special occasions were more important than eating to survive.

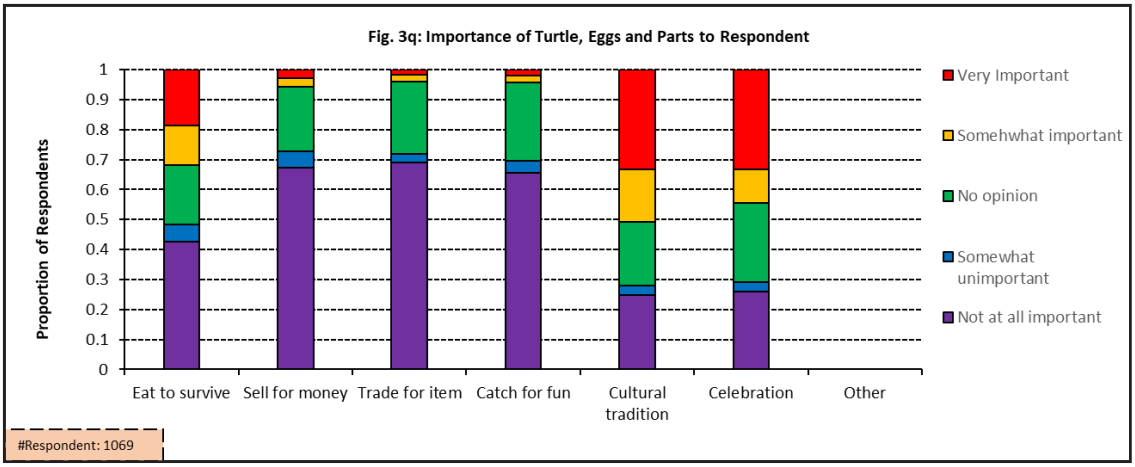

Figure 3q: Level of importance of turtle, eggs and parts to each respondent

3.4 Estimated 2021 annual sea turtle harvest from the ten provinces

Table 3e provides a preliminary estimation of annual sea turtle harvest from participants surveyed who personally caught sea turtles (and were willing to provide a response; R= 293/1186; 24.7%) across 136 villages in the 10 surveyed Provinces in Fiji. This estimation should be used with caution as is estimated from only respondents who undertook the community-based socio-cultural use and trade survey available from 30th November to 20th December 2021 and completed from early February to March 2022, and those that caught turtles in select villages and Provinces. It does not represent all community members, and it has not been extrapolated (yet) country wide. The estimated harvest for 2021 across 136 villages in 10 Provinces is s **2,420 sea turtles**, largely comprising of green and hawksbill sea turtles, with a small number of loggerheads.

This figure was calculated by totalling the mid-point of turtle caught categories (e.g. 1-2 turtles caught = 2; 3-10 = 6; 11-50 = 30; 51-100 = 75; >100 = 100) for all respondents. This could be considered an average number of turtles caught but may be an over or underestimation based on actual numbers which requires further investigation. Even so, given there are over 1,000 villages across Fiji and a representative ~25% of the villages are estimated catch turtles, it is likely this number is far greater.

Table 3e: Estimated sea turtle harvest from across the ten provinces covered in this survey.

No.	Province	Sea turtle harvest estimates (2021)	No.	Province	Sea turtle harvest estimates (2021)
1.	Ba	66	6.	Lomaiviti	789
2.	Nadroga	16	7.	Kadavu	310
3.	Serua	142	8.	Macuata	430
4.	Rewa	172	9.	Bua	305
5.	Tailevu	64	10.	Lau	126
R = 293		**Grand total: 2,420**			

Compared to the last 5 years, 45% of respondents reported that marine turtle catch was higher in 2021 with 19% reporting it was lower, 12% reported it was the same and 24% reported no knowing whether there was a change.

Given these responses, an average of approximately 8 (2420/293) turtles are caught per fisher across the survey sites. To coarsely extrapolate this data, if 2,240 turtles are caught across 136 villages in a single year, that is an average of 17 turtles caught per village. To be conservative, applied to half of the registered Fiji villages in 2022 (1171/2 = 585 villages), it could be estimated that around 9,953 turtles are caught per year in Fiji, although this is a coarse estimate and requires statistical analysis to understand confidence of this estimate. Methods used to catch turtles by respondents that said yes (R = 293) to catching turtles include: Free dive 39%; Spear Gun 24%; Fishing Nets 23%; Night Dive 2% Fishing Hook 2% and beach 1%.

Harvesting for both legal and illegal subsistence and community events considered "*nominal cultural take*" and including some "black market" sales and trade, are biased in preference, and would largely take or target large green sub-adult and adult green sea turtles. However, respondents indicated large hawksbill sea turtles, and at times, loggerheads are also taken and consumed (if there are no large green sea turtles, particularly across coastal areas that are further away from foraging areas such as across coastal Viti Levu). The information for preference to harvest green sea turtles was clear from the community survey across some maritime districts, such as in the island of Yadua (in the District of Vuya, in the Bua province); across the Lau group of islands; and even within the remote rural villages of Udu point, in the province of Macuata.

For Yadua Island, the survey results showed that respondents only target green sea turtles for subsistence and nominal cultural harvest. What is presented within the Indigenous Fijian communities as ceremonial or cultural take is like an offering to honoured guests to special village functions or ceremonies, and must be "*seen as large*

and not small", and also *"must be pleasing to the eyes of the beholder*". Thus the presentation of large sub-adults and large breeding green sea turtles would be selected for the honoured and prestigious district or village ceremony, while the smaller hawksbills and greens, could be used by local village and household members.

It is noted from the survey that there was a preference for green sea turtles in rural and island communities such as in Yadua Island and Udu Point, largely because of their larger size. Their distinct green fat was sought-after by the community members, and much preferred or valued for consumption and even for sales or trade (in exchange of other valued products from the shops such as kerosene, boat engine fuel (premix or super, diesoline or cooking gas), or even bags of flour, rice, sugar, and other processed food items sold on the mainland. Turtle parts are highly sought-after and accepted as reasonable barter or exchange items for community members within rural and maritime districts. It is evident from the survey information gathered from Yadua, and also common knowledge that sea turtles are being sold or traded from Yadua Island, with special buyers or for black-market outlets from Nabouwalu, and other urban areas from Vanua Levu, and Viti Levu based on personal experiences of the project team, and anecdotal information gathered outside of this community survey.

3.5 Community perception, knowledge needs and conservation measures

3.5.1 Community perceptions on sea turtle harvest and use

As has been clearly noted from this study, local communities across the country know very well that it is illegal to harvest, use or consume, as well as sell or trade in sea turtles in Fiji, at least since early 1990-1995. Sea turtles are still traditionally harvested by the local i-Taukei communities for both subsistence food and cultural or ceremonial use. There is little visible enforcement of current fisheries activity and environmental laws (since the EPSA of 2002), therefore communities have continued to harvest sea turtles through the years, beyond traditional harvesting. It is believed this is largely because communities perceive there is little care about their actions, and therefore they could continue to harvest, use or even sell or trade in sea turtles when the regulatory agencies or relevant government MCS and regulatory authorities are absent. This is perhaps the basic situation and reality on the ground.

3.5.2 Community perception, knowledge needs, and conservation awareness across the ten provinces

Figure 3r and Table 3f show the perception from respondents on sea turtle use, particularly on the following 3 statements:

Statement 1: I use turtles for food or income as I have no other way to do this (R=1,179)

Statement 2: I use turtles for food or income but have other ways to do this (R=1,178)

Statement 3: I use turtles to get extra money for luxury goods for myself and family (R=1,179).

According to Figure 3r, approximately 70% of respondents indicated that they strongly disagree to statement 1 indicating respondents did not use turtle for food or income as they had other ways to do this and approximately 21% somewhat or strongly agree to statement 1 indicating respondents use turtles for food or income as they had no other ways to do this.

Approximately 73% of respondents indicated that they strongly or somewhat disagree to statement 2 indicating that respondents did not use turtles for food or income and approximately 21% somewhat or strongly agree to statement 2 indicating that respondents used turtles for food or income and also had other ways to do obtain food and income.

Approximately 88% of respondents indicated that they strongly or somewhat disagree to statement 3 indicating that respondents did not use turtles to get extra money for luxury goods for themselves and family members, however, approximately 6% of respondents somewhat or strongly agree to statement 3.

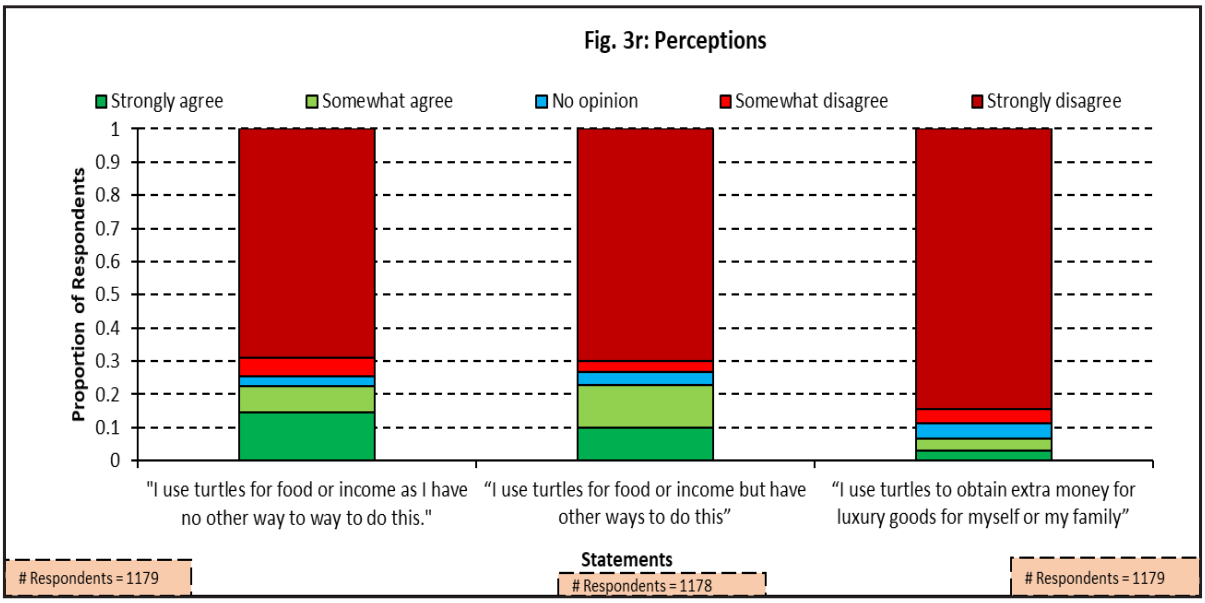

Figure 3r: Perceptions on sea turtle use

Table 3f. Perception on the 3 statements on sea turtle use across the ten provinces		
Choice/option	**% respondent**	**No. of people**
Statement 1: I use turtles for food or income as I have no other way to do this (R=1179).		
1. strongly disagree	69.13	815
2. s/what disagree	5.42	64
3. no opinion	3.13	37
4. somewhat agree	7.64	90
5. strongly agree	14.67	173
Statement 2: I use turtles for food or income but have other ways to do this (R=1178)		
1. strongly disagree	70.12	826
2. somewhat disagree	3.06	36
3. no opinion	4.07	48
4. somewhat agree	12.82	151
5. strongly agree	9.93	117
Statement 3: I use turtles to get extra money for luxury goods for self and family (R=1179)		
1. strongly disagree	84.56	997
2. s/what disagree	4.33	51
3. no opinion	4.50	53
4. somewhat agree	3.48	41
5. strongly agree	3.14	37

Figure 3s presents two statements on sea turtle use perception, as follows:

Statement 4: I use turtles because they are part of my cultural traditions (R=1173)

Statement 5: I would consider not using turtles (R=1179)

According to Figure 3s, approximately 58% of respondents indicated that they strongly agree to statement 4 indicating respondents use turtles because of cultural traditions, and approximately 34% somewhat or strongly disagree to statement 4.

Approximately 57% of respondents indicated that they strongly or somewhat agree to statement 5, indicating they would consider not using turtles and approximately 21% somewhat or strongly disagree to statement 5. Approximately 18% had no opinion to statement 5.

An analysis of the two statements is given in **Table 3g**.

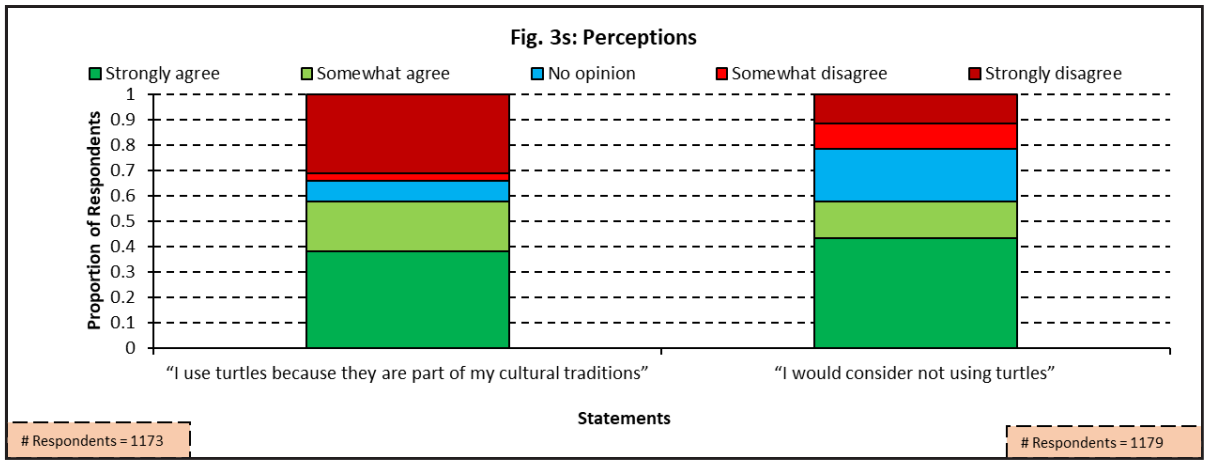

Figure 3s: Perceptions on sea turtle use

Table 3g Perception on the 2 statements assessed across the ten provinces (see Fig 3u).

Choice/option	% R	No. of people
Statement 4: I use turtles because they are part of my cultural traditions (R=1173)		
1. strongly disagree	31.03	364
2.somewhat disagree	3.24	38
3. no opinion	7.93	93
4.somewhat agree	19.52	229
5. strongly agree	38.28	449
Statement 5: I would consider not using turtles (R=1179)		
1. strongly disagree	11.71	138
2.s/what disagree	9.84	116
3. no opinion	20.61	243
4.somewhat agree	14.51	171
5.strongly agree	43.34	511

Figure 3t below, presents the two statements on sea turtle use perception, as follows.

Statement 6: I will be upset if I could no longer capture or eat turtles

Statement 7: I would like to learn about turtle conservation in my town/village

According to Figure 3t, approximately 42% of respondents indicated that they strongly disagree to statement 6 indicating that respondents would be upset if they could no longer capture or eat turtles and approximately 37% somewhat or strongly agree to statement 6. Approximately 97% of respondents indicated that they strongly or somewhat agree to statement 7 indicating that respondents would like to learn about turtle conservation and approximately 2% somewhat or strongly disagree to statement 7.

Table 3h provides a short analysis of the responses given across the ten provinces in Fiji.

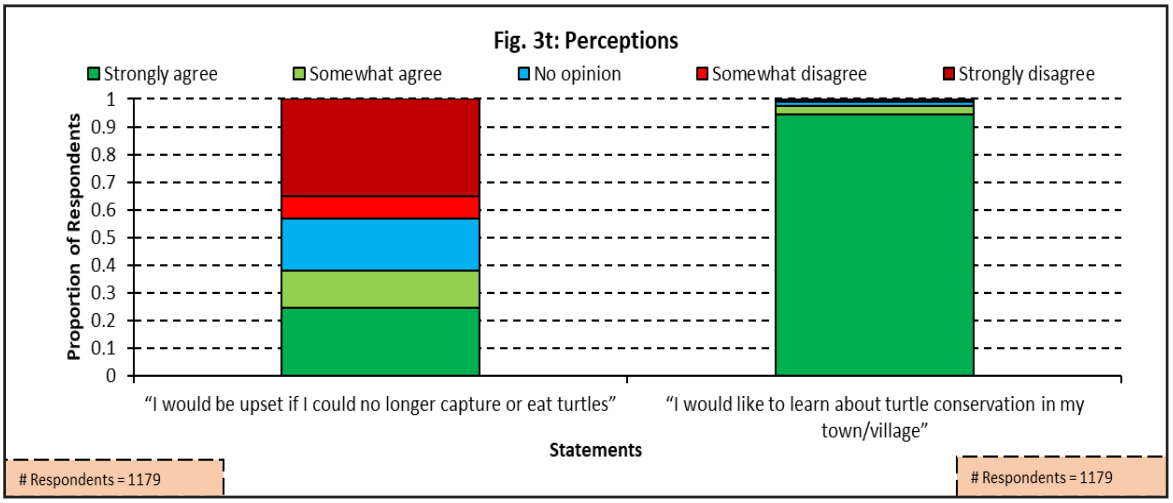

Figure 3t: Perceptions on sea turtle use

Table 3h. Perception on the final two statements (6 & 7) assessed across the ten provinces (see Fig 6g (3) above).		
Choice/option	**% R**	**No. of people**
Statement 6: I will be upset if I could no longer capture or eat turtles (R=1179)		
1. strongly disagree	35.03	413
2.somewhat disagree	7.97	94
3. no opinion	18.91	223
4.somewhat agree	13.40	158
5. strongly agree	24.68	291
Statement 7: I would like to learn about turtle conservations (R=1179)		
1. strongly disagree	0.76	9
2.s/what disagree	.57	7
3. no opinion	1.35	16
4.somewhat agree	3.01	35
5.strongly agree	94.32	1,112

4.0 Discussion

4.1 Background to sea turtle cultural use and traditions

Sea turtles have continued to be harvested for subsistence food in Fiji since time immemorial for the much honoured cultural consumption within the traditional Fijian societies. Harvest was usually reserved for royalties and presented to the high chiefs of the land, or Indigenous leaders of society, and class or social ranking or status in society were clearly defined, including customary responsibilities, both within pre-Christianity and pre-Colonial days. Historically, there was little economic activities in Fiji, until Fiji was ceded to the British Empire in 1874. The cash economy grew after the Second World War, especially in the early 1950s. Trade with other countries commenced during the colonial era, and agricultural crops such as banana and sugar cane became the focus including some fisheries resources such as sea cucumber (beche-de-mer) and the shell of the hawksbill sea turtles (the main market was Japan).

The first moratorium on sea turtles came into effect for one year in 1995 facilitated by considerable public outreach during the Year of the Sea Turtle initiative coordinated by SPREP, largely from concern of over-exploitation and lack of management.

The harvest of sea turtles for subsistence use is common in rural and maritime districts across Fiji through illegal direct or intentional harvest, opportunistic catch and bycatch and trade. Green turtles, hawksbill turtles and a small number of loggerheads, are caught and used by fishers and local communities. The illegal practice of sea turtle egg collection from nests is clearly highlighted in the survey results. The results show that a small number of respondents (<1%) are illegally trading sea turtle products for assorted groceries, however, this result should be treated with caution given that the survey questions were referring to a period during which COVID-19 movement restrictions were in place which may have prevented the trade and sale of turtles.

The fishers and local communities know and understand harvesting of sea turtles is illegal if they do not have an exemption permit from the MoF. It is also known that no local government authorities are enforcing these fisheries laws and policies at their districts, so it is considered an “open-invitation” to continue illegal harvest and use sea turtles, even accepting money for payments for the exchange (trade) or gifting or exchange of sea turtle resources. This indicates further enforcement is required by local authorities (including the Fisheries and Environment Departments) to play a much larger and urgent role. Open dialogue and planning collectively with stakeholders, including the local communities and the Fiji Locally Managed Marine Area (FLMMA) Networks across the country, may be a good first step to establish enforcement strategies that address the challenges of illegal harvest, illegal use, and the illegal black market sale or trade.

This dire lack of management and enforcement actions may also be fuelling further illegal activities and helping to support and perpetuate IUU fishing with the coastal or inshore fisheries sector in Fiji. With the impacts of COVID-19 since 2020, all relevant authorities (and with limited available resources) who should be enforcing these fisheries or endangered species regulations have largely been focused on other important priorities. This is exacerbated by the perennial lack of the necessary funding and manpower to undertake such enforcement programs.

The results of this survey also show green turtles are targeted fractionally more readily than hawksbills, however it is unknown whether this is because of choice or availability of sea turtles - no population assessments have been undertaken. Where estimated numbers of female hawksbill turtles breeding per year have been made (e.g. for Fiji 20-30; for America Samoa <10-15; for Samoa <5-15; refer Madden Hof et al 2022) the level of harvesting of hawksbill turtles (37%) should alert significant concern. The survey also recorded harvest of the regional critically endangered loggerhead turtle. Whilst farming and fisheries are the primary form of income and incoming sourcing livelihoods, the survey results suggest sea turtles (meat, fat, eggs, oil, blood) are eaten more readily compared to fish or shellfish/crustacean, the later more readily sold or traded. Coupled with the survey results showing turtles are targeted on purpose (and at night) more than caught incidentally and are targeted consistently year round,

with an estimated 2,420 turtles harvested in the last year (2021), it appears there is possibly a much larger rate of sea turtle harvests (a small scale fishery of turtles) taking place than previously thought. The level of harvest is therefore potentially having an impact on Fiji turtle populations, particularly hawksbill turtles. This requires further investigation. An estimation of annual harvest rates will be calculated post a second round of surveys to be conducted in 2023.

It needs to be acknowledged, the fishers and local community members interviewed in this study represent a small fraction of the number of individuals currently engaged in sea turtle harvest. the survey did however, largely target districts or local communities where most of the active harvesting of sea turtles are undertaken. Therefore, the survey results may provide close representation of actual sea turtle use and trade occurring. From this survey alone, the top three sites with the most reported harvests were from the provinces of Lomaiviti (32.6%), Macuata (17.8%) and Kadavu (12.8%).

4.1.1 Community Attitudes toward Harvests

Community attitudes toward turtle harvesting is driven largely by perceptions of the significance of turtles to the culture and traditions of communities surveyed. Cultural use of turtles remains important to communities at all survey sites. Furthermore, the use of turtles for food and income was seen as a lesser priority with respondents indicating that although turtles were being harvested, other alternatives were available to derive income or food. Almost all respondents disagreed with the statement that turtles were harvested for extra money to buy luxury goods which indicates the use of turtles as sacred and taboo for most of the communities and correlates with other survey findings in that turtles are largely consumed or used for special occasions rather than being sold or traded. In addition, half of those surveyed would consider not using turtles or would not be upset if they could no longer capture or eat turtles, indicating that there remain members of the community that regard turtle use as important and would need further motivation through governance and influencing structures such as the church and community leadership and through the provision of alternatives livelihoods, to halt the use of sea turtles.

4.1.2 Previous estimates on annual sea turtle harvest in Fiji

The Fisheries Department had previously provided an annual estimate of green sea turtle harvest in 2018 of between 400-500 sea turtles (Turaga, 2023), where a small number could have been legally given through exemption permits. Harvest was suggested to be largely through illegal subsistence, sales, and trade, which accounts for the majority of the annual harvest across the country for each year.

5.0 Recommendations:

5.1. Strengthen Collaboration and Partnerships

There is an urgent need to strengthen the collaboration and partnership between all stakeholders in Fiji. A clear pathway is needed for reinforcing the management, conservation, and the protection of sea turtle species and their stocks across the country. This approach should particularly focus on developing strategies for engaging and mobilising traditional hereditary i-Taukei chiefs or leaders to become actively involved in this urgent conservation drive, and to become role models or conservation champions. The traditional leaders or chiefs and their families still command and hold more power and respect in the rural and maritime districts and are still very active in the administration activities and governance role in any village social settings.

With awareness, knowledge, skills and goodwill, Chiefs could easily become the best role models for the management, conservation and protection of sea turtles across the 4 geographical divisions. They may be able to instil and strengthen obedience and respect for both local traditional leadership, as well as government sanctioned laws and policies, such as on regulations protecting the capture, harvest, use and killing of sea turtles, as well as their illegal sales and trade with present black market outlets. Respected and active traditional leaders are a critical to ensure a successful and proactive management and conservation program for sea turtle conservation in their own communities and geographical areas, and thus collectively transforming sea turtle and natural management across the country as a whole. The draft Fiji Sea Turtle Recovery Plan provides opportunity for the Fiji Sea Turtle Steering Committee to work together to improve engagement and broker partnerships with traditional leaders within, and across their own individual districts and provinces. The targets for engagement would be the paramount chiefs, their traditional fishers (*Gonedau*), and the village chiefs, and members of the village elders (village council).

5.2. Strengthen Enforcement Capacity

There is an urgent need for strategic planning, commitment, and resourcing by Government, and strategic local partners, and with key regional and international partners. Collectively, these groups could be instrumental in providing technical and funding support to undertake key monitoring, control and surveillance (MCS) and enforcement programs across the country, aimed at curtailing the direct disregard and open infringements of current fisheries management and conservation laws, as pertaining to sea turtles and other endangered species and work in an integrated fashion to also tackle IUU fishing across the insular or coastal waters.

5.3. Conserve, Manage, and Protect Foraging Sea Turtle Populations

There is a need to assess, manage, conserve and protect the nesting and foraging stocks of sea turtles that are found in Fiji's coastal (insular) and broader Pacific oceanic zones. This includes in the Fiji exclusive economic zone where most or all key foraging grounds are found and in high seas pockets. Working in strategic partnership with countries such as American Samoa (US), Cook Island, French Polynesia, Samoa, Tonga, and Australia (and including others) to undertake relevant research and data collection across countries sharing the same sea turtle stocks will be important. To inform future policy and management changes in Fiji or at a regional level, further stakeholder consultation is required. Similarly, improved biological data collection and sharing regarding the extent of harvest, status of nesting populations, and in-water stock assessment is needed. Also required in further mixed-stock analysis to better understand impacts on certain populations for future conservation and management needs.

As previously discussed in this report, sea turtles are highly philopatric to their natal nursery areas and breeding sites, and exhibit fidelity to their foraging grounds. Therefore, the protection of nesting beaches in one country alone, without the protection at their foraging grounds may not be adequate to ensure effective population recovery for sea turtles. The same principles and key considerations will also hold true for the other countries sharing foraging and nesting stocks with Fiji. The migratory nature of turtles means that the actions or the lack of in one country may very well affect the population of adjoining countries.

Sea turtle biologists from American Samoa and other countries have stated that Fiji's foraging grounds are providing foraging habitat for over half of the adult greens in the central South Pacific (Craig 2002) and are well known to support and host other sea turtle species such as loggerhead and hawksbill sea turtles. Results from proactive research, monitoring, and related sea turtle conservation and management initiatives are very important, and will have regional significance; with cascading effects on the management of most, if not all five sea turtle species and their populations throughout the central South Pacific region. Working cooperatively and collectively, including harmonising legislation will be an important step forward.

5.4 Harvest quotas, ban, or complete protection

There are a variety of protection mechanisms or options to consider in further protecting sea turtles in Fiji from unsustainable use and trade.

5.4.1 Establish Annual Sea Turtle Cultural Use Harvest Quota

Based on a population assessment and extinction risk, consideration (by the Fiji Government through the Ministry of Fisheries and in consultation with the Department of Environment) should be given to either continuing its existing regulation of no take (combined with awareness training and enforcement) or, establishing an approved mechanism or permitting system that would *allow for an annual sea turtle cultural use national quota* for the four divisions. Once the quota is exhausted, then the permitting system closes for that year, and will only be opened after the annual nesting season ban (see below proposal). This recommendation supports primarily the hawksbill turtle, and could be reviewed again in more detail, as currently there would be a gap in the protection of green sea turtle nesting, which commences from August and September each year, and peaks off from December to January, and ends across February. Given harvest is not just limited to nesting turtles but foraging turtles targeted all year round, other options could be to impose a taboo foraging ground area or closure to aid in recovery where needed. Alternatively, declaring breeding curved carapace length (CCL) or straight carapace length (SCL) (cm) sizes limits could be introduced that prevent take of turtles of that size or greater. Effectively enforced, this would prevent harvest for any reason and offer a level of protection to and support the sustainability of turtle populations. Similar bans or closures could be considered also for egg collection.

The proposed annual harvest quota for cultural harvest of sea turtles in Fiji must also have specified criteria or conditions. Through this quota, the installation of a high chief will be the most important reason for this harvest, and the number of sea turtles that could be harvested must be limited.

5.4.2. Annual Turtle Nesting Season Ban

Consideration should be given by Government to incorporate in law or invoke the policy to completely protect sea turtles in the country for nine months each year during nesting seasons for hawksbill and green sea turtles. A nesting seasonal ban would provide complete protection for all sea turtles in Fiji (and including no exemption for traditional harvest) and would commence from 1 October, until 30 June, in the following year (as nesting season is biannual).

5.4.3 Complete Protection of Breeding and Nesting Stocks of Green and Hawksbill Turtles

There is a need to proactively protect the breeding and nesting stocks or adult age-classes, as this is what sustains the native or endemic sea turtle population (which is only a small proportion of the green and hawksbill populations found in Fiji waters).

It is recommended that to protect the current and future breeding population of both local sea turtle populations, the following actions are recommended:

i) for green sea turtles, protect all adults and breeding stocks above 84cm-90 cm CCL, and

ii) for hawksbill sea turtles, in addition to having complete protection in Fiji, include the active protection of all adults and breeding stocks above 75-80cm CCL). This approach reflects the critically endangered listing. It would provide opportunity for the species in Fiji to recover within the next 15-30 years. At a minimum protecting all larger size classes of breeding adults, with no exemptions warranted.

iii) eggs are completed protected, with no harvesting permitted.

Any such measures would require comprehensive review of all relevant legislation administered by both the Ministry of Fisheries and Department of Environment (amendment to schedule listing of species) to ensure that a robust legal framework is in place that supports the above objective. This will also need to be complimented by a sustained educational and awareness outreach to all rural and maritime districts and communities; and enforcement actions in a well-coordinated and cost effective manner.

5.5 Review current legislation

As already highlighted previously in this report, the majority number of fishers and local community interviewed acknowledge that the government should actively protect sea turtles and promote better enforcement of existing fisheries and environmental laws. From this sea turtle use and trade survey, attention is needed to understand what is happening to local sea turtle populations. Proactively supporting current existing laws and policies will work to halt unchecked illegal harvest and use, and so help population recovery across Fiji's coastal waters.

A review of the current laws that governs the conservation and management measures for these highly vulnerable and critically endangered species is needed. This could include consideration to additional provisions to introduce suggested measures as recommended, including closures to harvest during turtle breeding and nesting season, protection of adult breeding male and female turtles, (for both green and hawksbill turtles), and complete protection of the highly endangered hawksbill and leatherback sea turtles. This would need to be complemented with effective MCS and enforcement measures.

6.0 Conclusion

Driven by a lack of awareness and/or disregard for existing laws and subsistence, cultural and ceremonial use, this study revealed illegal sea turtle use and trade continues across Fiji. Although an annual harvest figure has not been estimated yet, at least 2,420 sea turtles were harvested in the communities surveyed alone during 2021, primarily of green and hawksbill turtles. The major turtle harvesting hotspots include the provinces of Lomaiviti, Macuata, Kadavu and Bua. Compared to the last 5 years, catching of marine turtles was reportedly higher.

Where hawksbill turtles are considered critically endangered (with very small (20-30) breeding females nesting annually in Fiji), this level of harvesting should raise significant concern. Where egg harvest is also significant, urgent action is required to assess the status of populations being targeted, estimate an annual harvest rate to underpin harvest policy and law (both customary and western), and provide greater awareness raising and enforcement.

Fiji's long-standing conservation of sea turtles is likely at a pivotal turning point as it reviews the conservation, management and protection needs for sea turtles since the moratorium. This study provides some evidence and shares guidance on how this could be achieved. It is possible to recover turtle populations with the right approach and effort.

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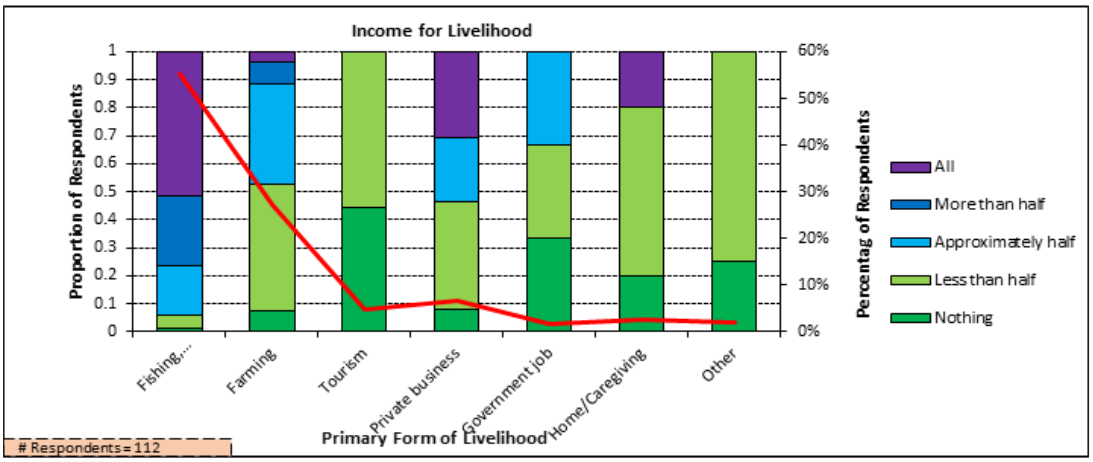
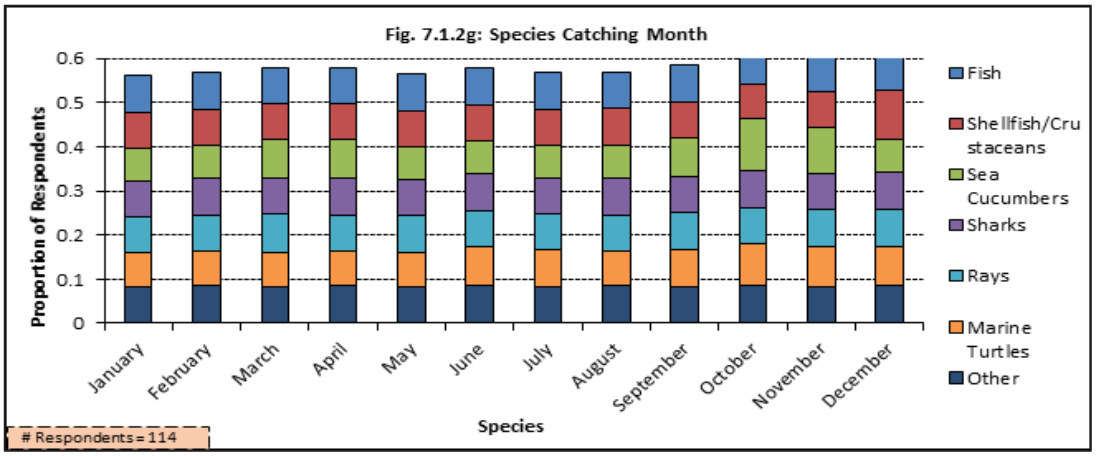
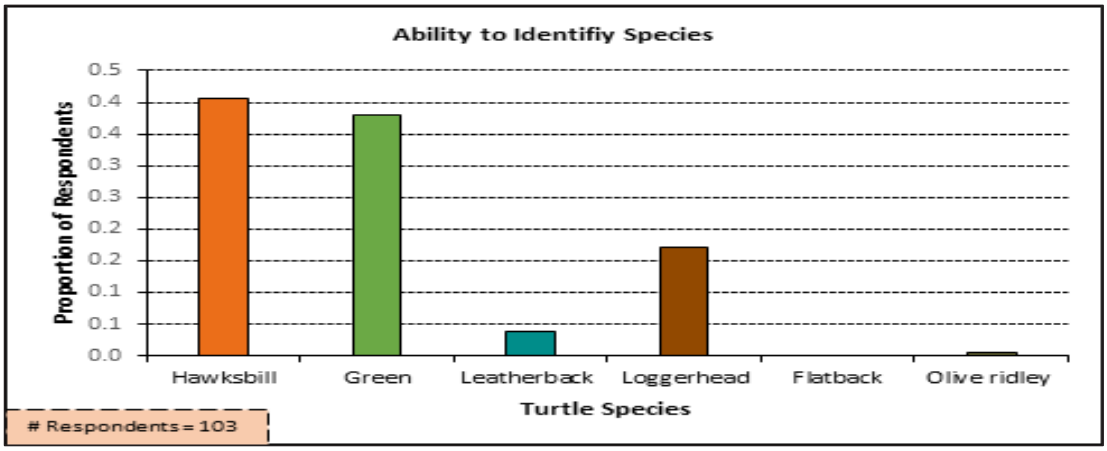
8.0 Appendix

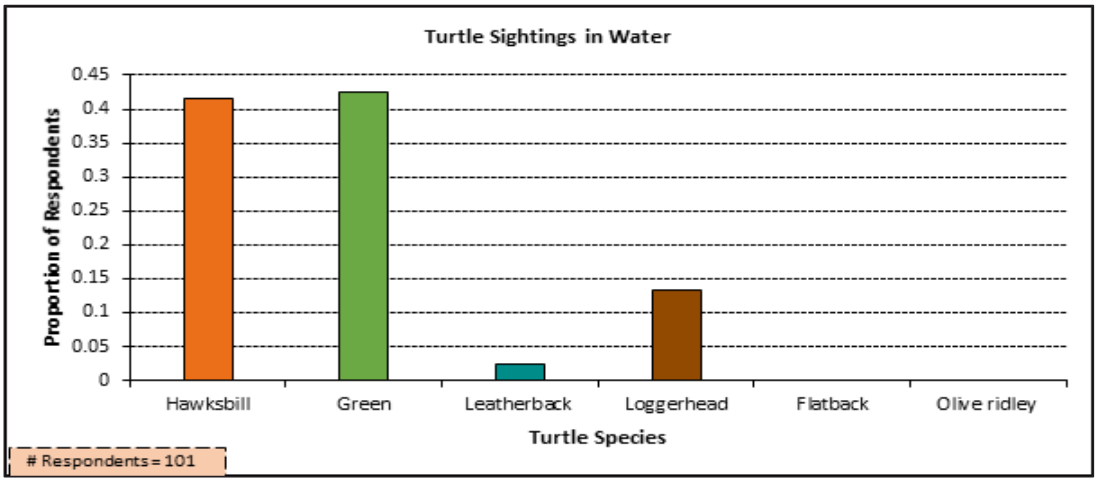
8.1 Provincial Survey Results –Graphical Analysis

8.1.1 Ba Provincial Results








Turtle Sightings in Water
Proportion of Respondents
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Hawksbill
Green
Leatherback
Loggerhead
Flatback
Olive ridley
Turtle Species
Respondents = 101

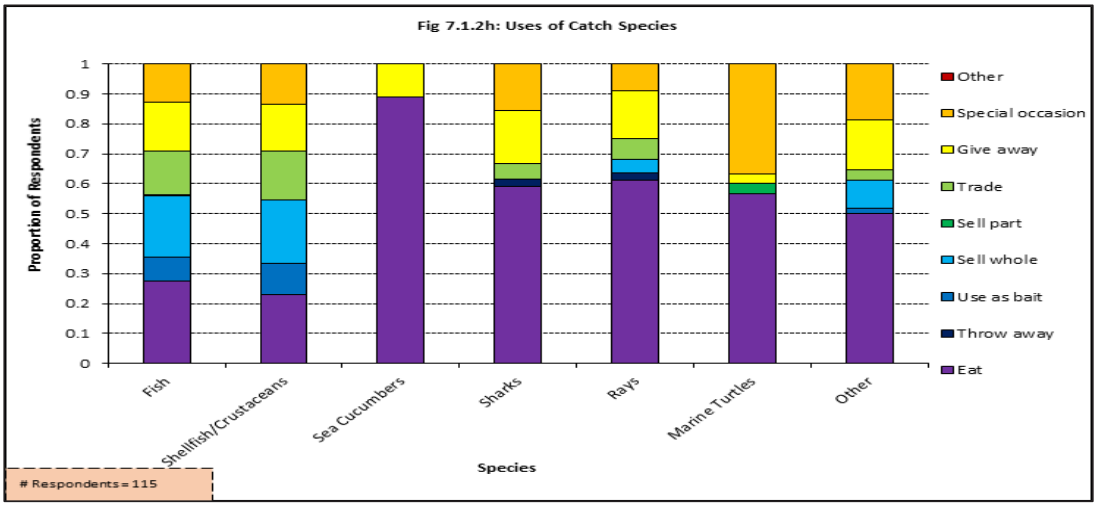
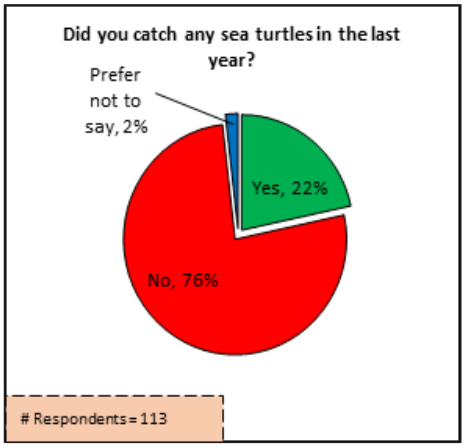
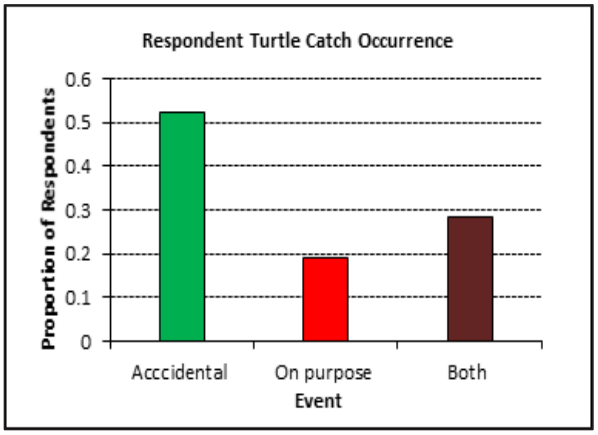
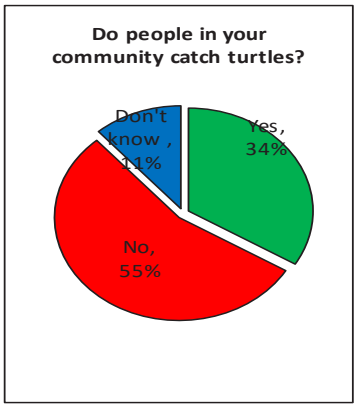
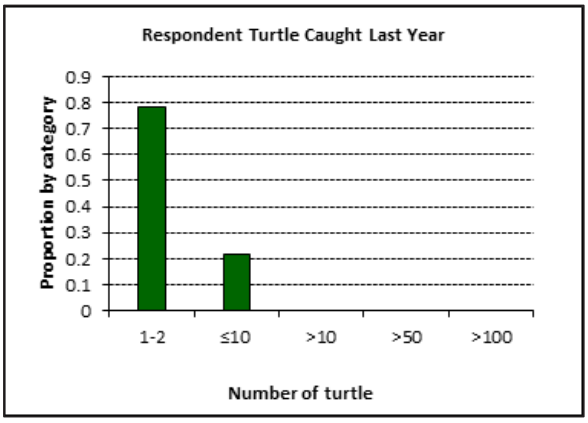


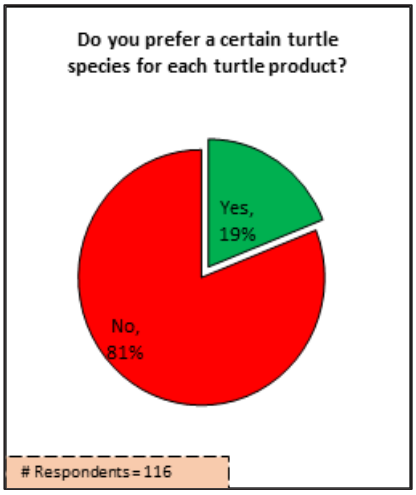
Fig 7.1.2h: Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 115

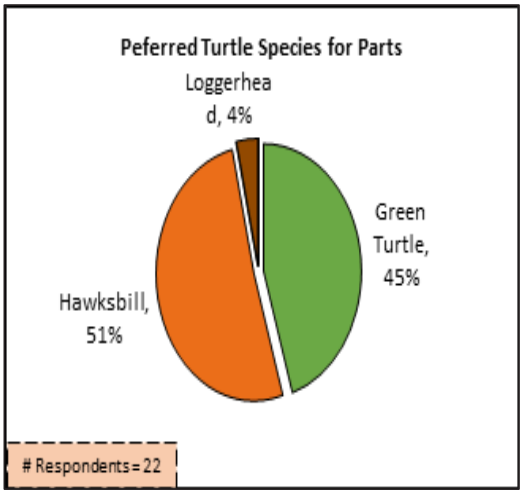

Did you catch any sea turtles in the last year?
Prefer not to say, 2%
Yes, 22%
No, 76%
Respondents = 113

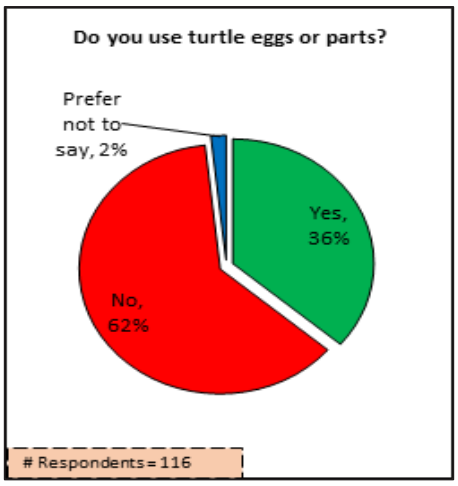

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event

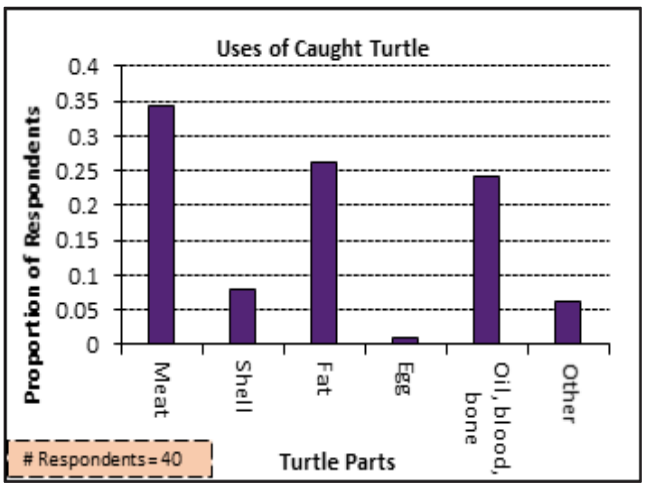

Do people in your community catch turtles?
Don't know , 11%
Yes, 34%
No, 55%

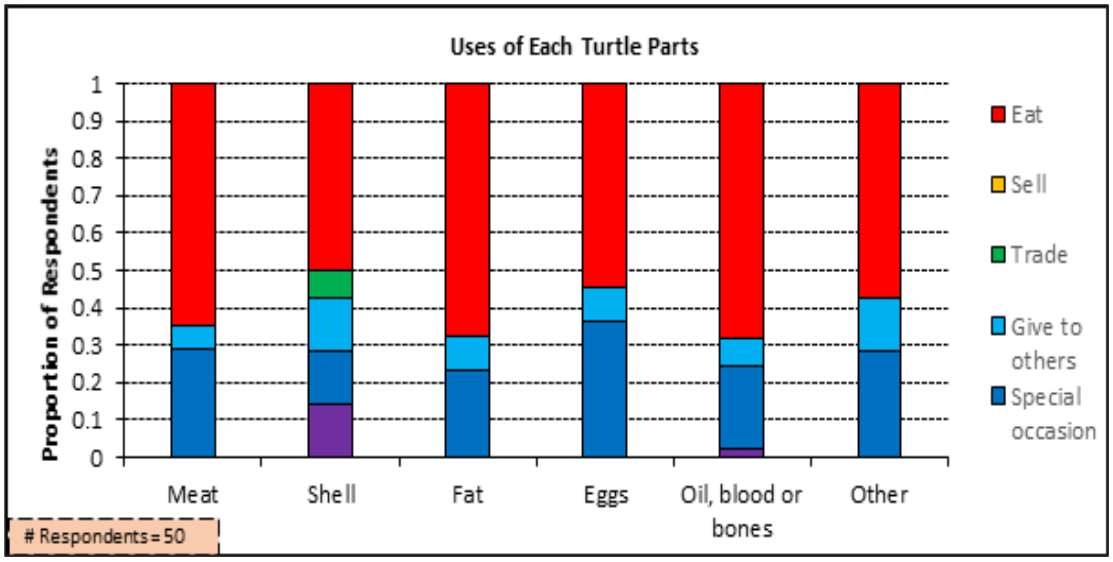

Respondent Turtle Caught Last Year
Proportion by category
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1-2
≤10
>10
>50
>100
Number of turtle

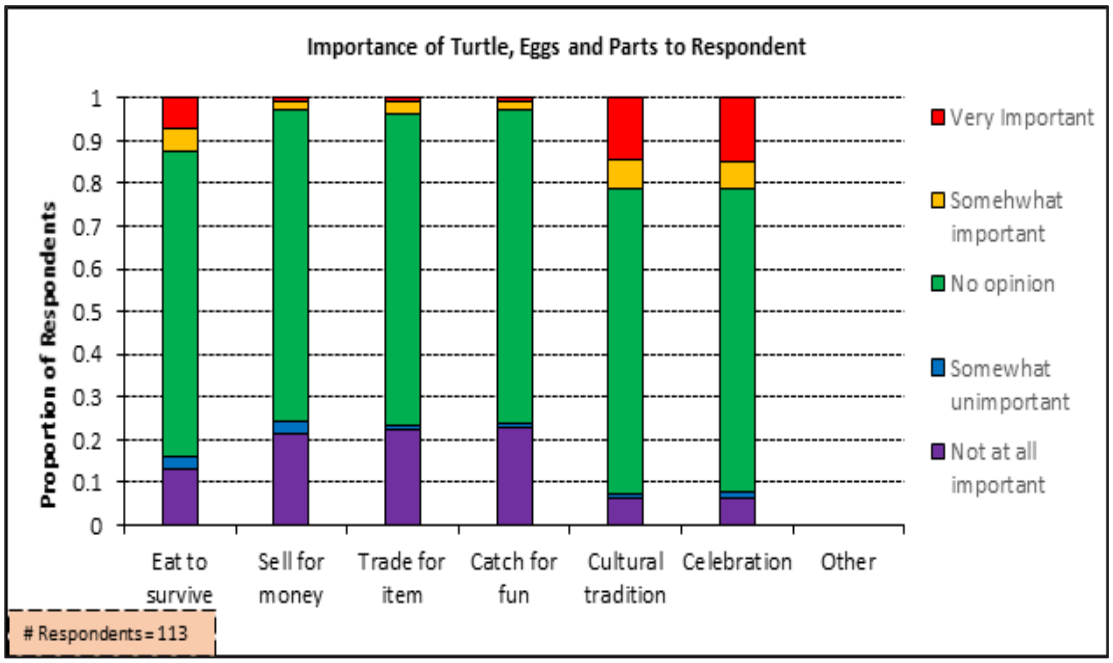

Do you prefer a certain turtle species for each turtle product?
Yes, 19%
No, 81%
Respondents=116

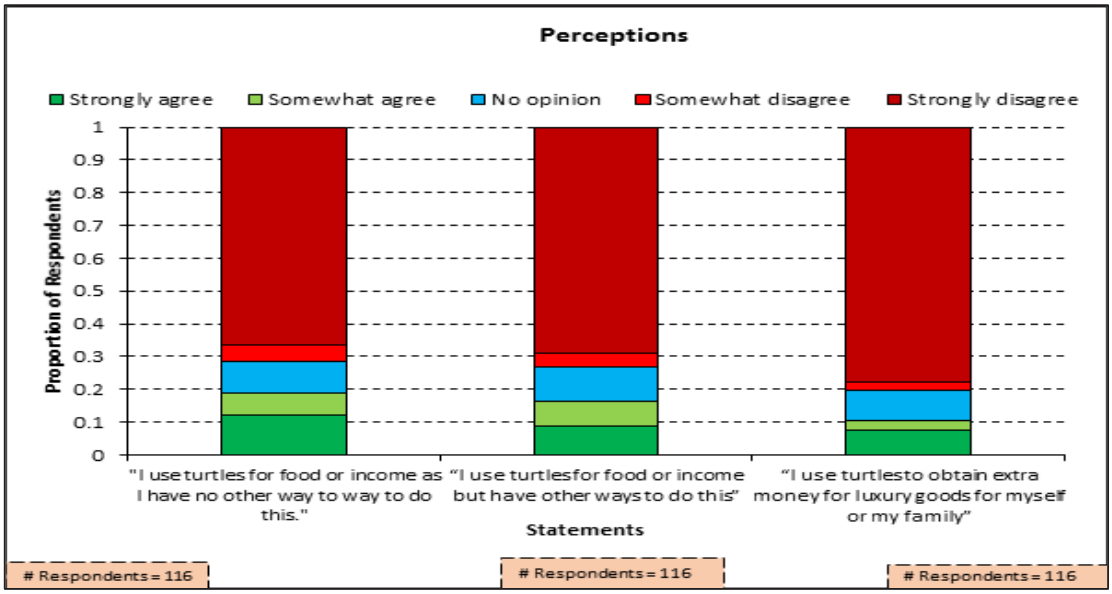

Peferred Turtle Species for Parts
Loggerhead, 4%
Green Turtle, 45%
Hawksbill, 51%
Respondents=22

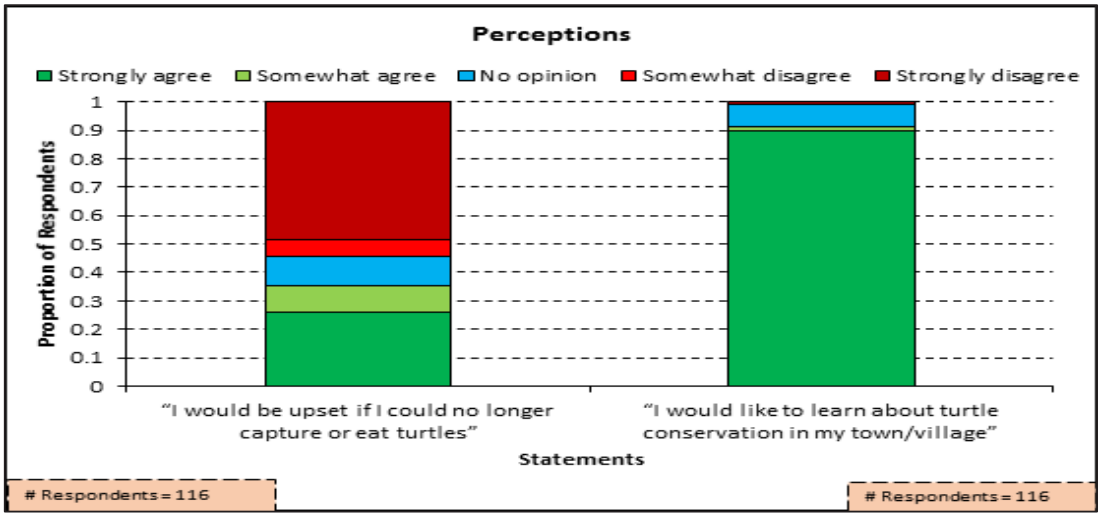

Do you use turtle eggs or parts?
Prefer not to say, 2%
Yes, 36%
No, 62%
Respondents=116

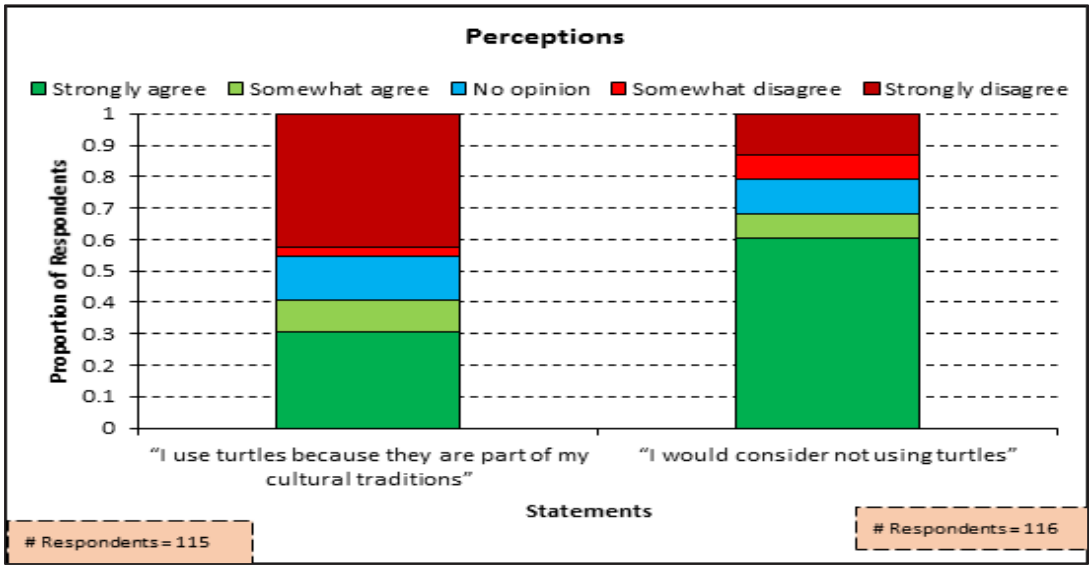

Uses of Caught Turtle
Proportion of Respondents
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Respondents=40
Turtle Parts


Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Respondents = 50

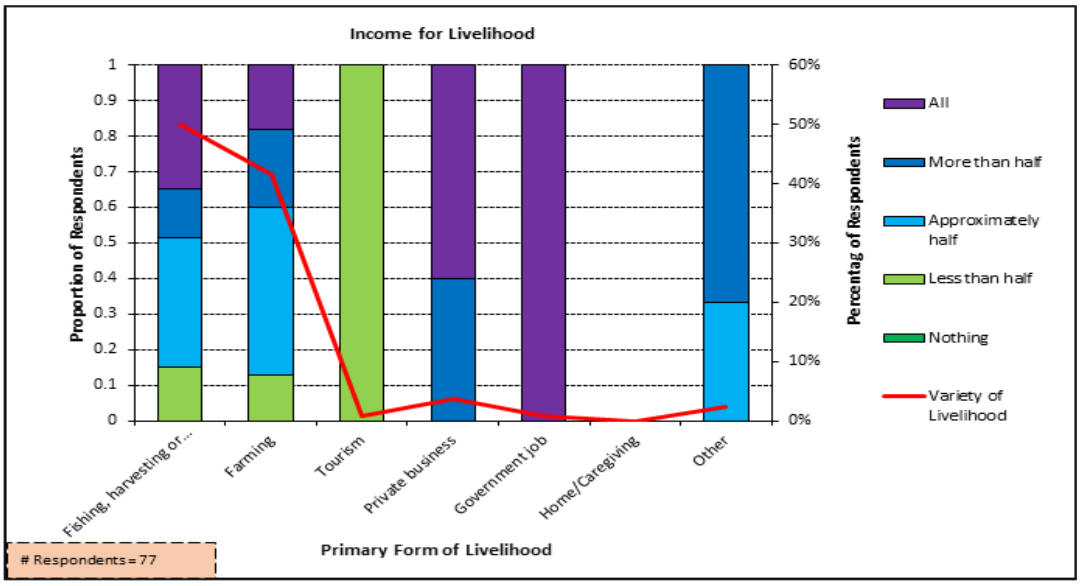

Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 113

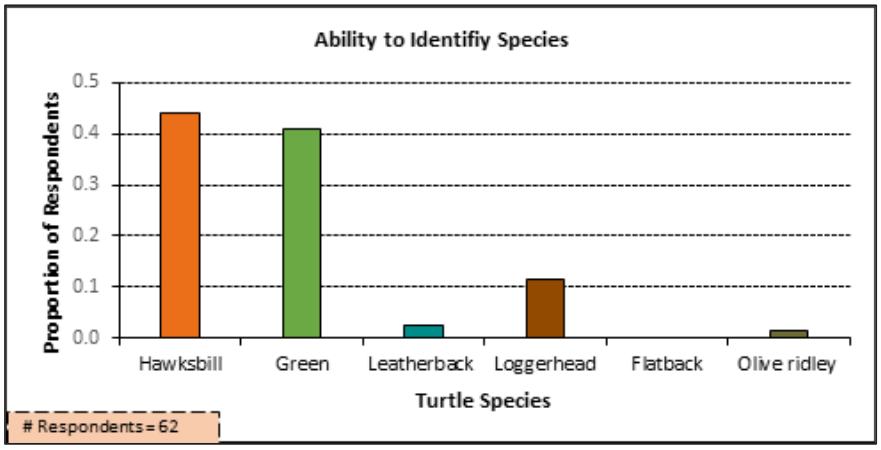

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 116
Respondents = 116
Respondents = 116

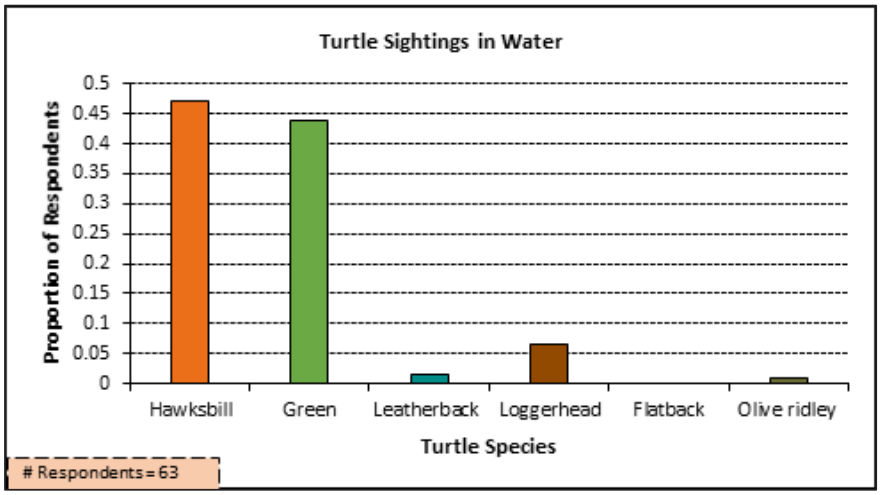

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 116
Respondents = 116

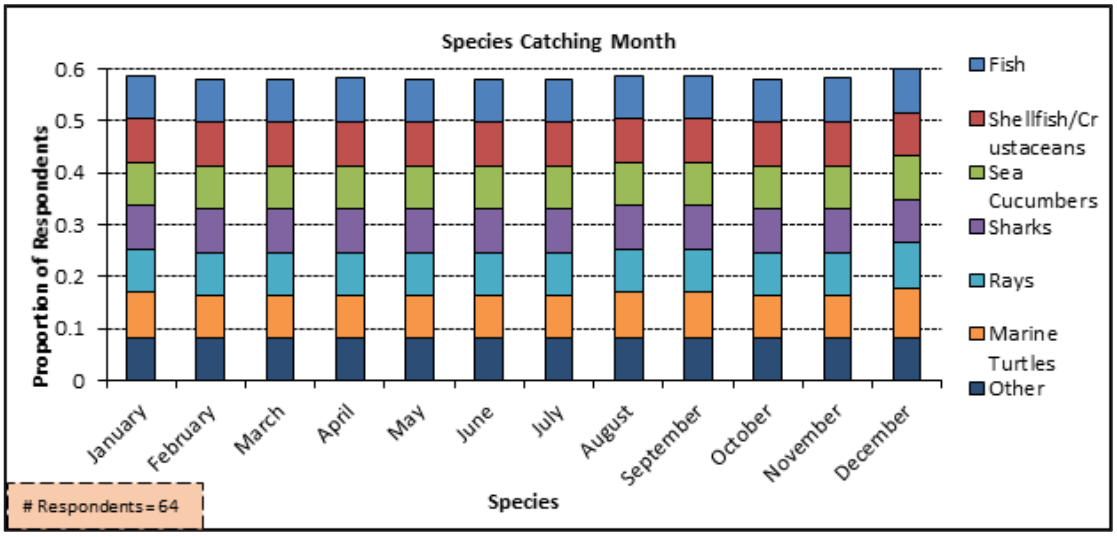

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 115
Respondents = 116

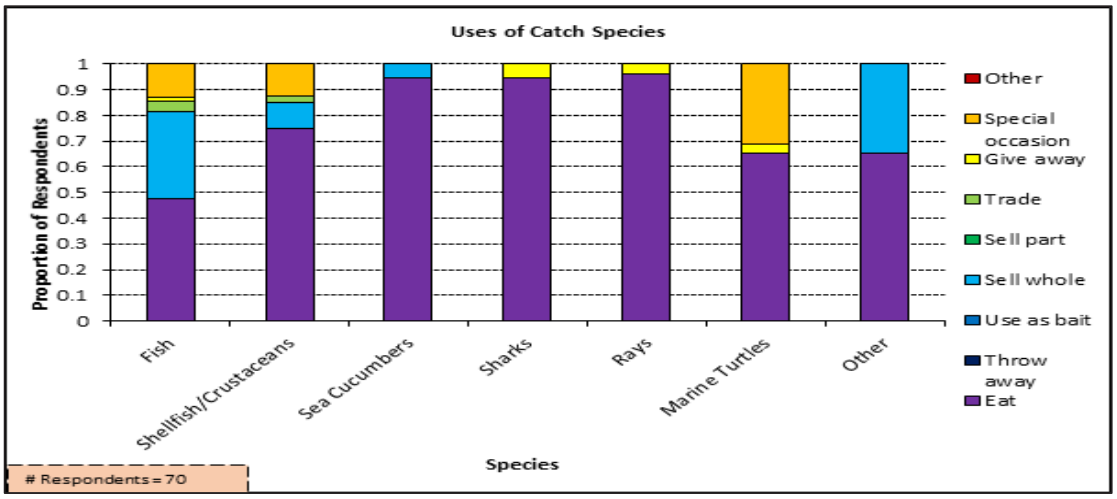
8.1.2 Kadavu Provincial Results

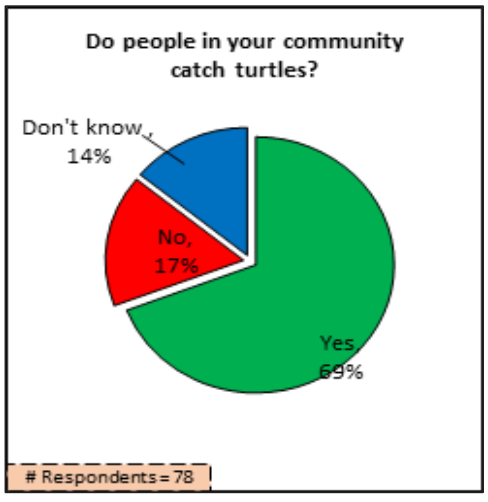


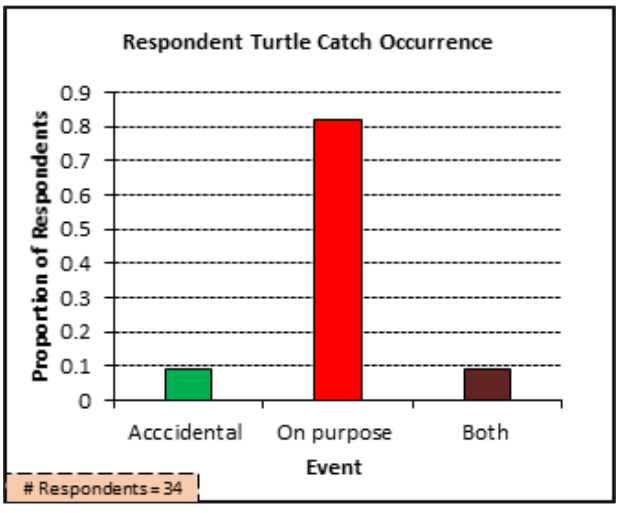


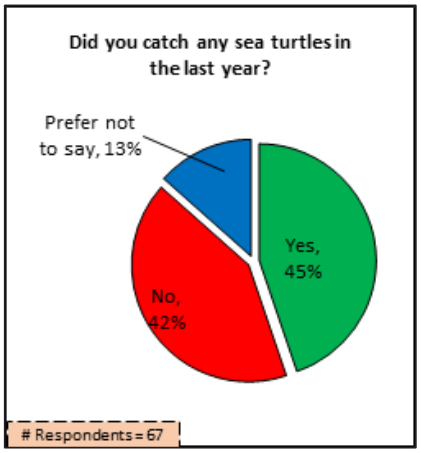


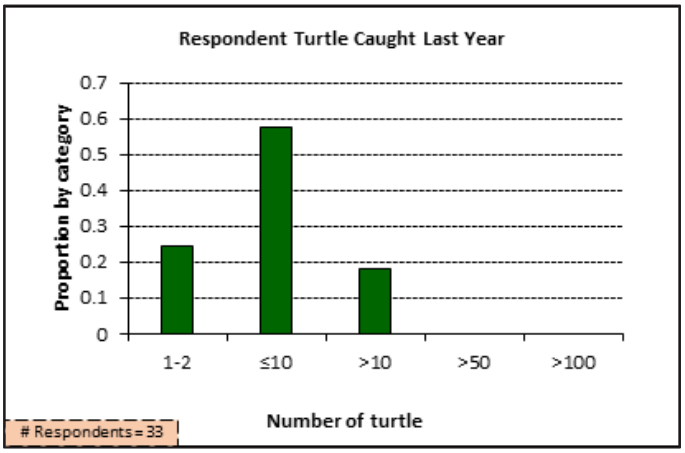

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Species
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Respondents = 64

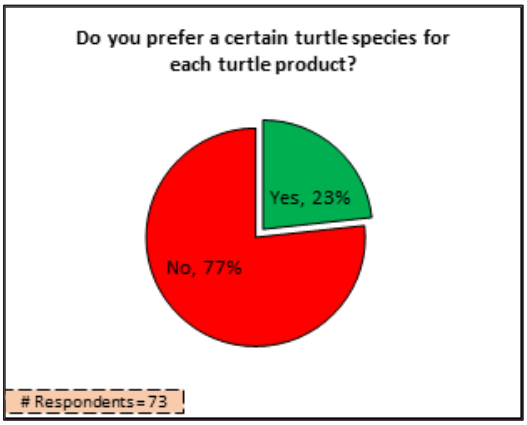

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 70

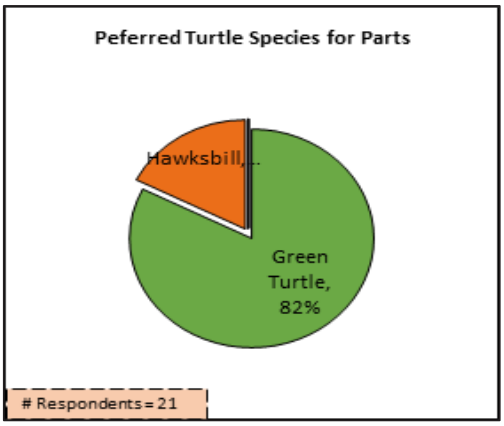

Do people in your community catch turtles?
Don't know, 14%
No, 17%
Yes, 69%
Respondents = 78

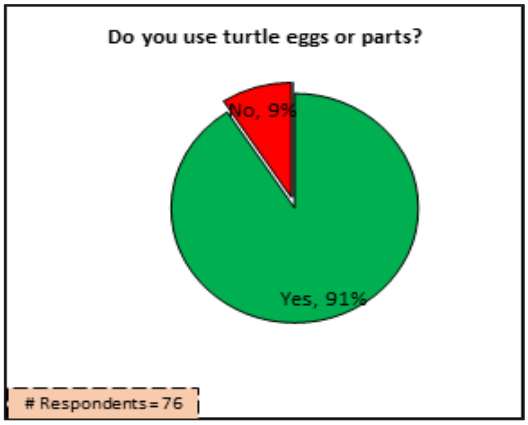

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 34

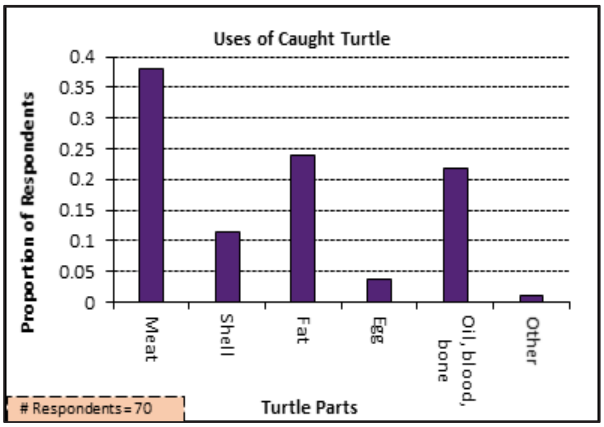

Did you catch any sea turtles in the last year?
Prefer not to say, 13%
Yes, 45%
No, 42%
Respondents = 67

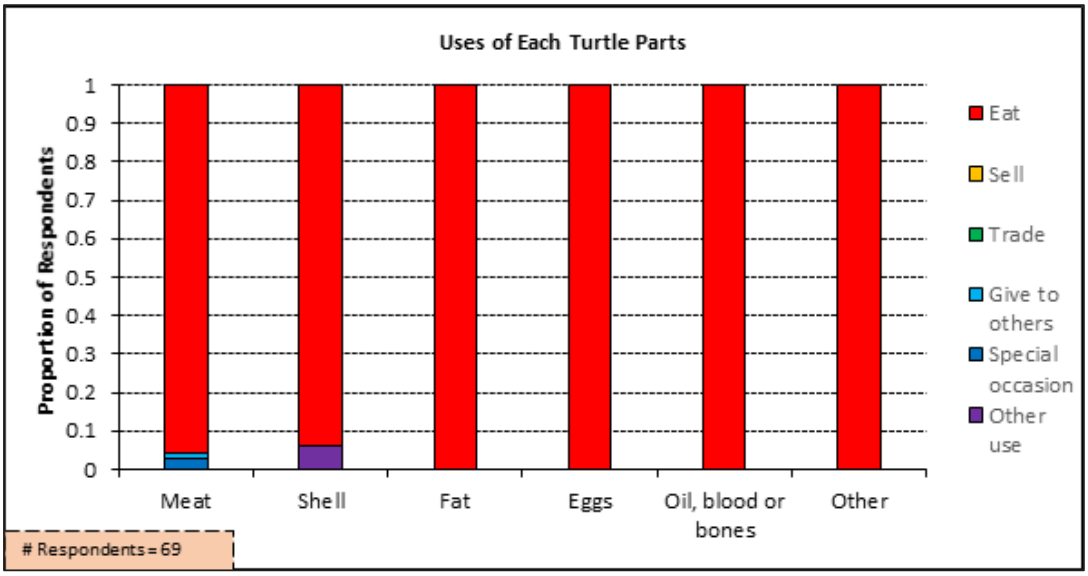

Respondent Turtle Caught Last Year
Proportion by category
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1-2
≤10
>10
>50
>100
Number of turtle
Respondents = 33

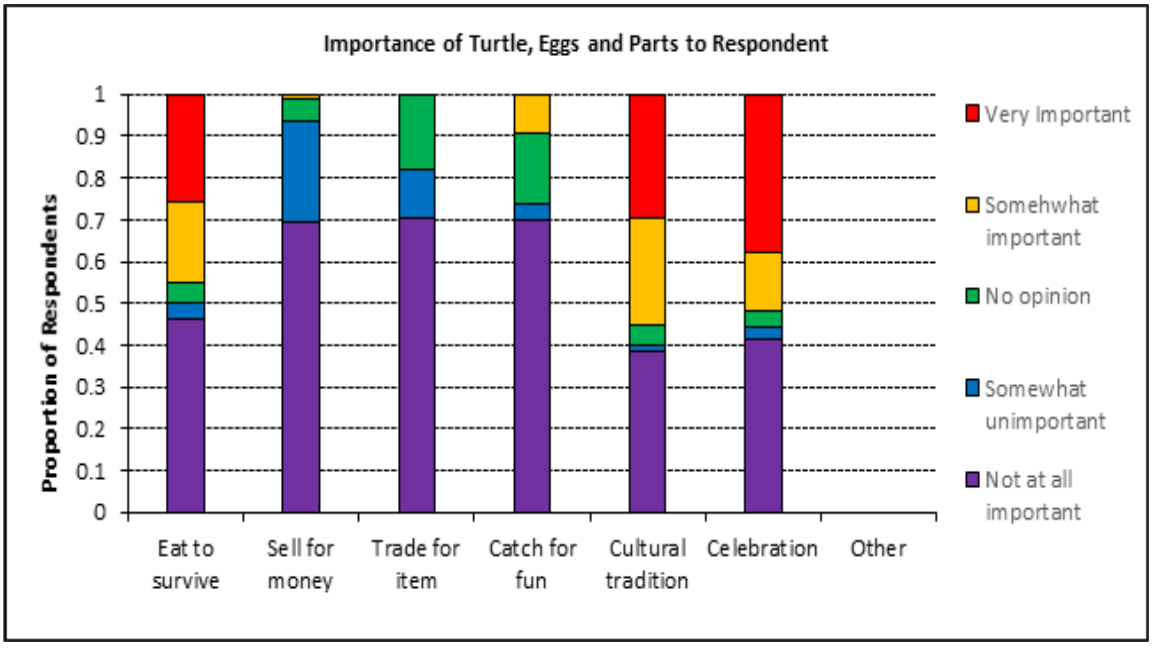

Do you prefer a certain turtle species for each turtle product?
Yes, 23%
No, 77%
Respondents = 73

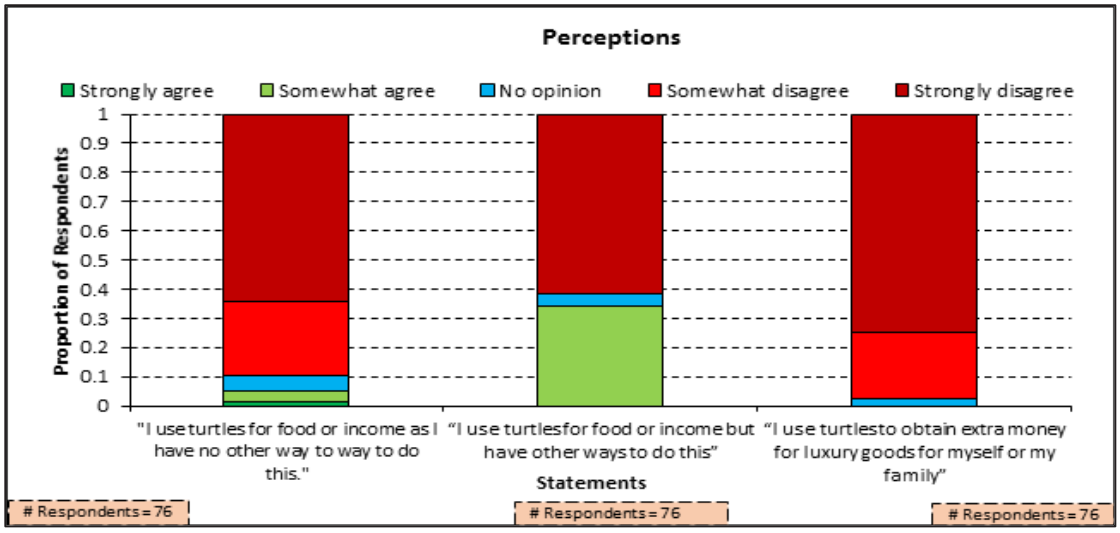

Peferred Turtle Species for Parts
Hawksbill, ..
Green Turtle, 82%
Respondents = 21

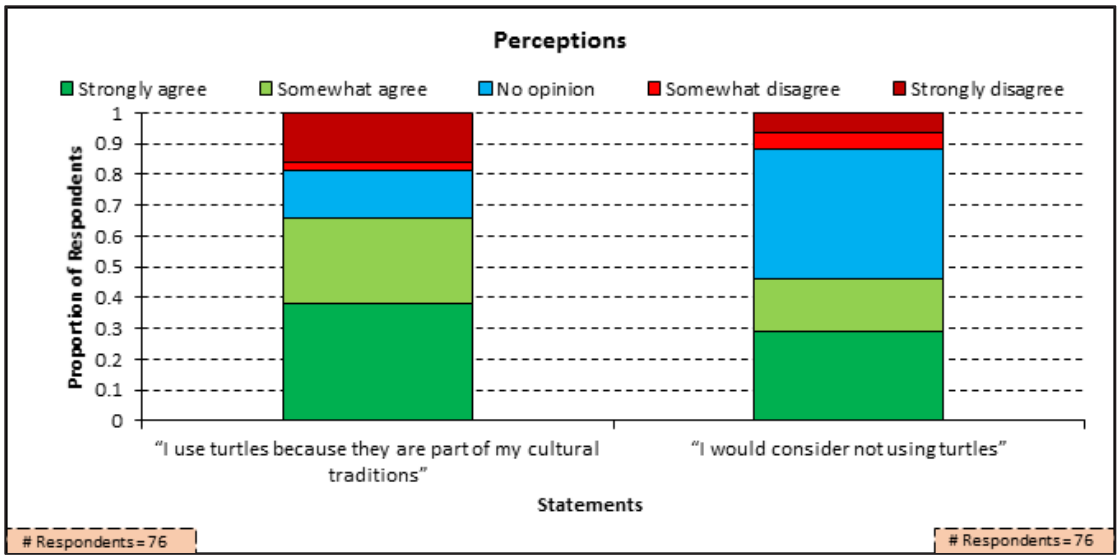

Do you use turtle eggs or parts?
No, 9%
Yes, 91%
Respondents = 76

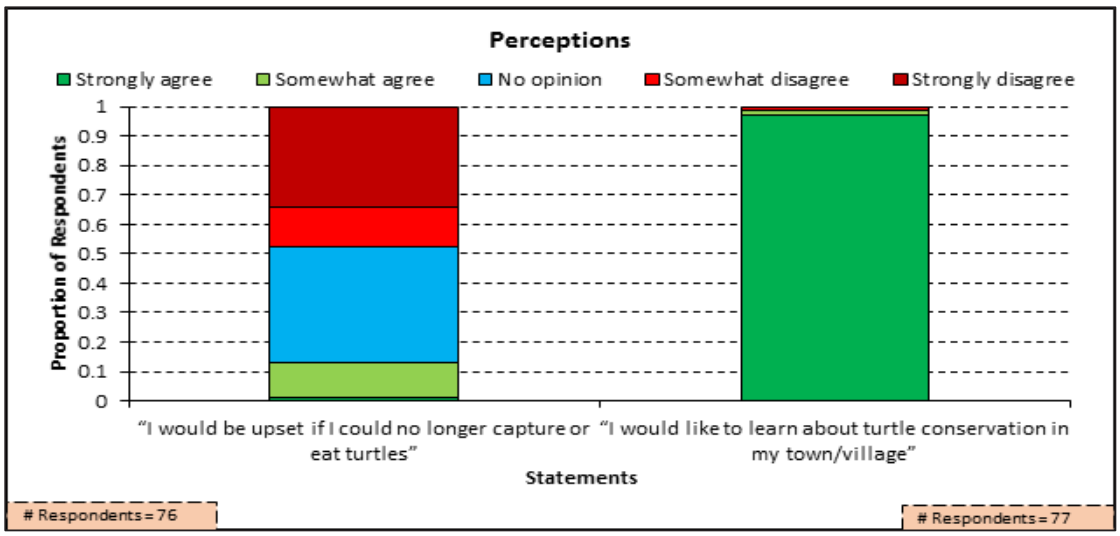

Uses of Caught Turtle
Proportion of Respondents
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Turtle Parts
Respondents = 70


Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 69

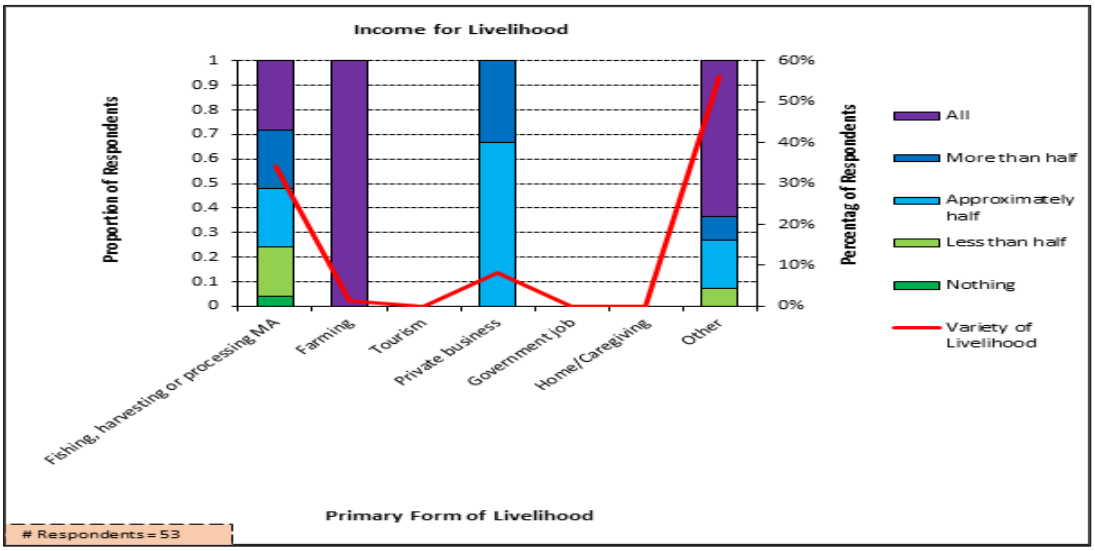

Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important

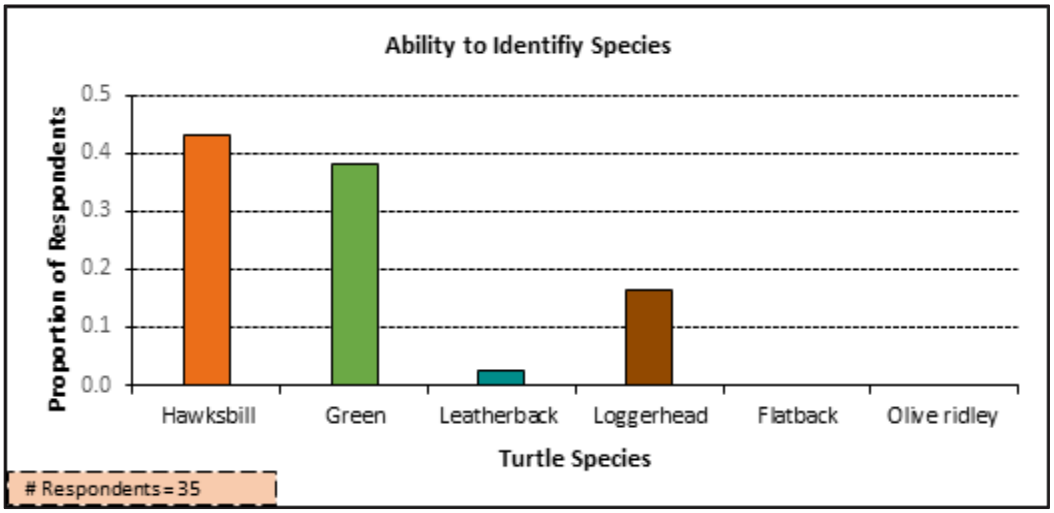

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 76
Respondents = 76
Respondents = 76

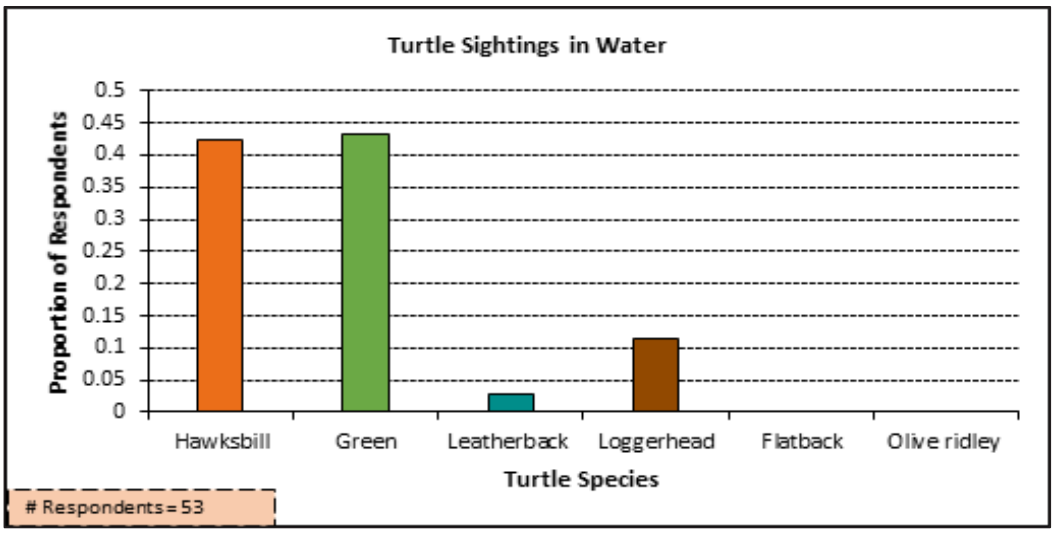

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 76
Respondents = 76

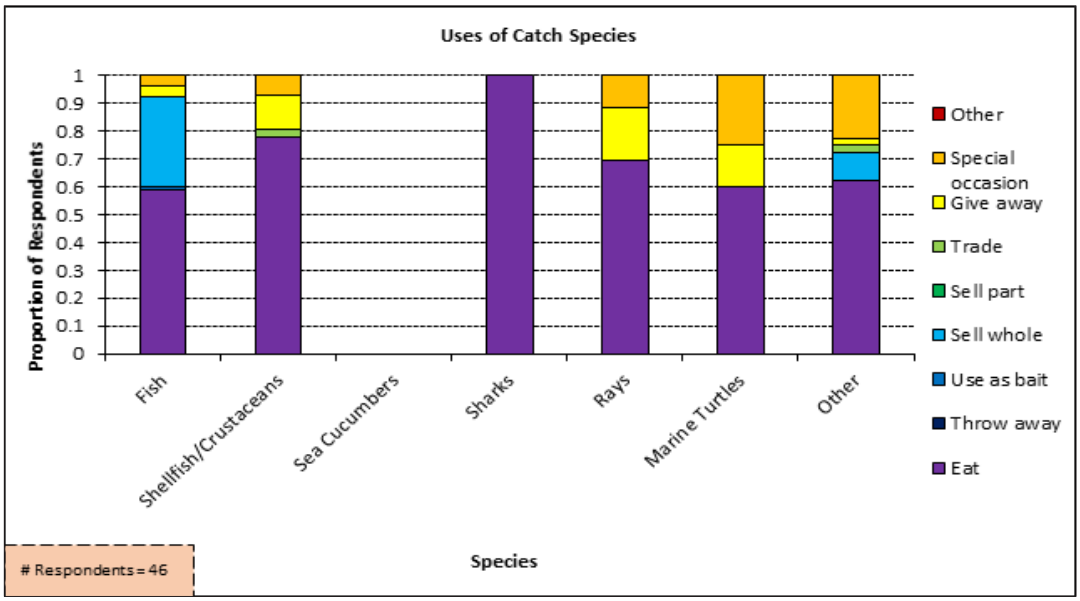

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 76
Respondents = 77

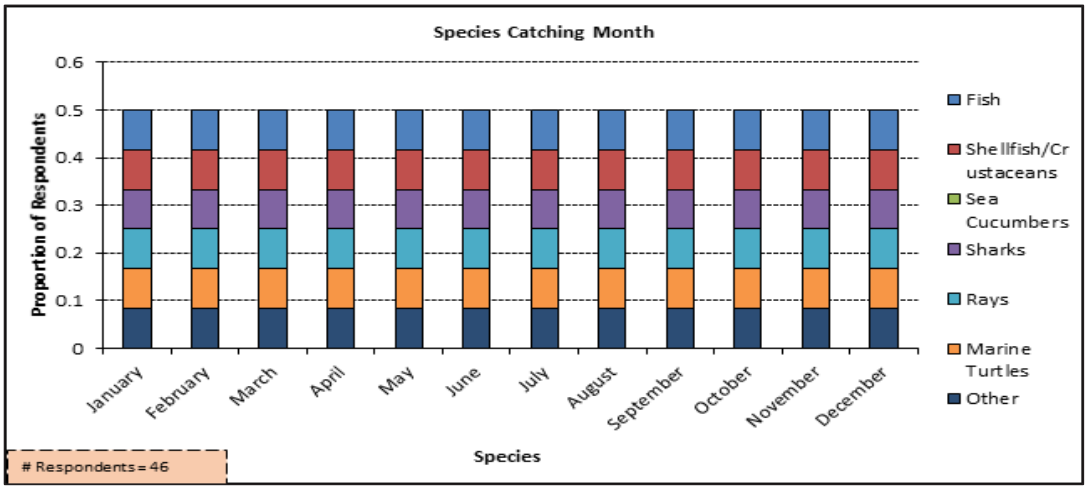
8.1.3: Lau Provincial Results

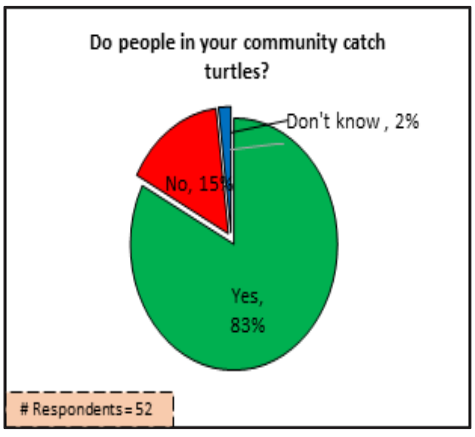


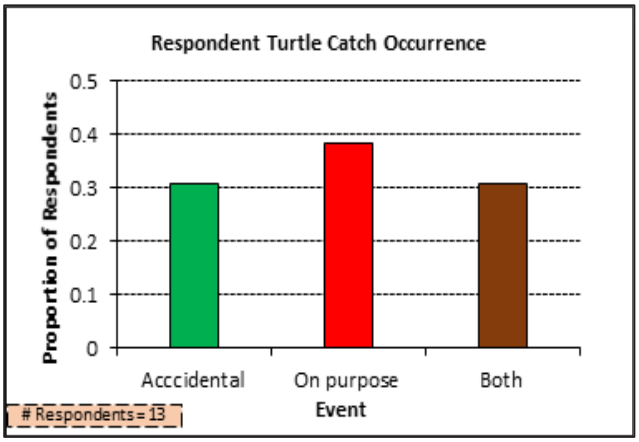


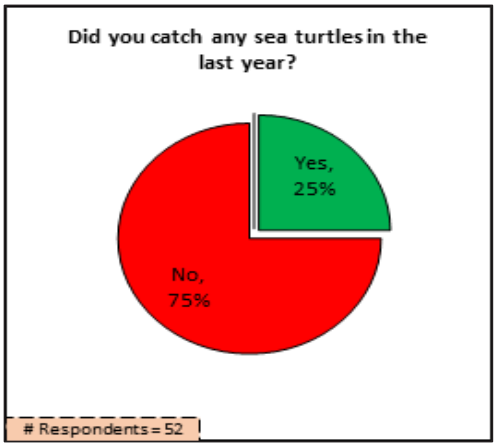


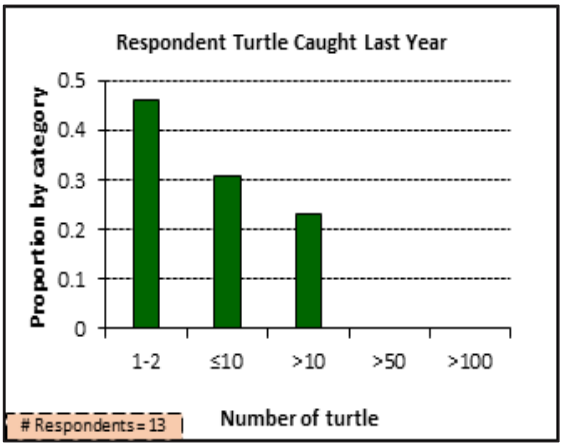

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 46
Species

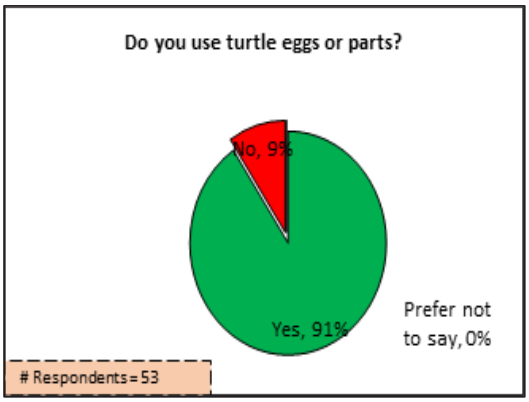

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Respondents = 46
Species

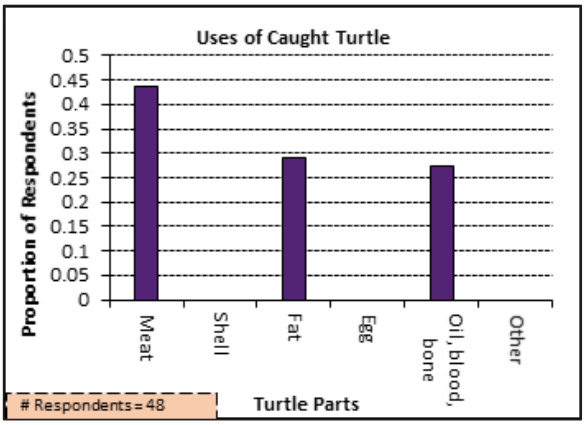

Do people in your community catch turtles?
Don't know , 2%
No, 15%
Yes, 83%
Respondents = 52

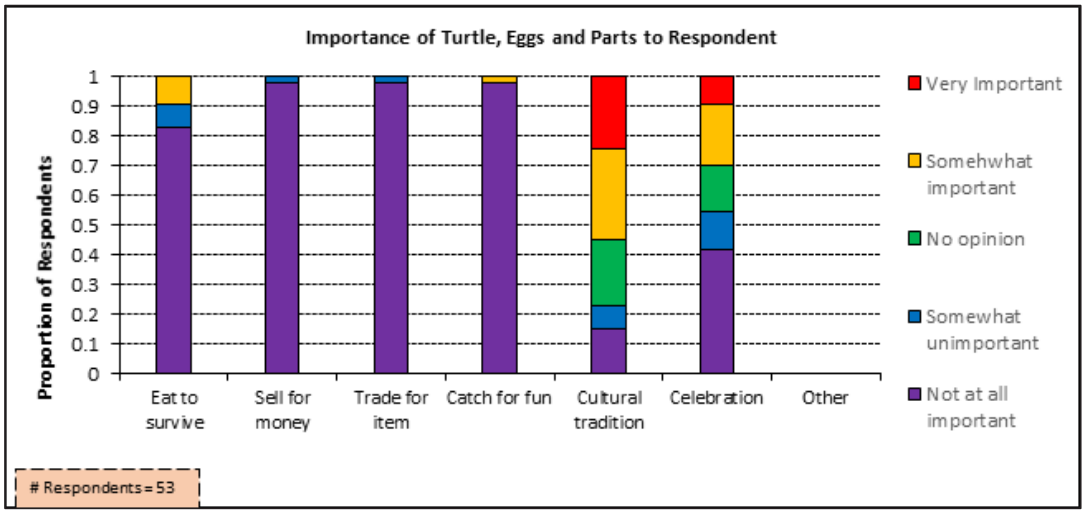

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 13

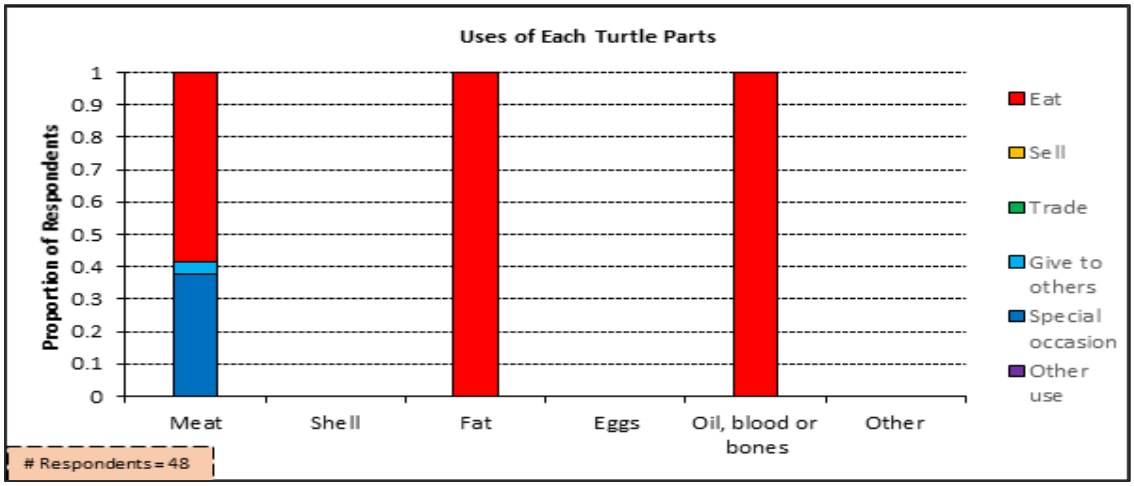

Did you catch any sea turtles in the last year?
Yes, 25%
No, 75%
Respondents = 52

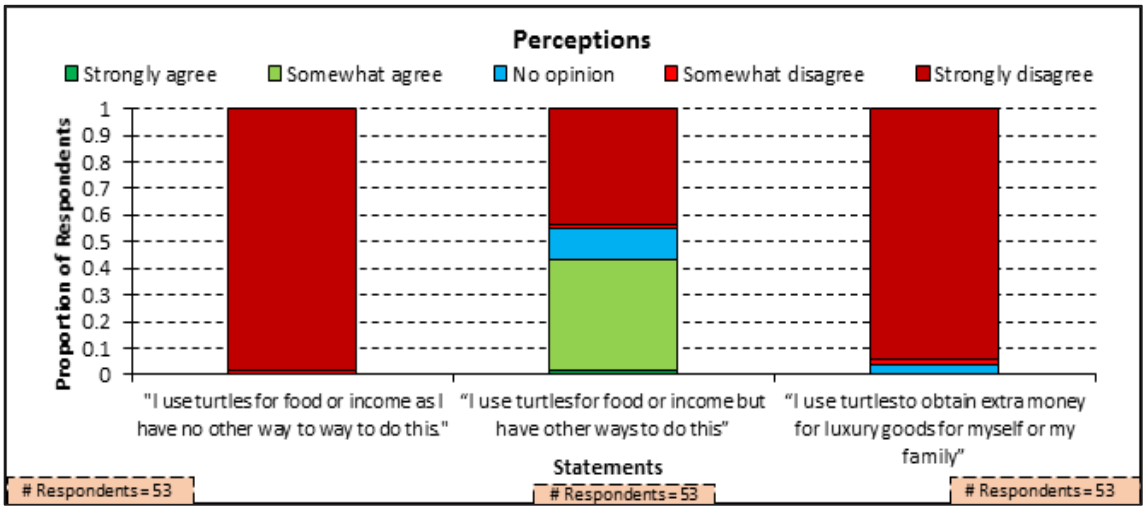

Respondent Turtle Caught Last Year
Proportion by category
0.5
0.4
0.3
0.2
0.1
0
1-2
≤10
>10
>50
>100
Respondents = 13
Number of turtle

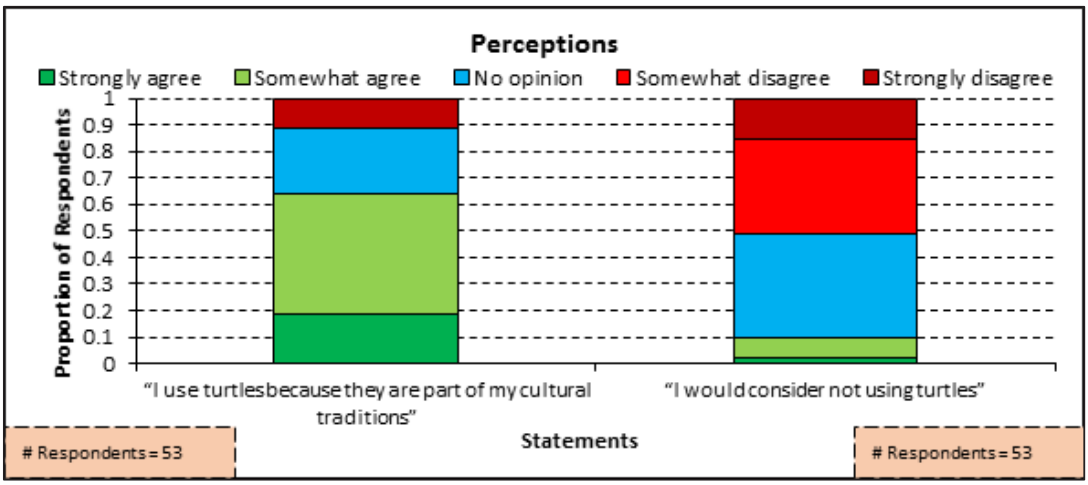

Do you use turtle eggs or parts?
No, 9%
Yes, 91%
Prefer not to say, 0%
Respondents = 53

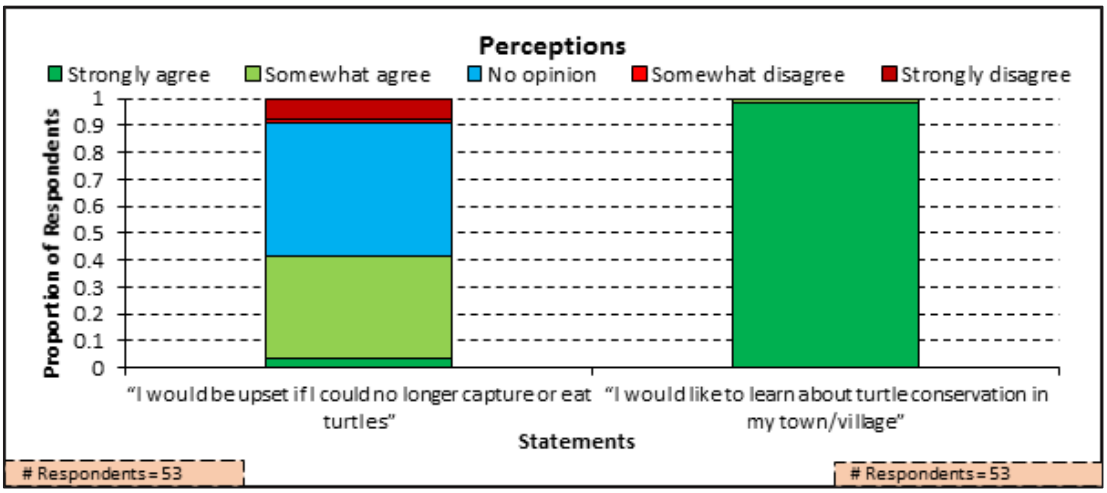

Uses of Caught Turtle
Proportion of Respondents
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Respondents = 48
Turtle Parts


Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 53

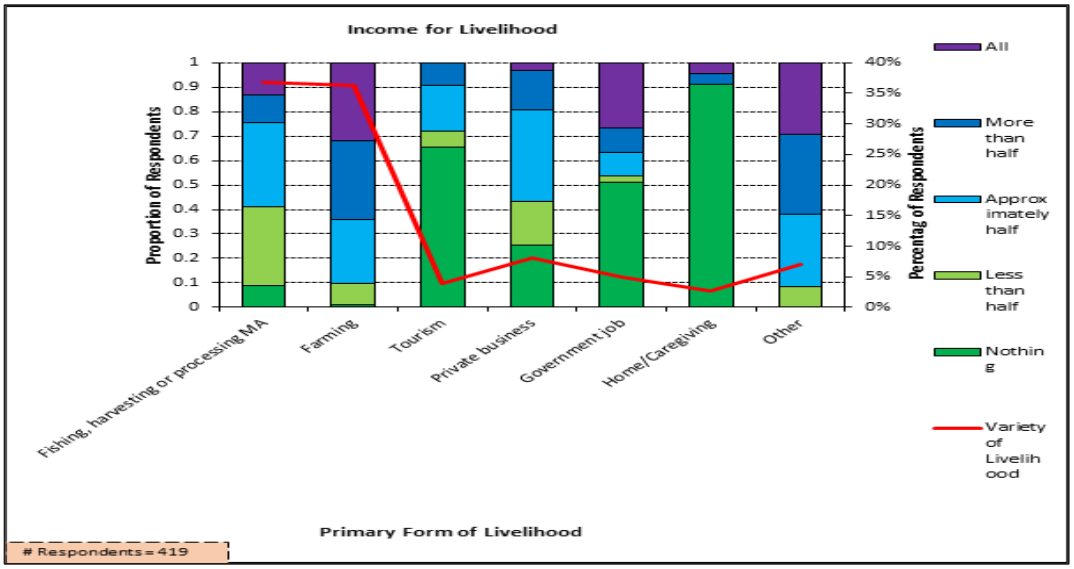

Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 48

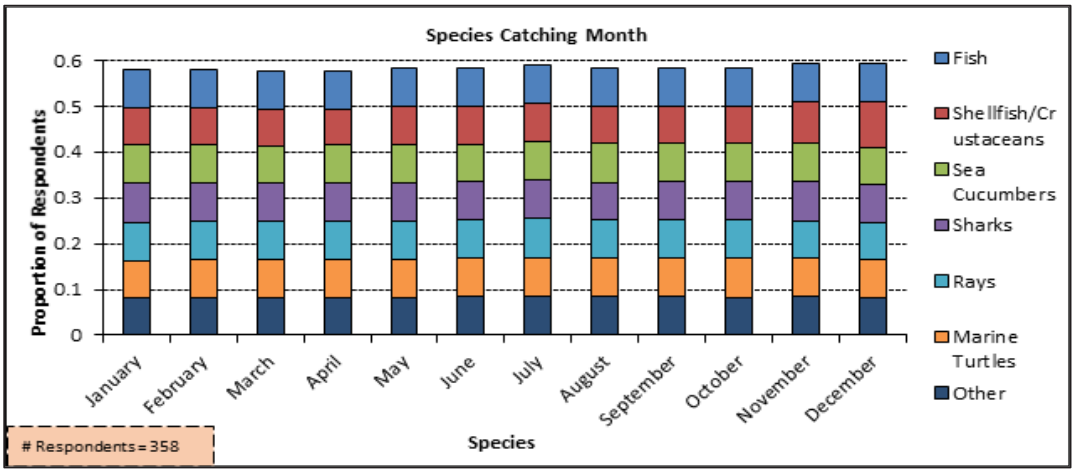

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 53
Respondents = 53
Respondents = 53

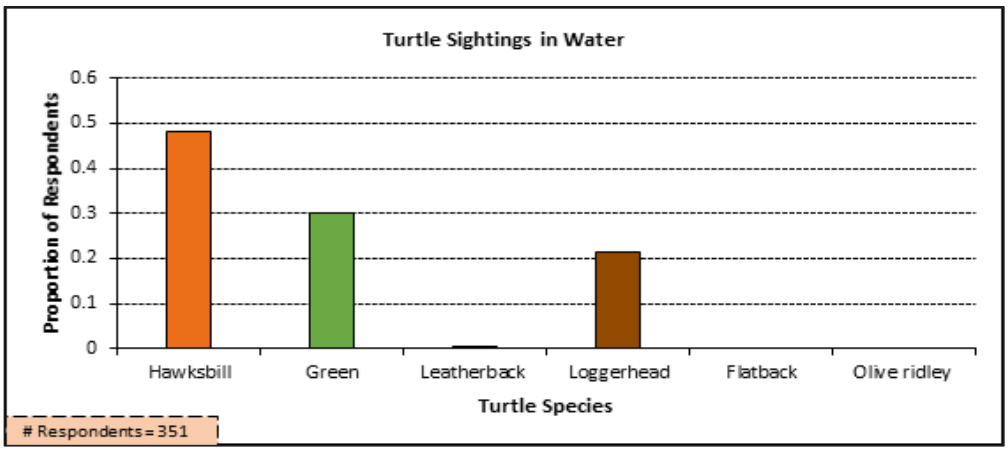

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 53
Respondents = 53

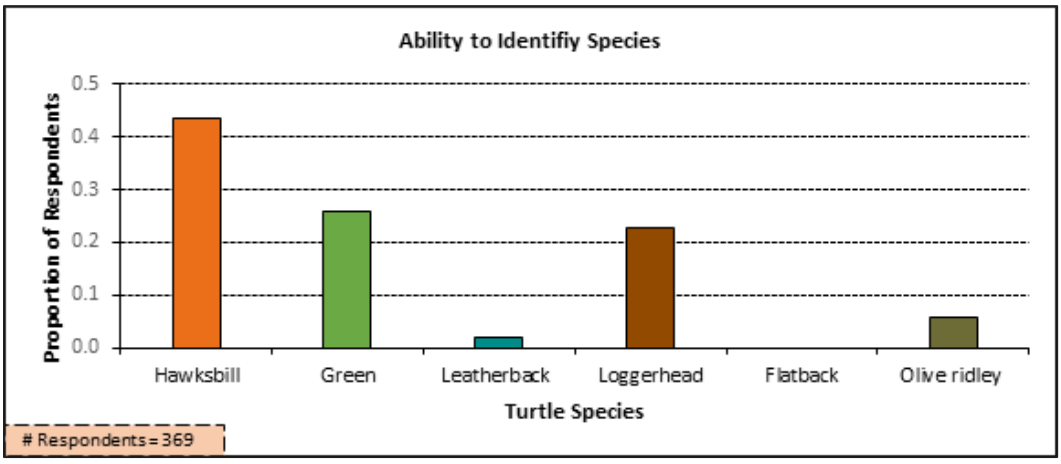

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 53
Respondents = 53

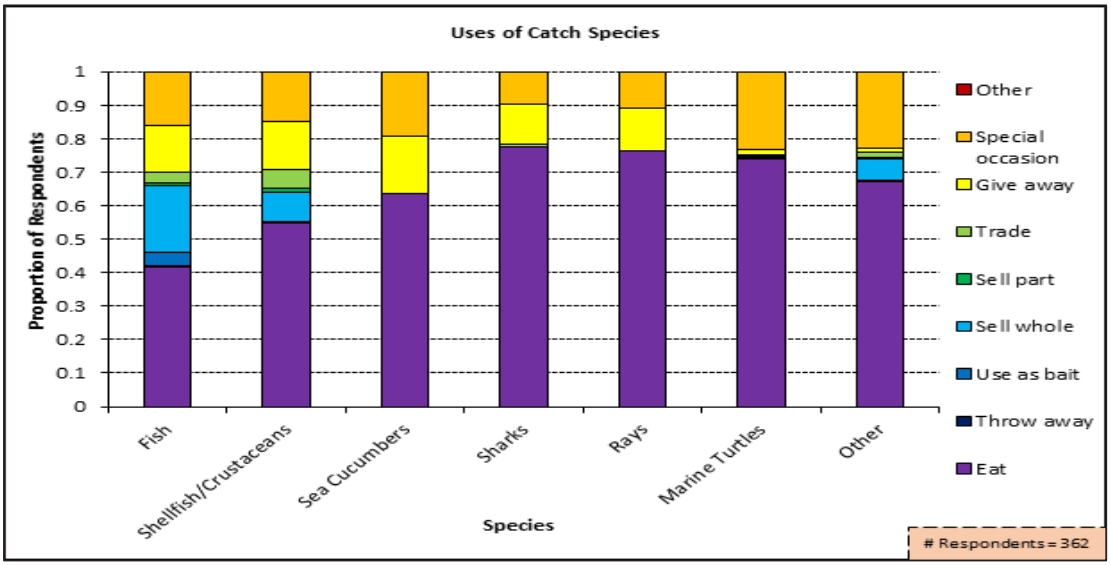
8.1.4 Lomaiviti Provincial Result

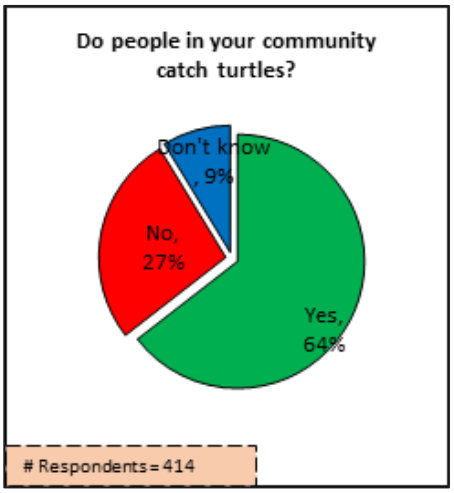


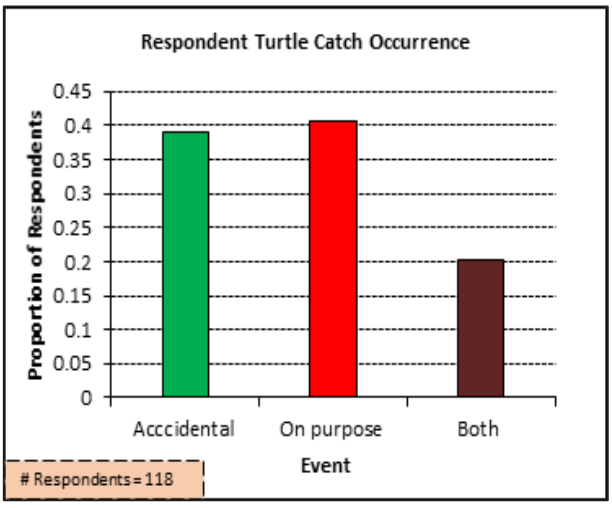


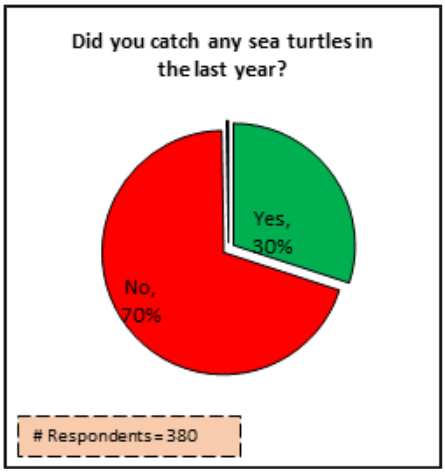


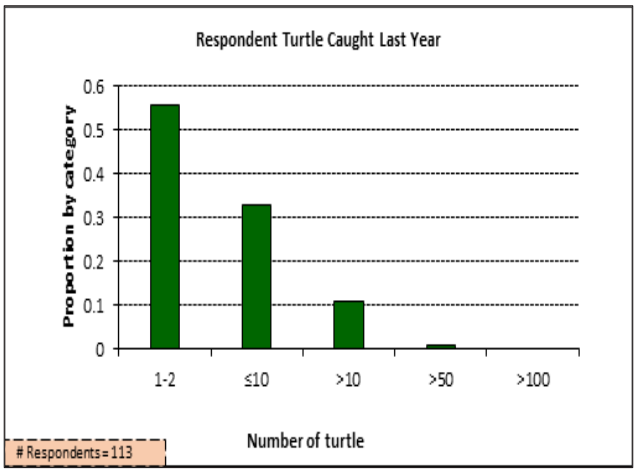

Ability to Identifiy Species
Proportion of Respondents
0.5
0.4
0.3
0.2
0.1
0.0
Hawksbill
Green
Leatherback
Loggerhead
Flatback
Olive ridley
Turtle Species
Respondents = 369

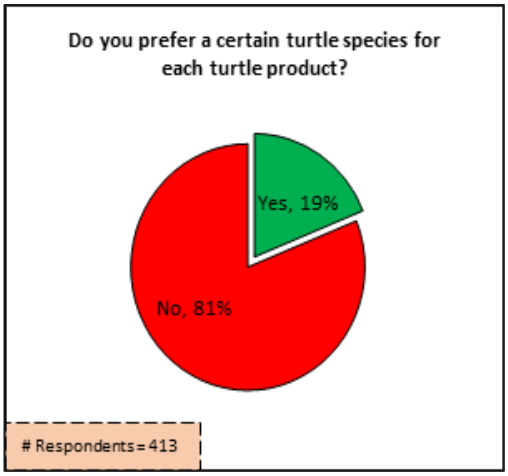

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 362

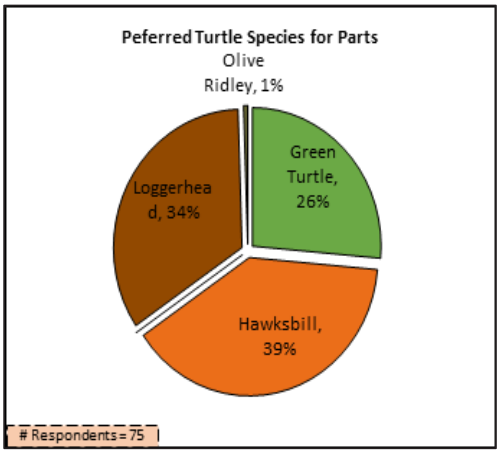

Do people in your community catch turtles?
Don't know, 9%
No, 27%
Yes, 64%
Respondents = 414

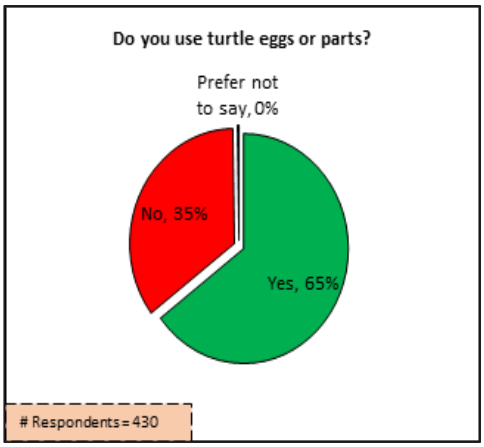

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Acccidental
On purpose
Both
Event
Respondents = 118

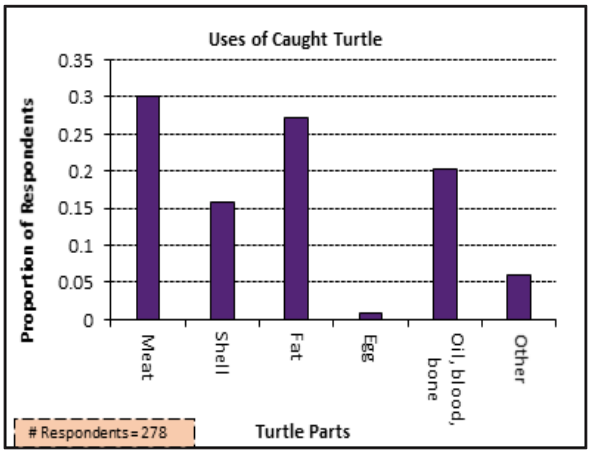

Did you catch any sea turtles in the last year?
Yes, 30%
No, 70%
Respondents = 380

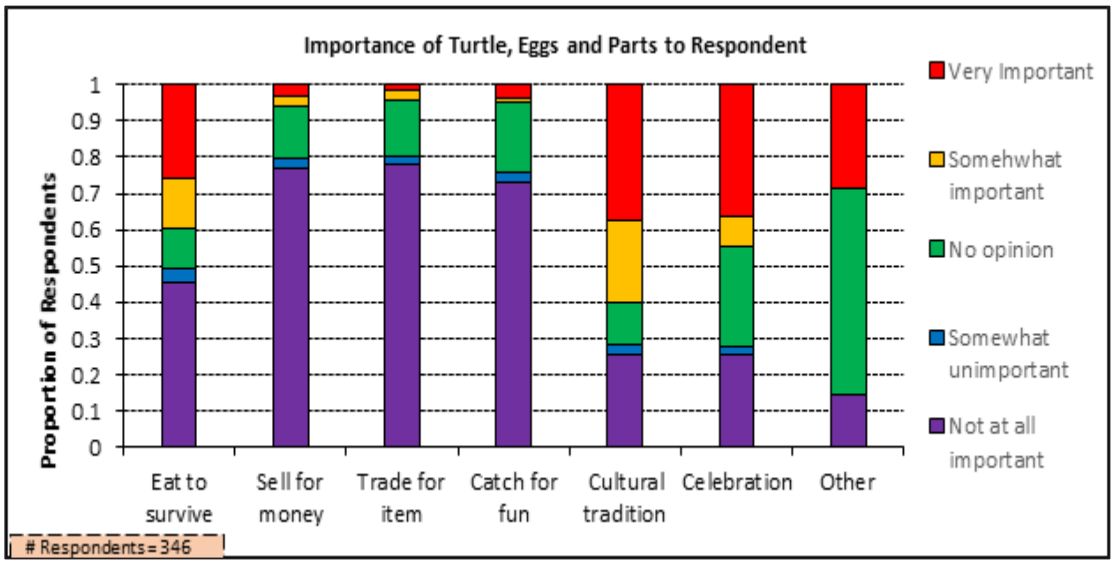

Respondent Turtle Caught Last Year
Proportion by category
0.6
0.5
0.4
0.3
0.2
0.1
0
1-2
≤10
>10
>50
>100
Number of turtle
Respondents = 113

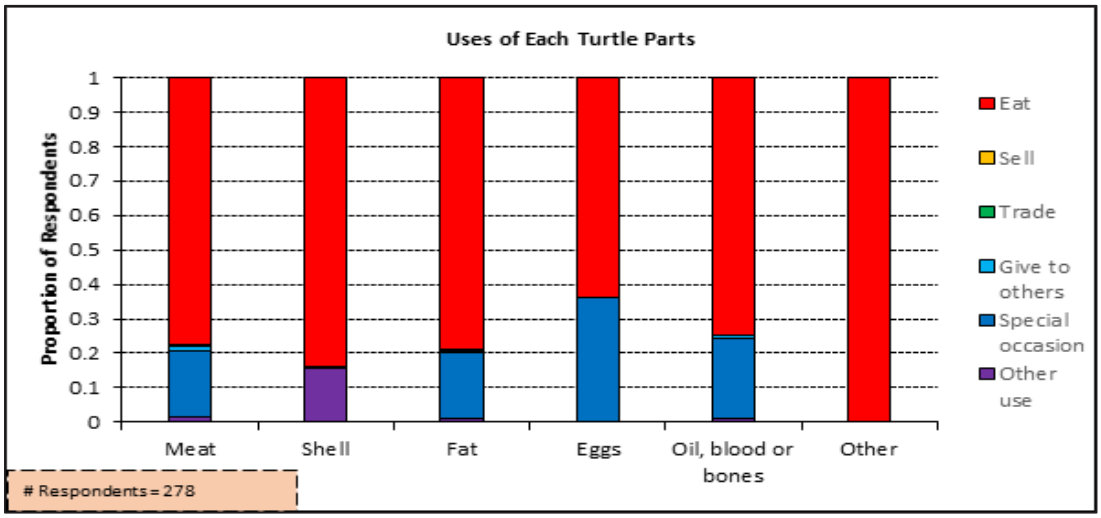

Do you prefer a certain turtle species for each turtle product?
Yes, 19%
No, 81%
Respondents = 413

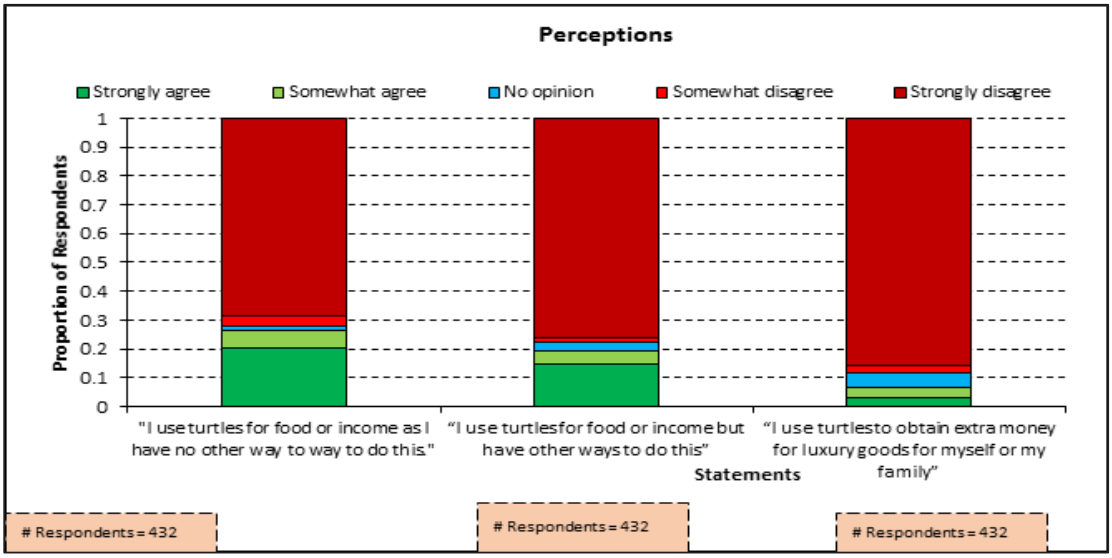

Peferred Turtle Species for Parts
Olive Ridley, 1%
Green Turtle, 26%
Loggerhead, 34%
Hawksbill, 39%
Respondents = 75

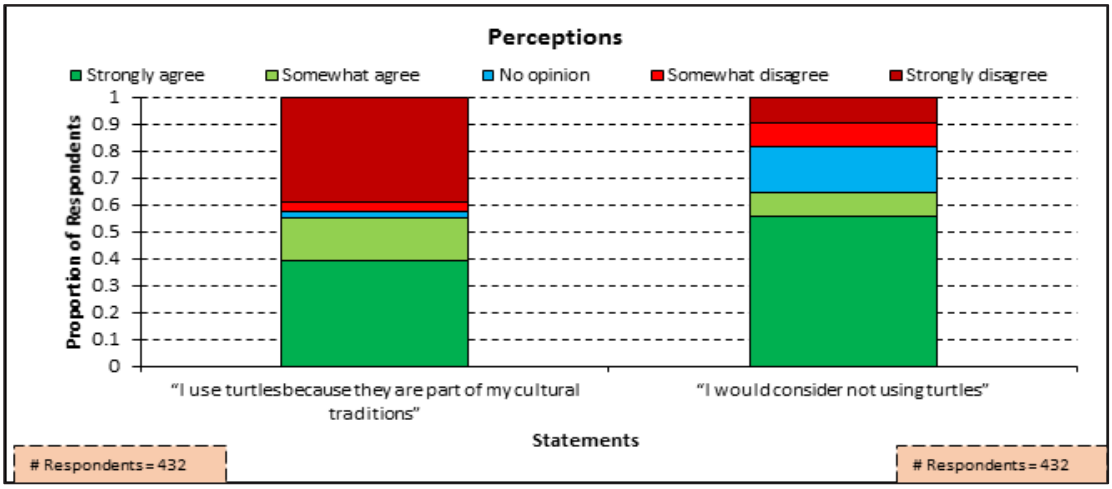

Do you use turtle eggs or parts?
Prefer not to say, 0%
No, 35%
Yes, 65%
Respondents = 430

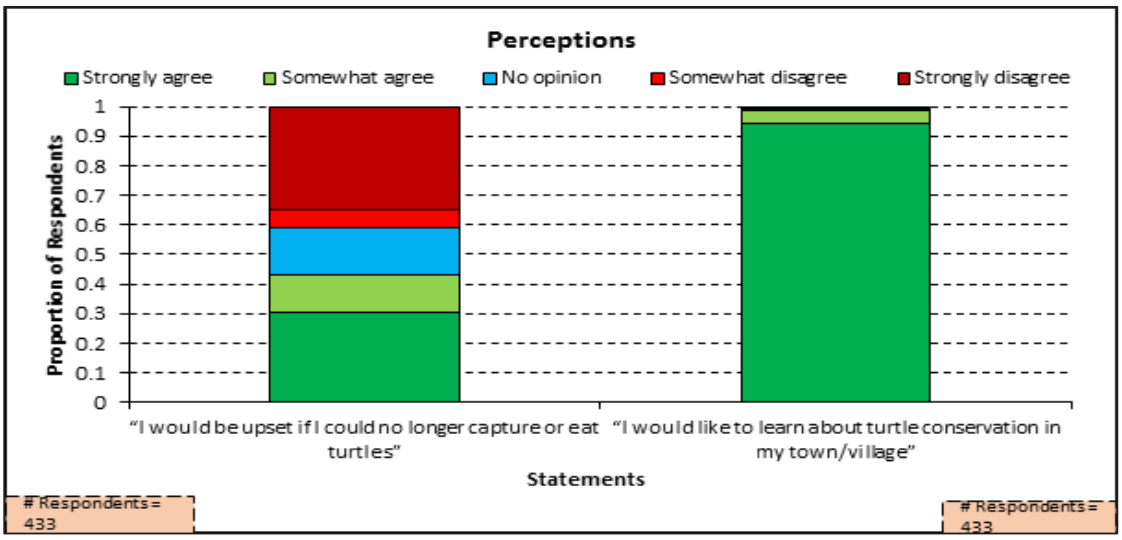

Uses of Caught Turtle
Proportion of Respondents
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Turtle Parts
Respondents = 278


Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 346

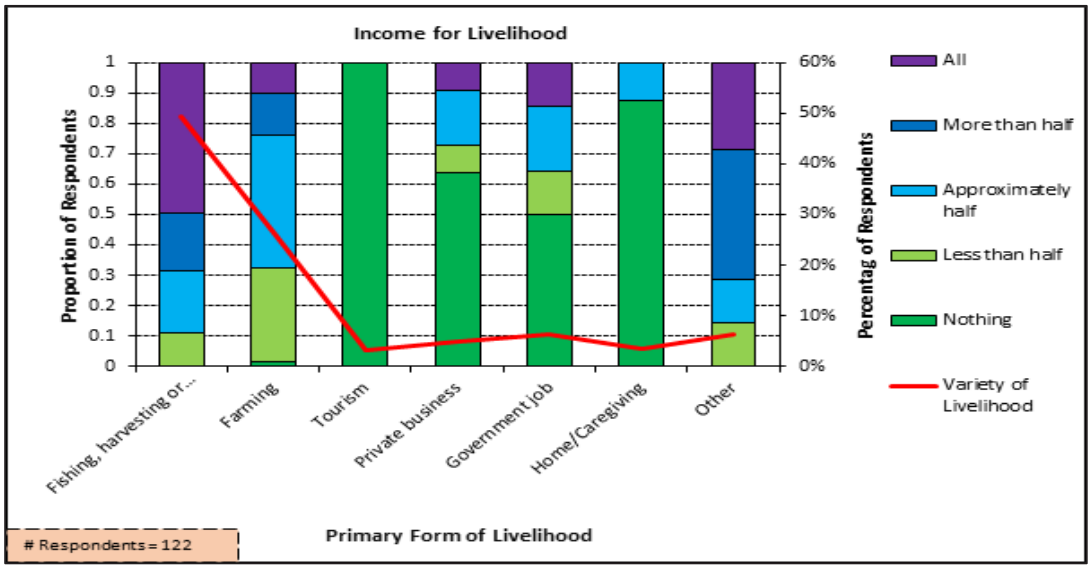

Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 278

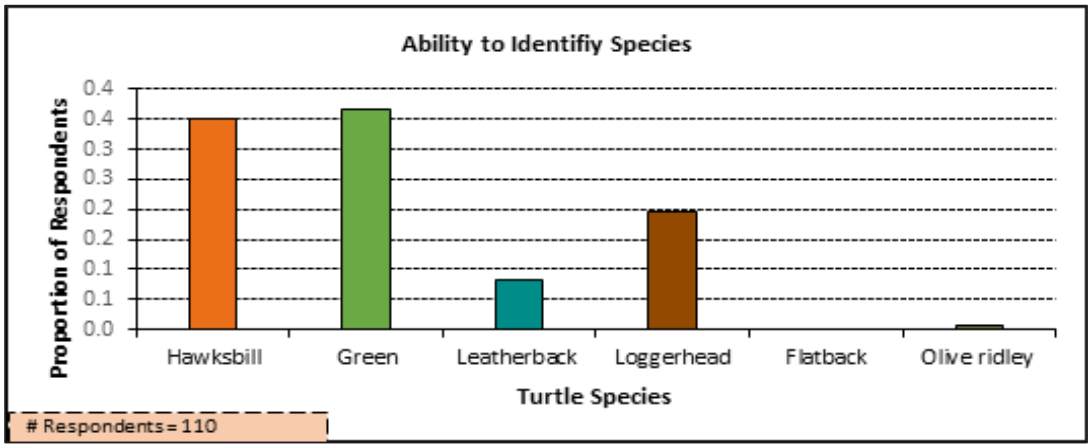

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 432
Respondents = 432
Respondents = 432

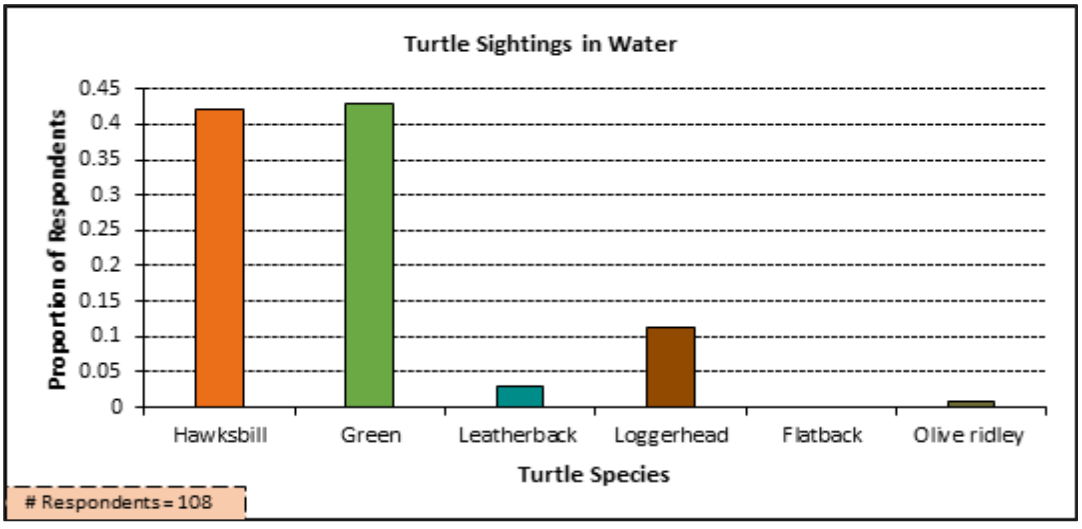

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 432
Respondents = 432

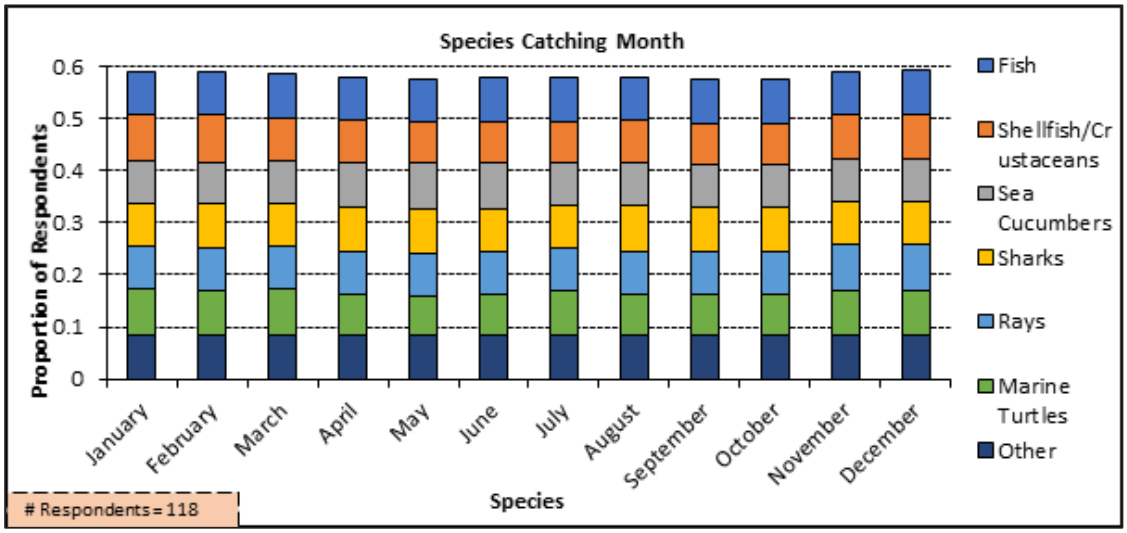

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 433
Respondents = 433

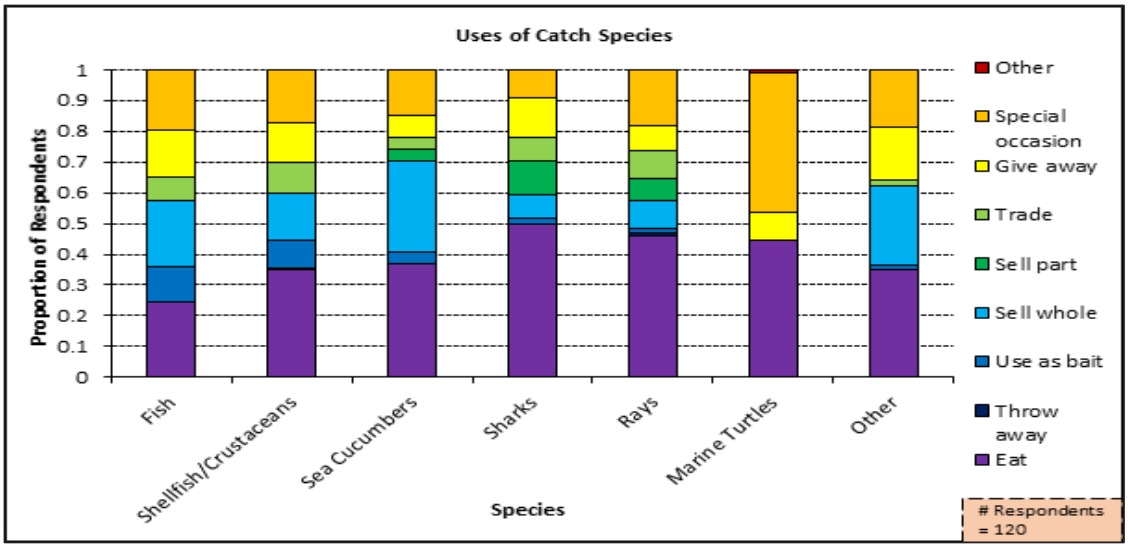
8.1.5 Macuata Provincial Results

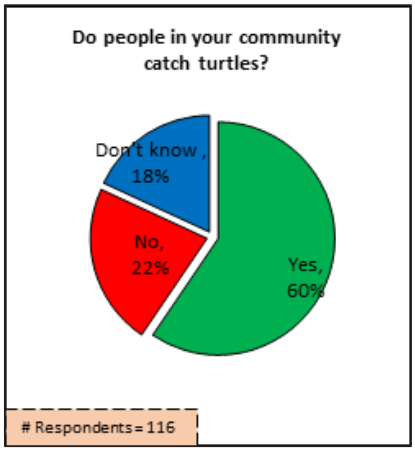


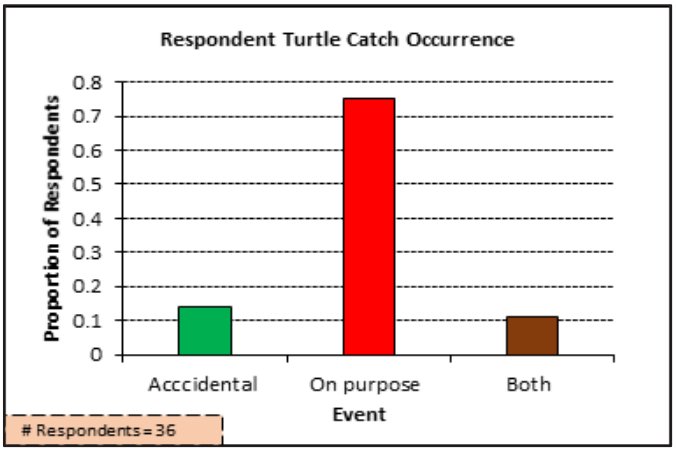


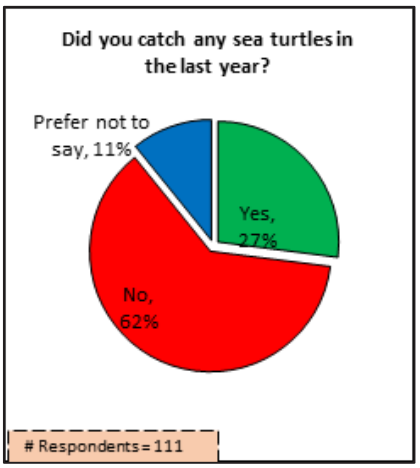


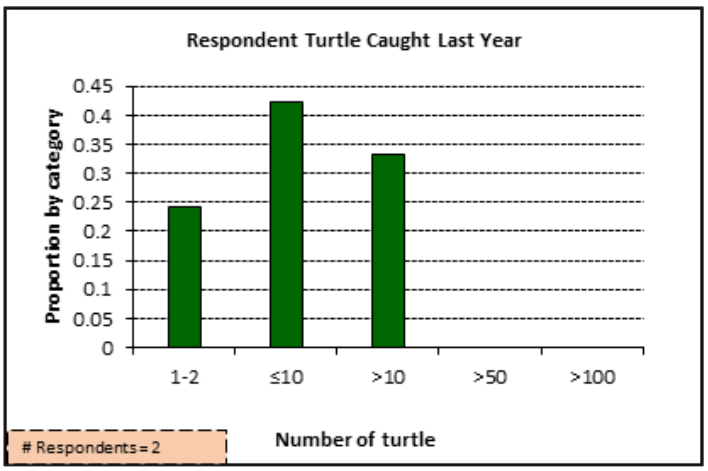

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Species
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Respondents = 118

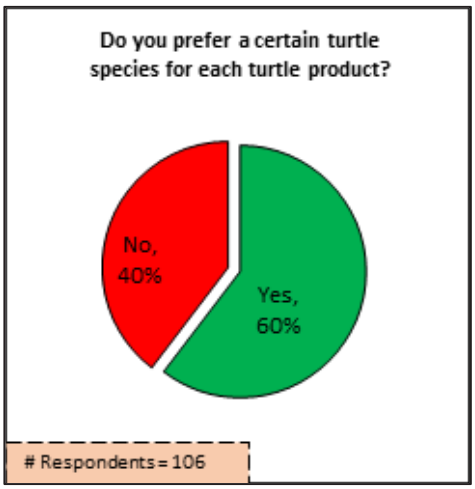

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 120

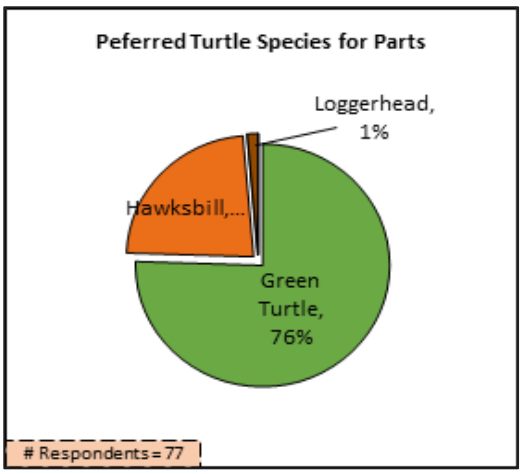

Do people in your community catch turtles?
Don't know, 18%
No, 22%
Yes, 60%
Respondents = 116

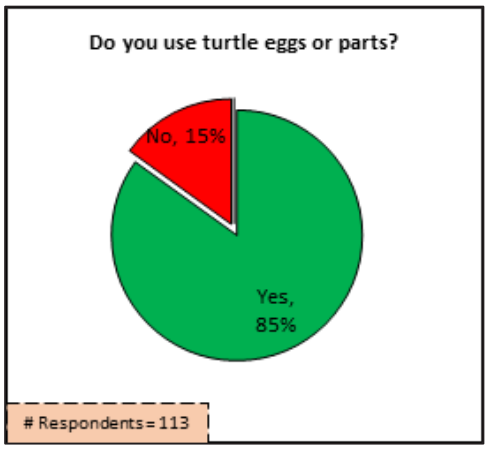

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 36

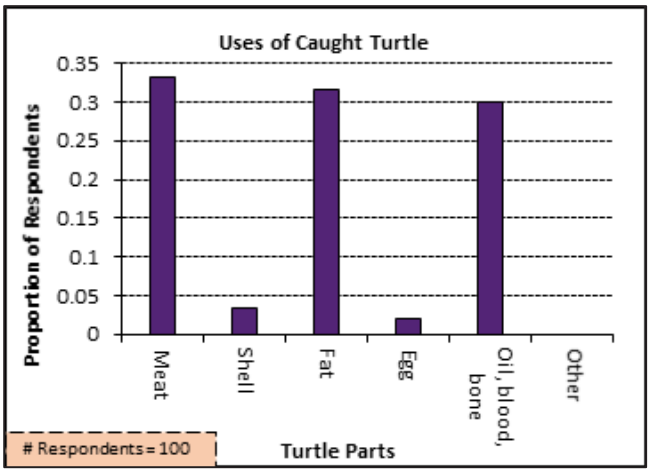

Did you catch any sea turtles in the last year?
Prefer not to say, 11%
Yes, 27%
No, 62%
Respondents = 111

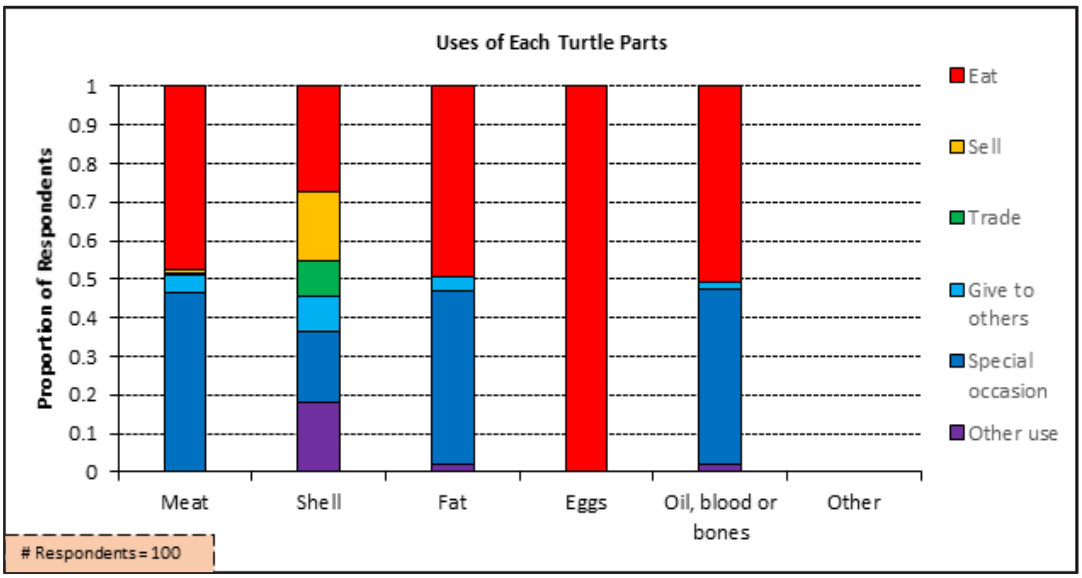

Respondent Turtle Caught Last Year
Proportion by category
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1-2
≤10
>10
>50
>100
Respondents = 2
Number of turtle

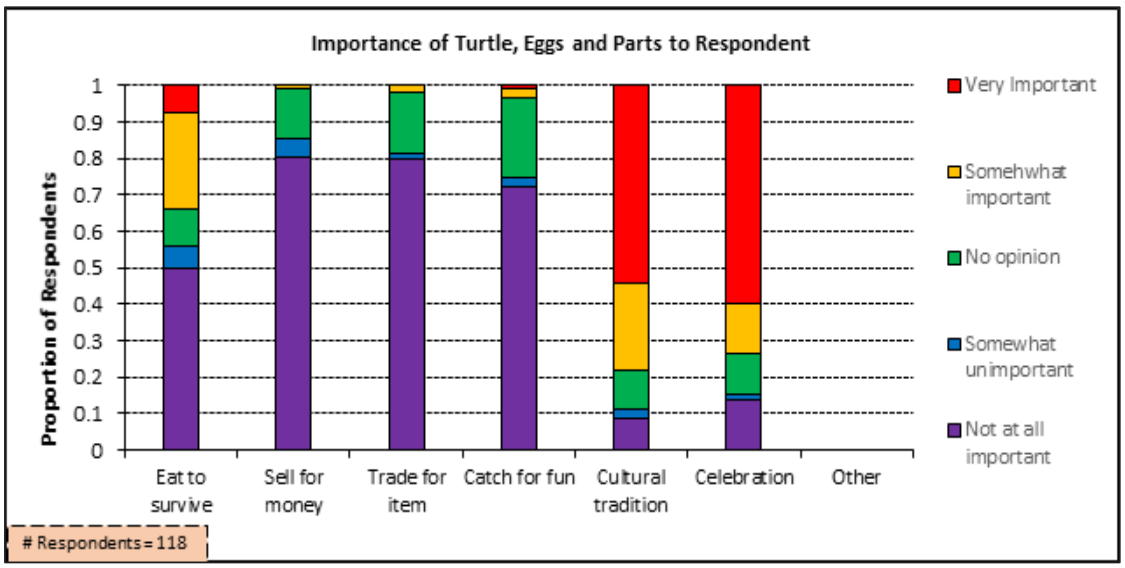

Do you prefer a certain turtle species for each turtle product?
No, 40%
Yes, 60%
Respondents = 106

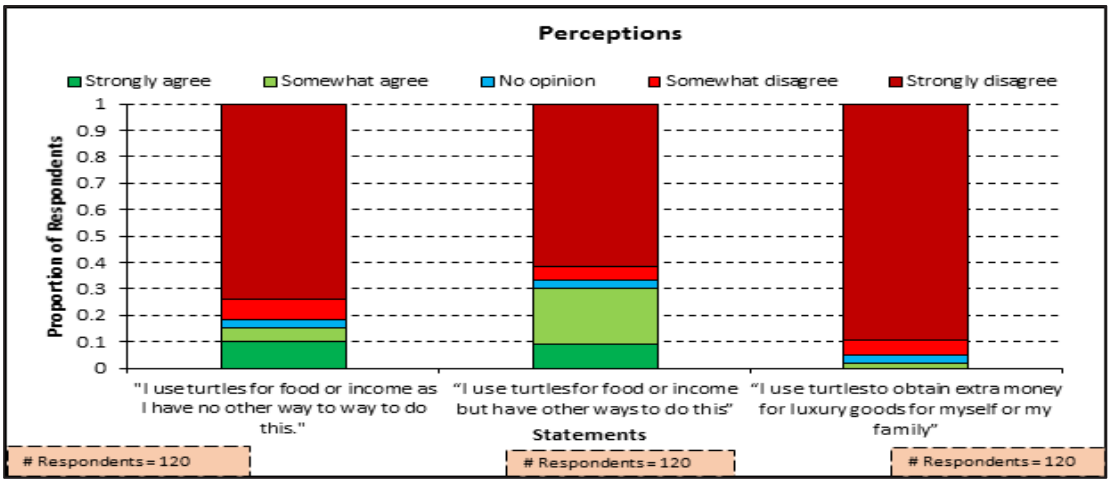

Peferred Turtle Species for Parts
Loggerhead, 1%
Hawksbill,...
Green Turtle, 76%
Respondents = 77

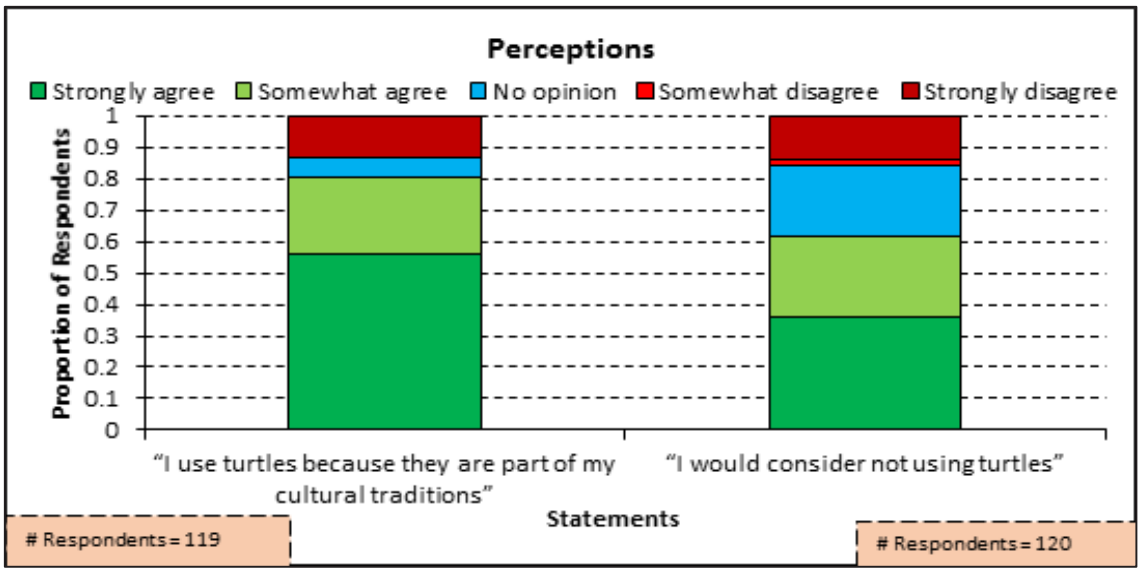

Do you use turtle eggs or parts?
No, 15%
Yes, 85%
Respondents = 113

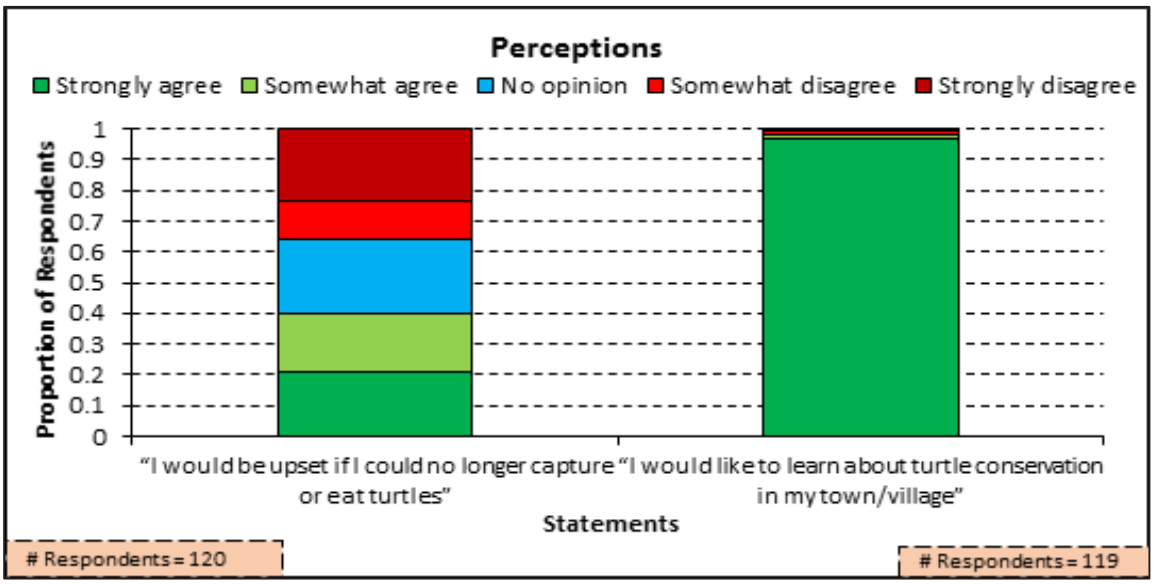

Uses of Caught Turtle
Proportion of Respondents
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Respondents = 100
Turtle Parts


Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 100

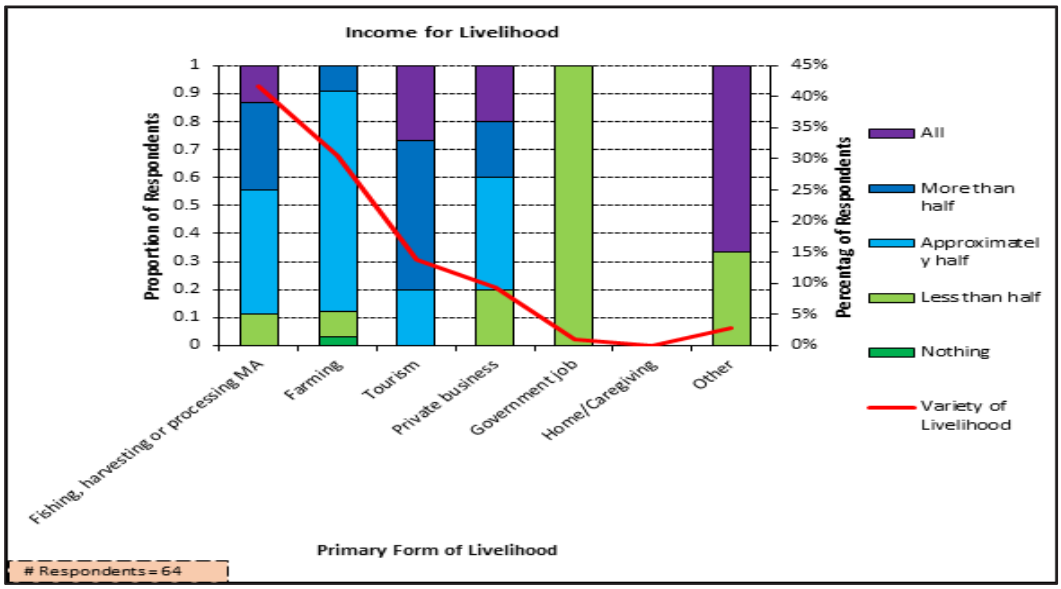

Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 118

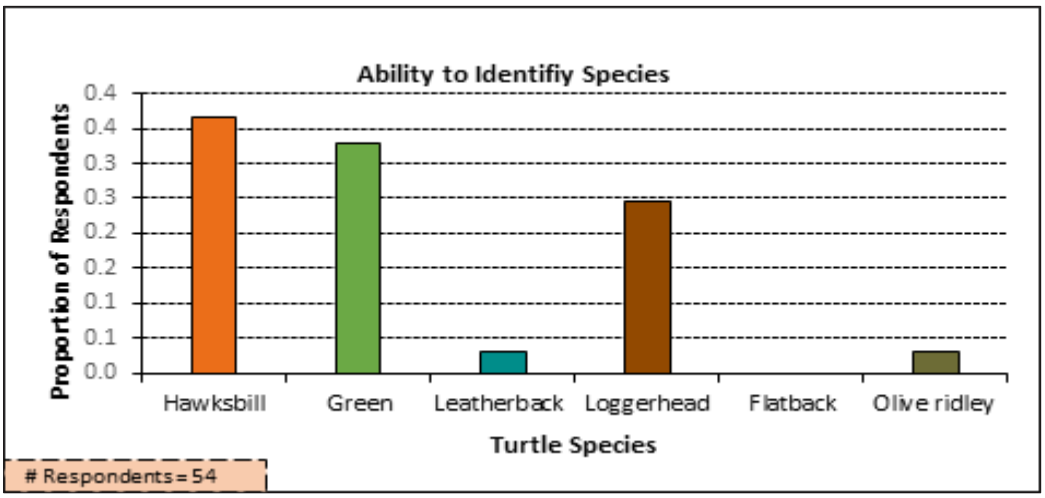

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 120
Respondents = 120
Respondents = 120

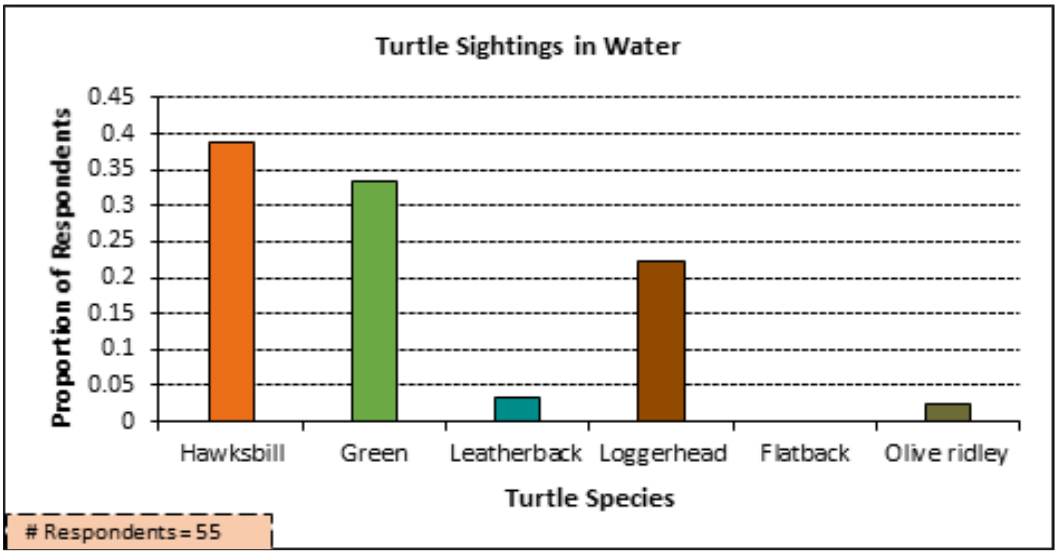

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 119
Respondents = 120

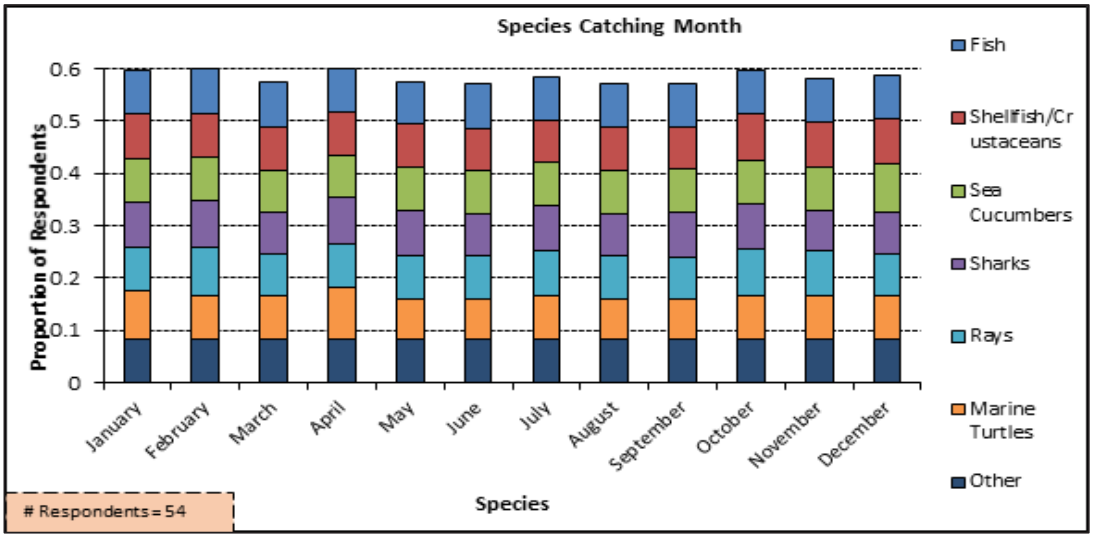

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 120
Respondents = 119

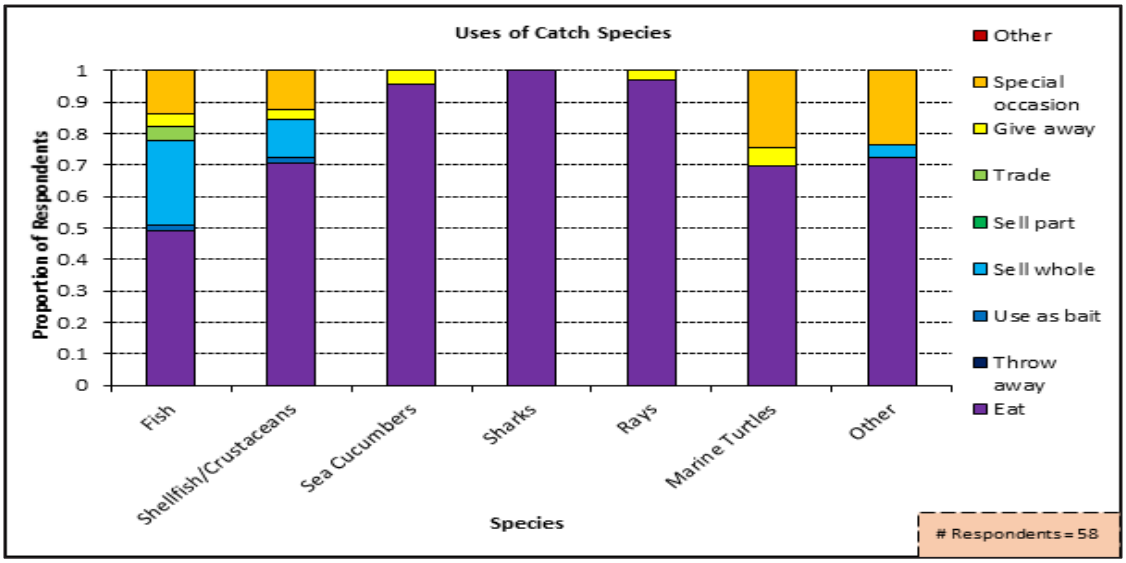
8.1.6 Nadroga Provincial Results

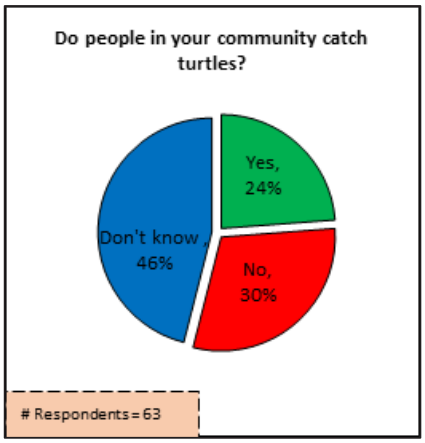


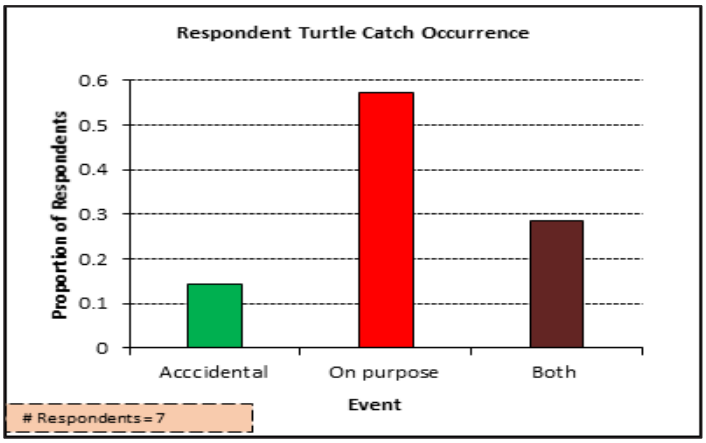


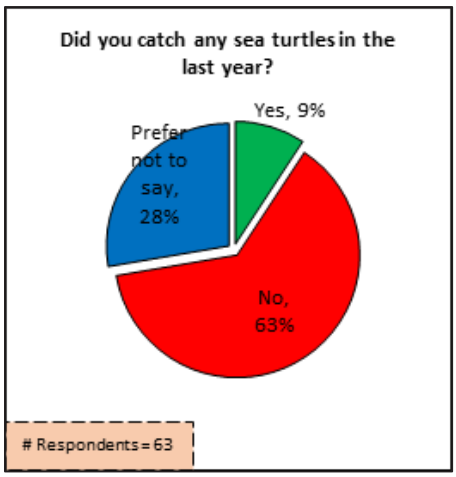


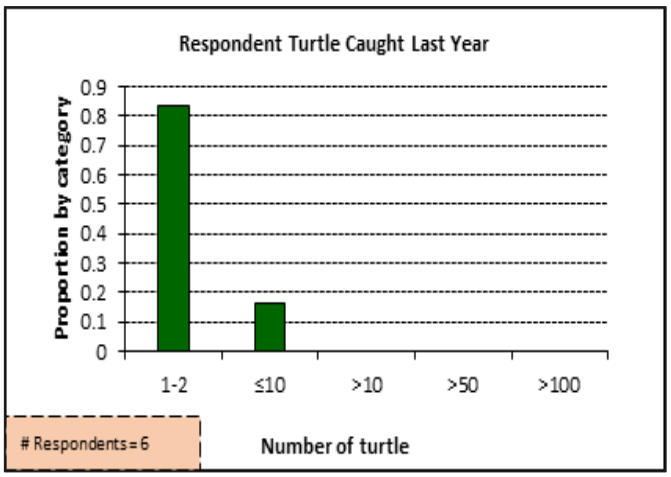

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Species
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Respondents = 54

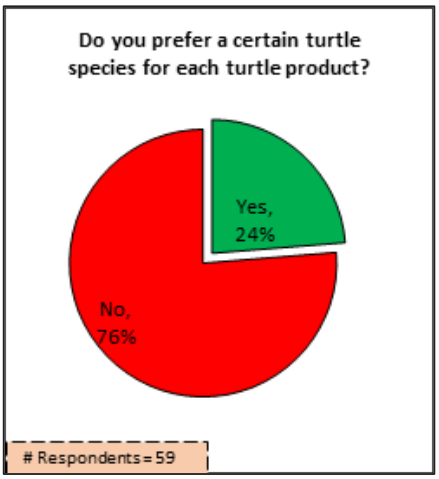

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 58

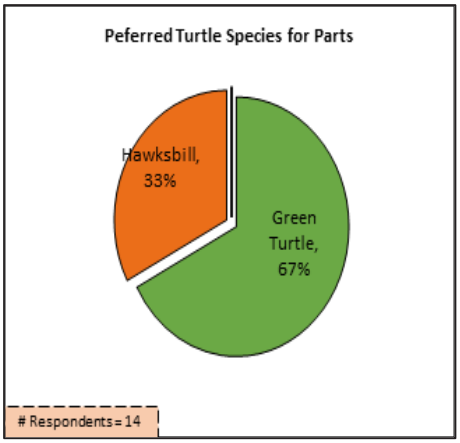

Do people in your community catch turtles?
Yes, 24%
No, 30%
Don't know 46%
Respondents = 63

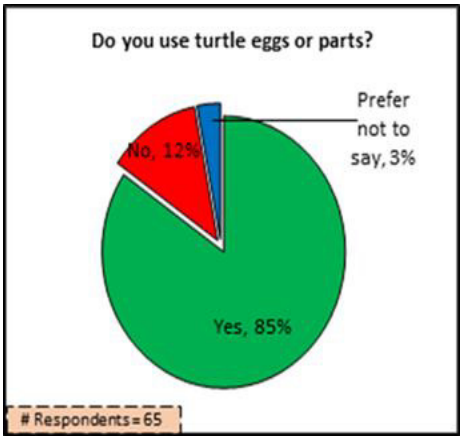

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 7

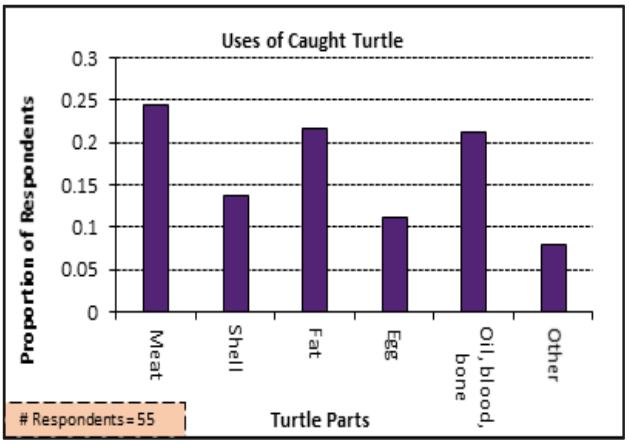

Did you catch any sea turtles in the last year?
Yes, 9%
Prefer not to say, 28%
No, 63%
Respondents = 63

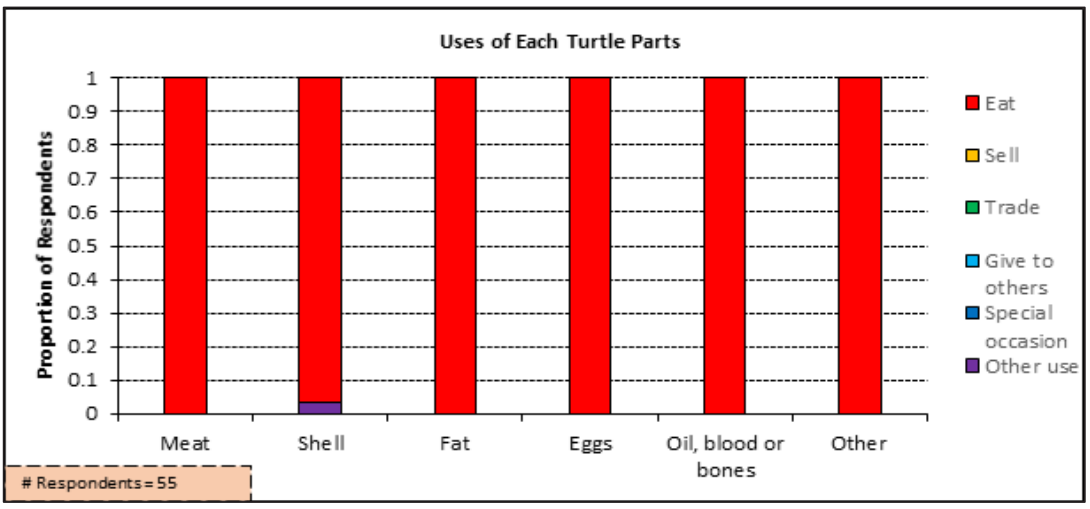

Respondent Turtle Caught Last Year
Proportion by category
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1-2
≤10
>10
>50
>100
Respondents = 6
Number of turtle

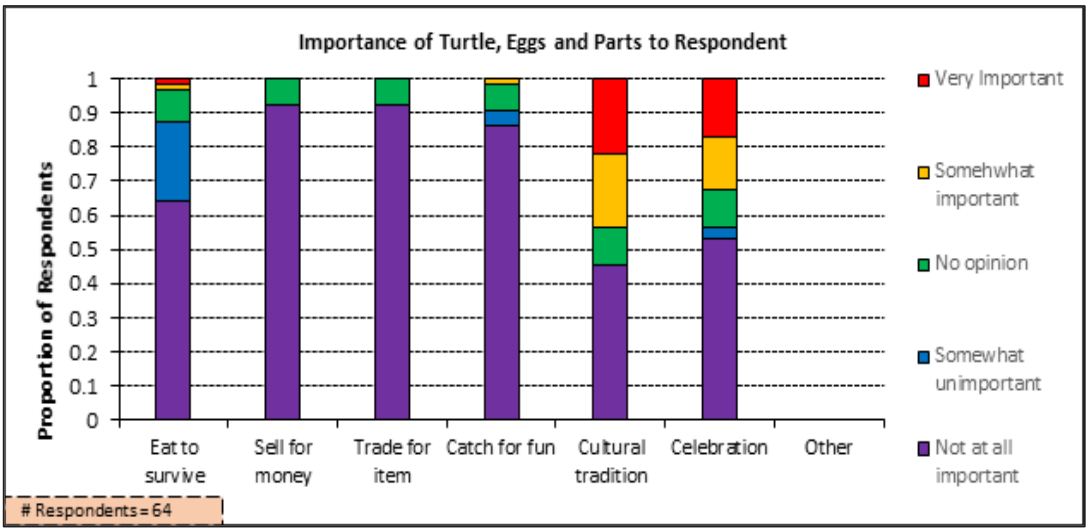

Do you prefer a certain turtle species for each turtle product?
Yes, 24%
No, 76%
Respondents = 59

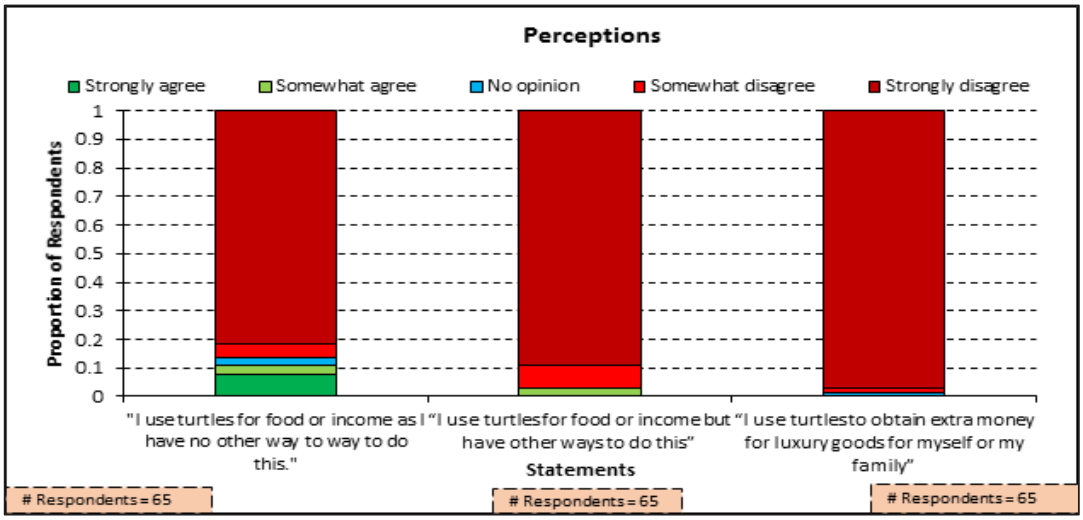

Peferred Turtle Species for Parts
Hawksbill, 33%
Green Turtle, 67%
Respondents = 14

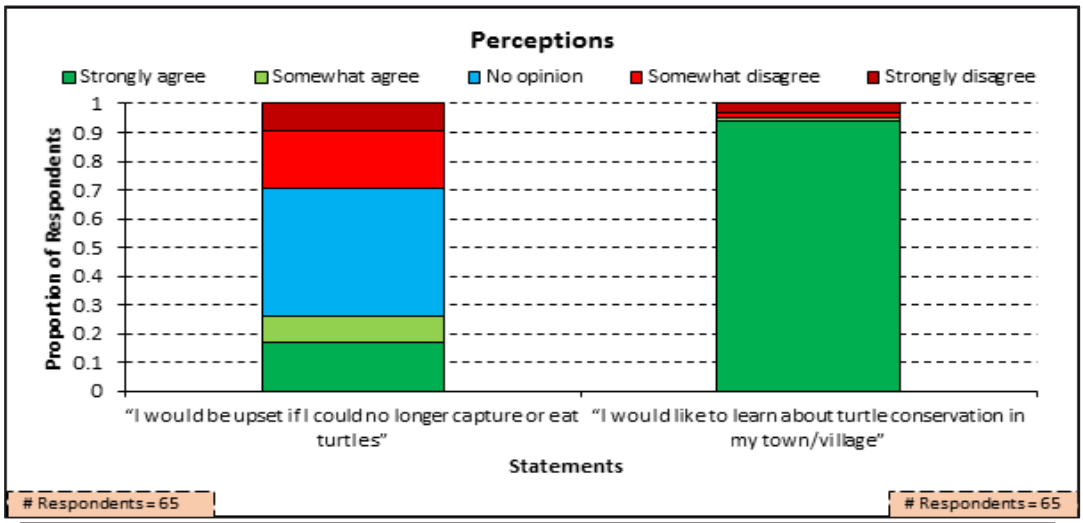

Do you use turtle eggs or parts?
Prefer not to say, 3%
No, 12%
Yes, 85%
Respondents = 65

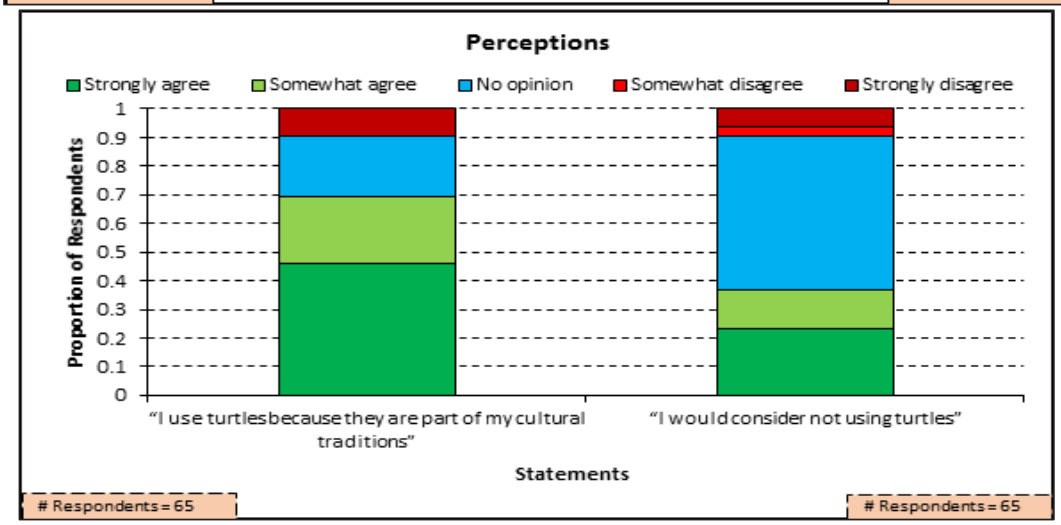

Uses of Caught Turtle
Proportion of Respondents
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Respondents = 55
Turtle Parts


Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 55

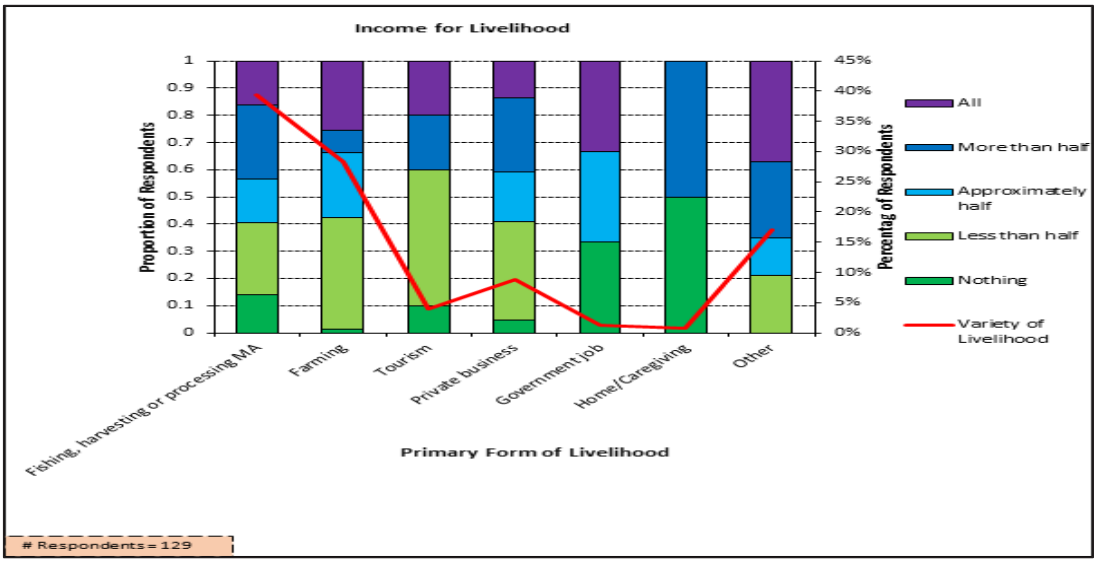

Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 64

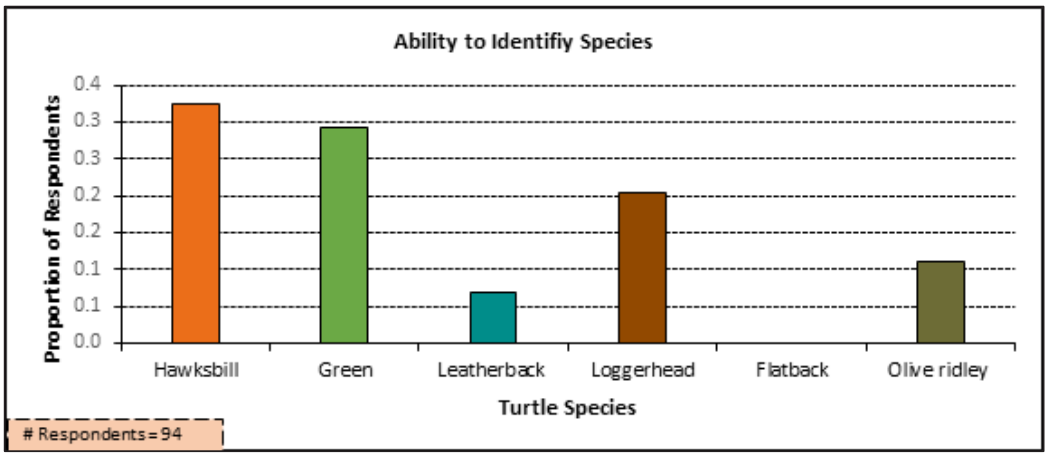

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 65
Respondents = 65
Respondents = 65

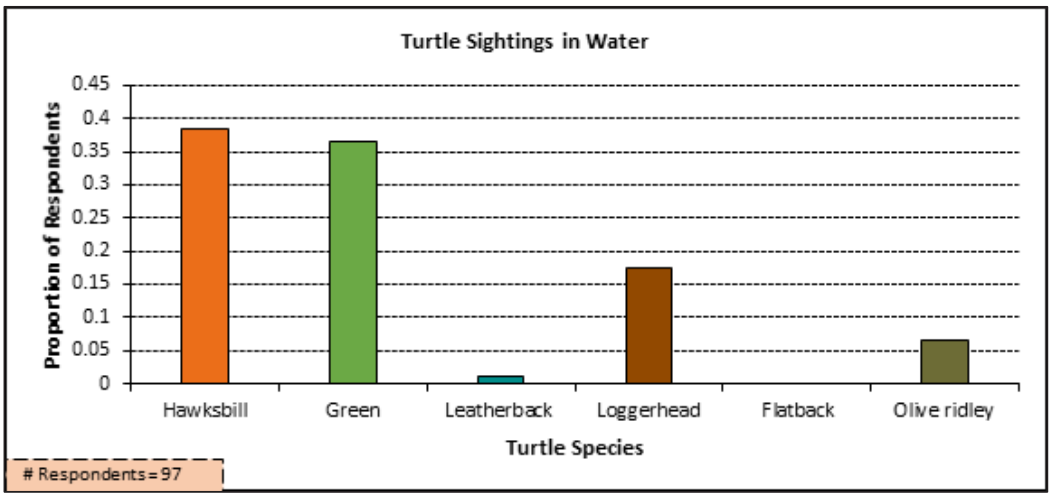

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 65
Respondents = 65

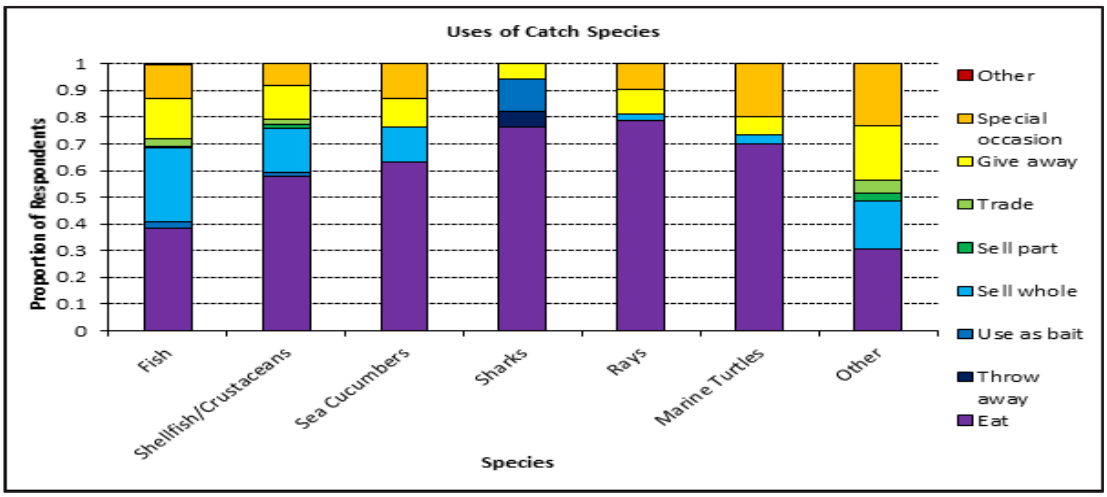

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 65
Respondents = 65

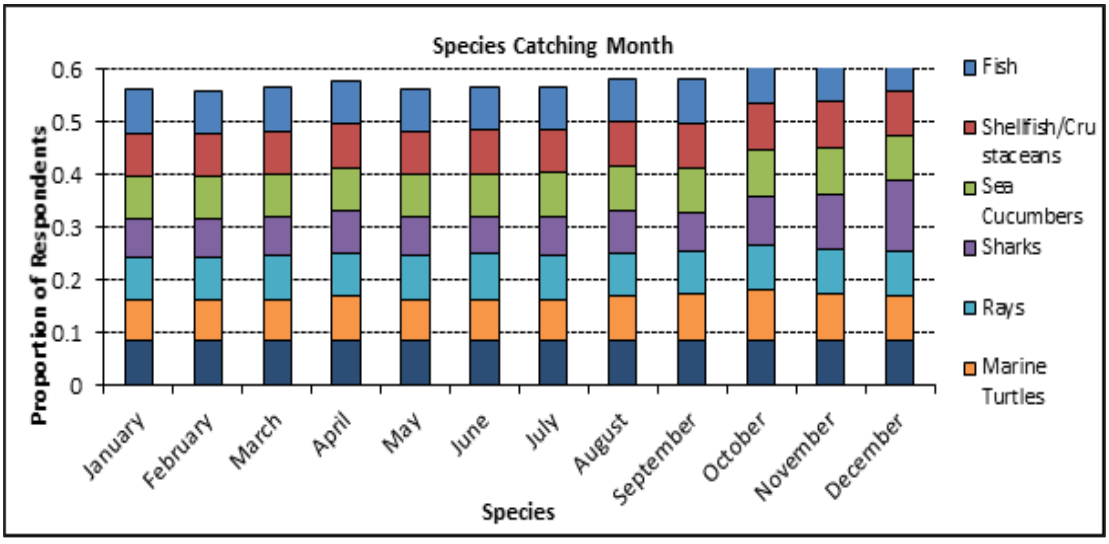
8.1.7 Serua Provincial Results

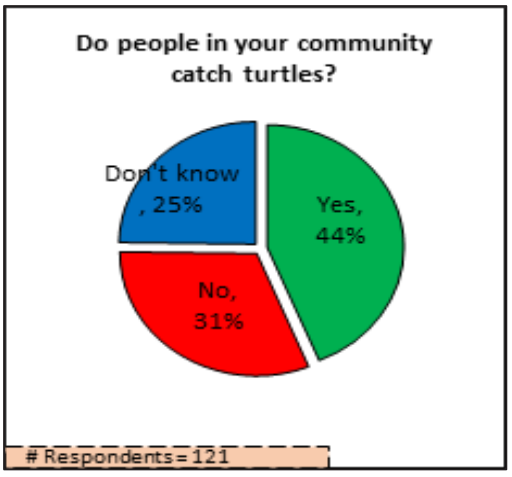


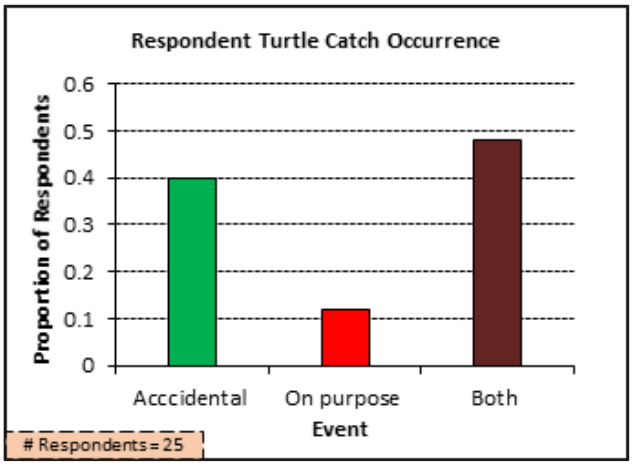


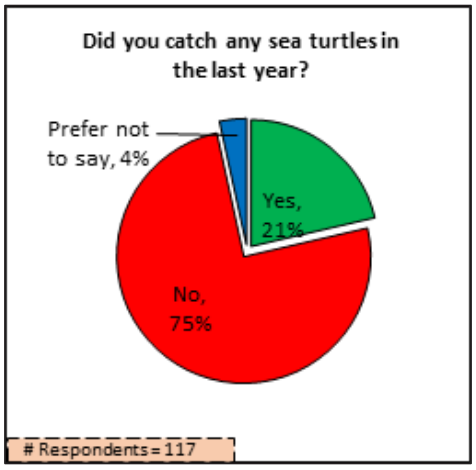


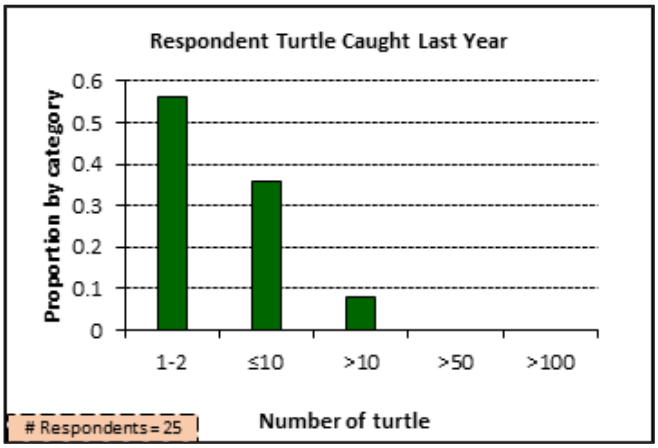

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat

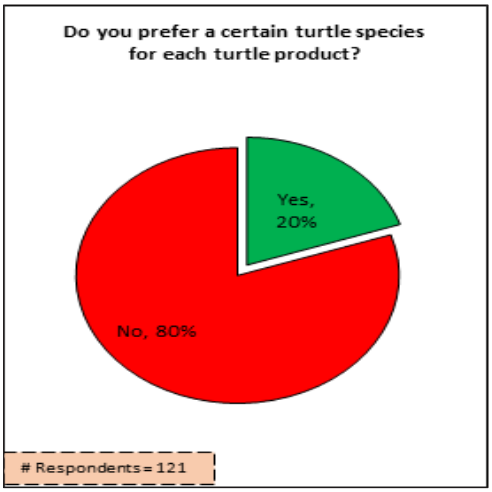

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Species
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles

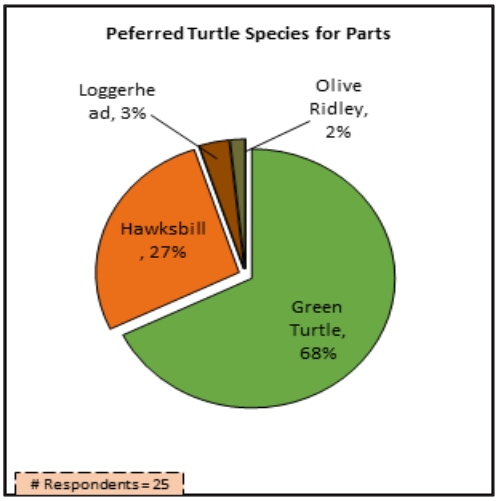

Do people in your community catch turtles?
Don't know, 25%
Yes, 44%
No, 31%
Respondents = 121

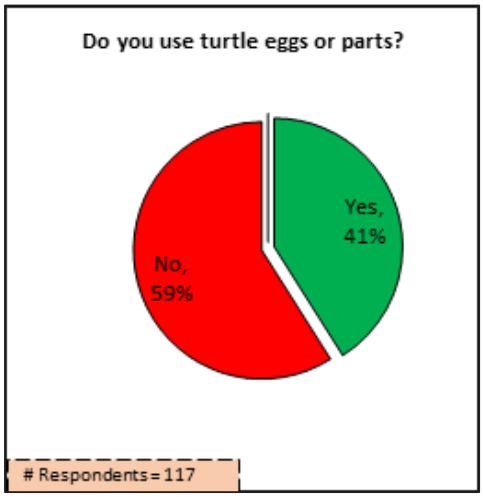

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 25

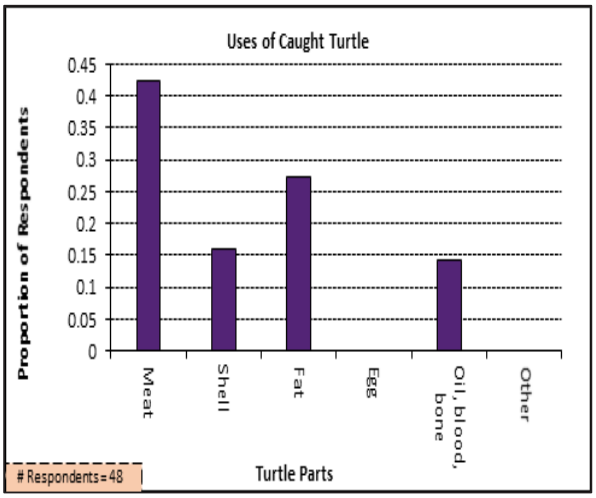

Did you catch any sea turtles in the last year?
Prefer not to say, 4%
Yes, 21%
No, 75%
Respondents = 117

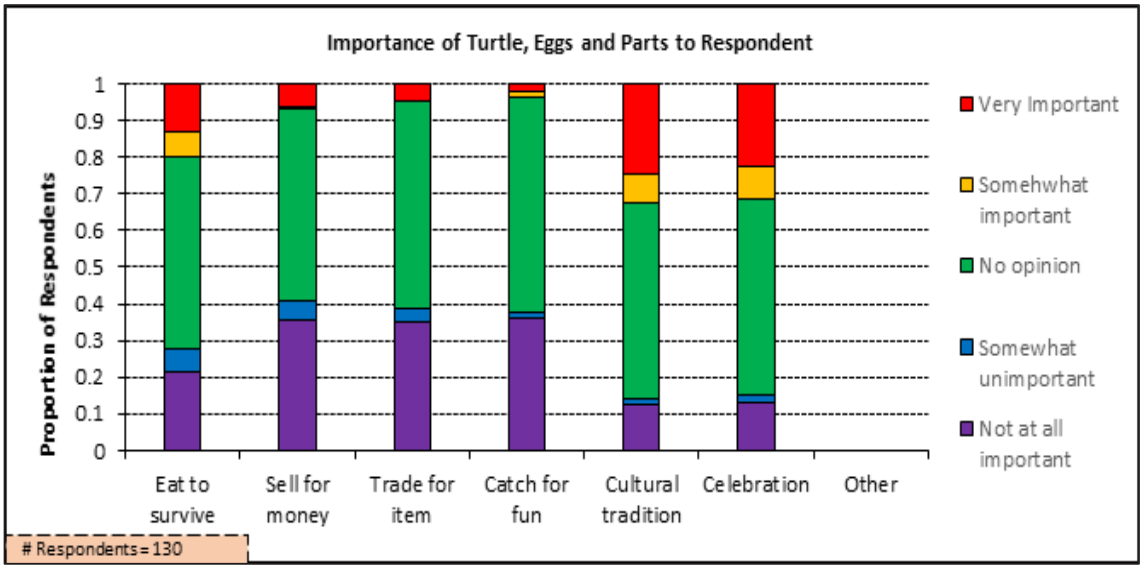

Respondent Turtle Caught Last Year
Proportion by category
0.6
0.5
0.4
0.3
0.2
0.1
0
1-2
≤10
>10
>50
>100
Number of turtle
Respondents = 25

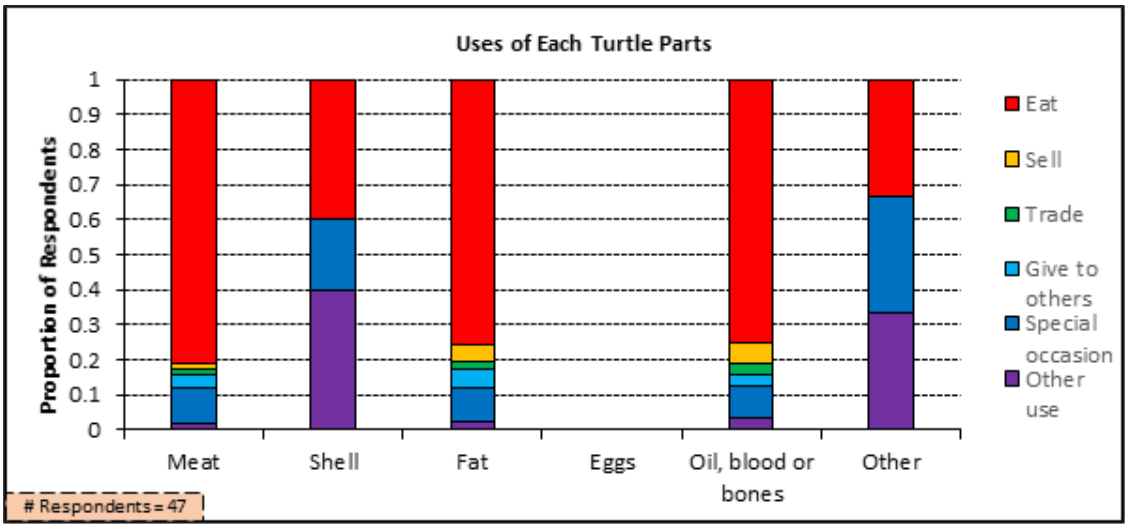

Do you prefer a certain turtle species for each turtle product?
Yes, 20%
No, 80%
Respondents = 121

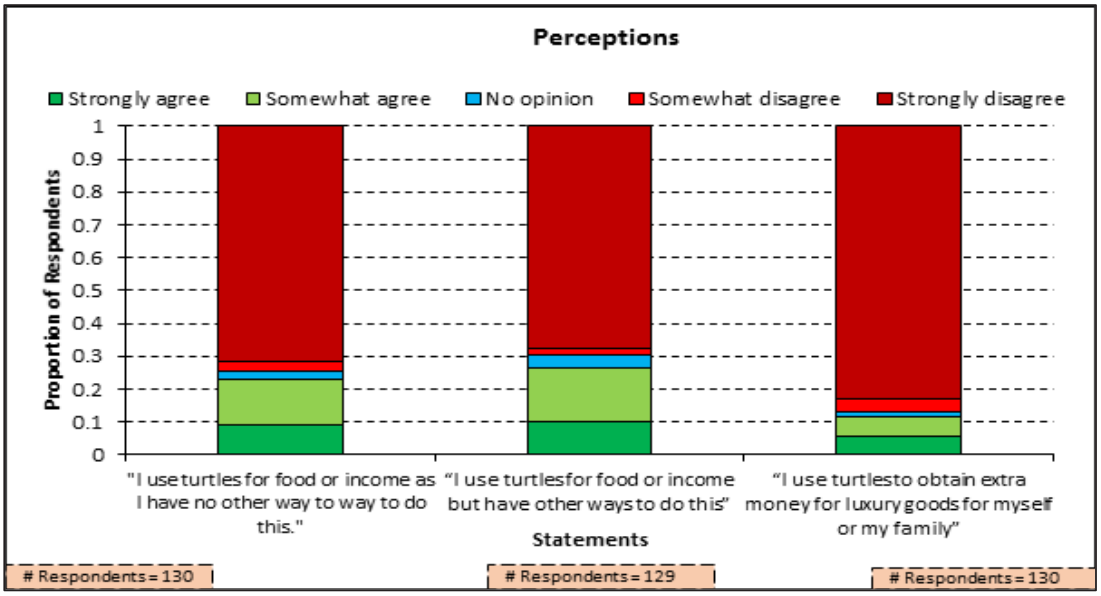

Peferred Turtle Species for Parts
Loggerhead, 3%
Olive Ridley, 2%
Hawksbill, 27%
Green Turtle, 68%
Respondents = 25

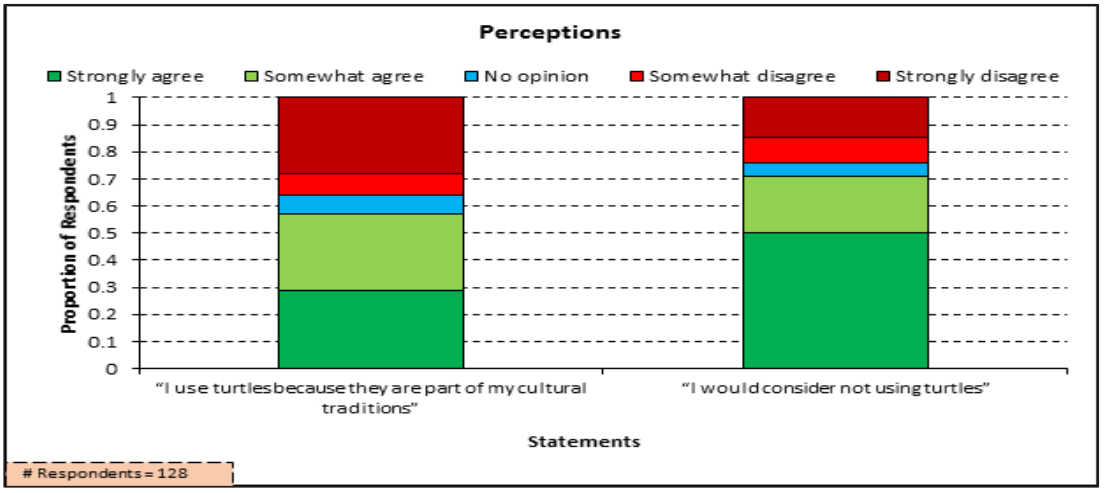

Do you use turtle eggs or parts?
Yes, 41%
No, 59%
Respondents = 117

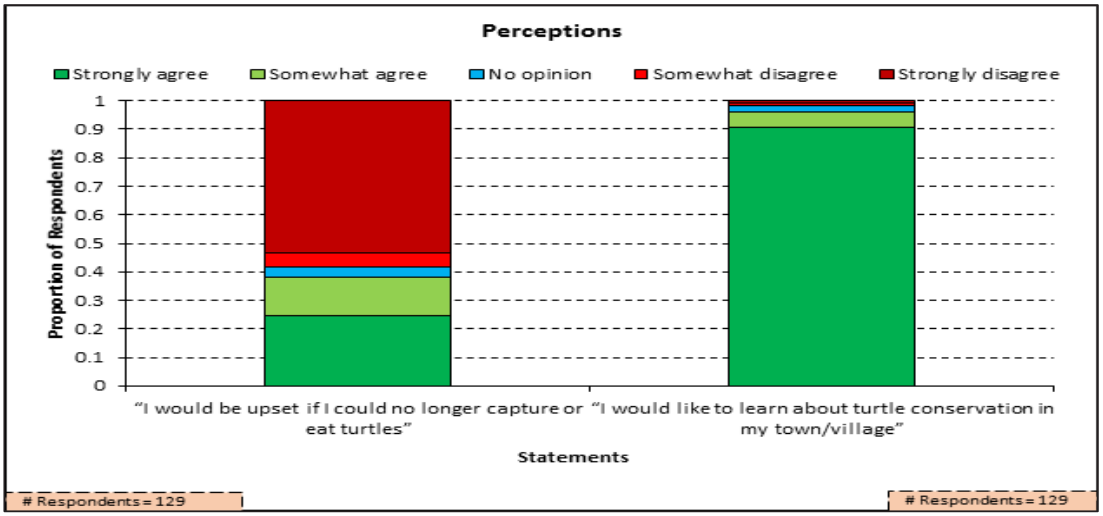

Uses of Caught Turtle
Proportion of Respondents
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Turtle Parts
Respondents = 48


Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 130

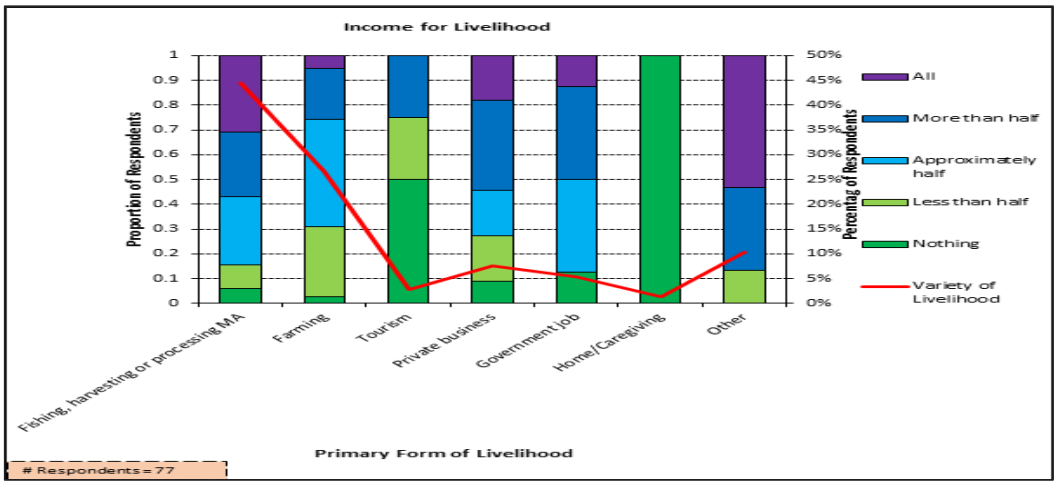

Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 47

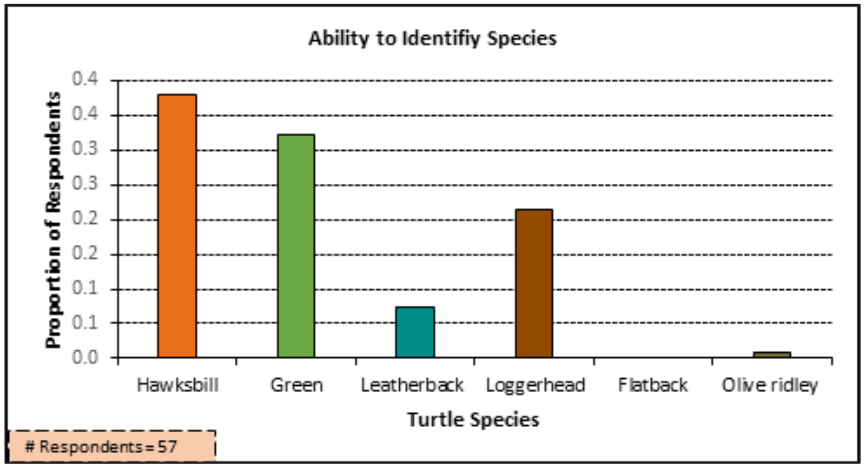

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 130
Respondents = 129
Respondents = 130

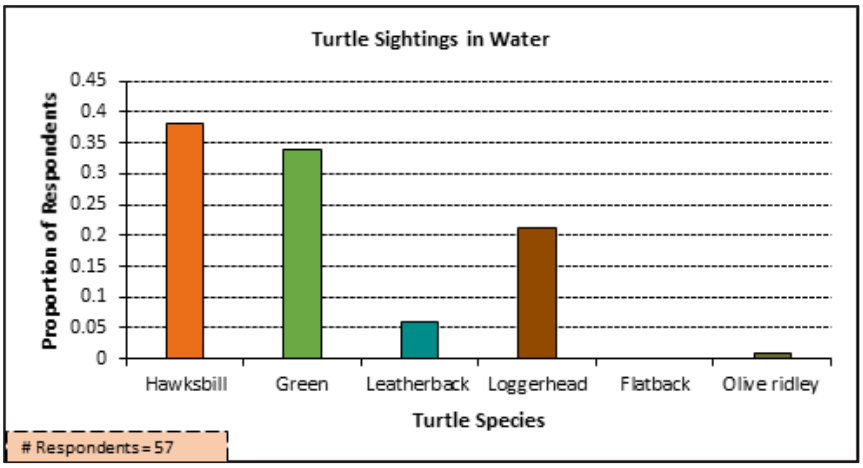

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 128

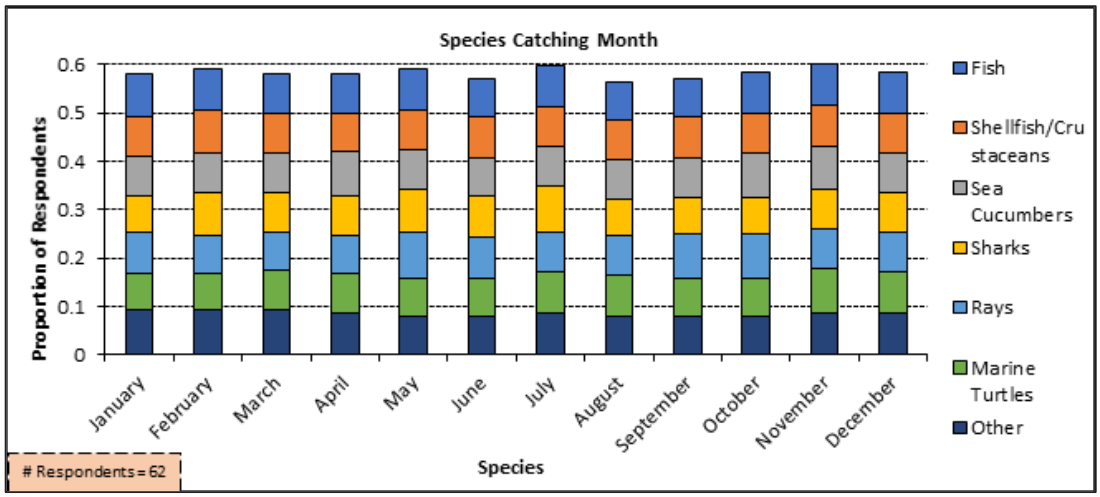

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 129
Respondents = 129

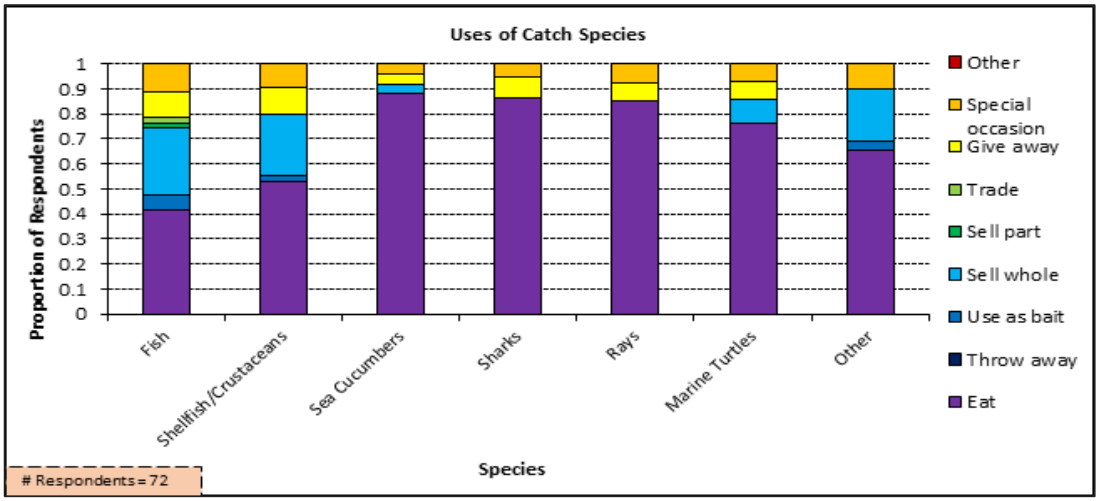
8.1.8 Rewa Provincial Results

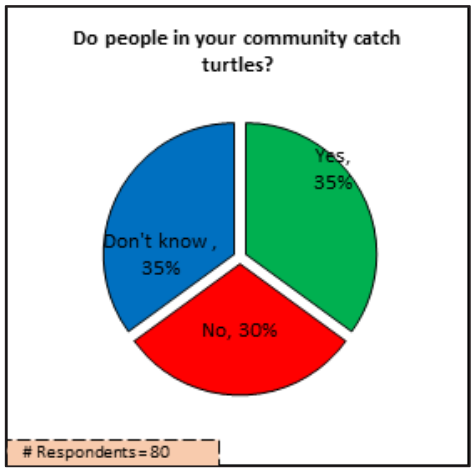


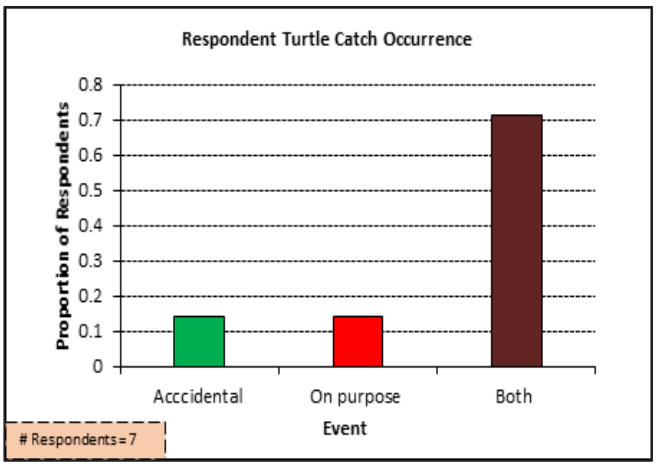


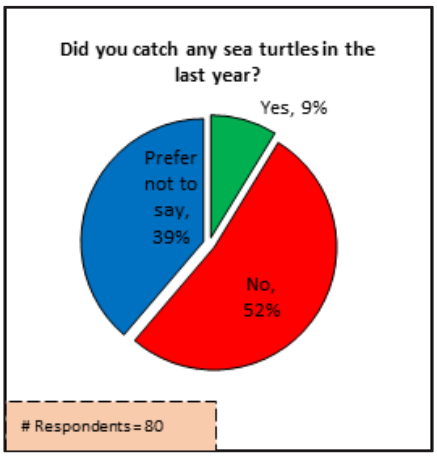


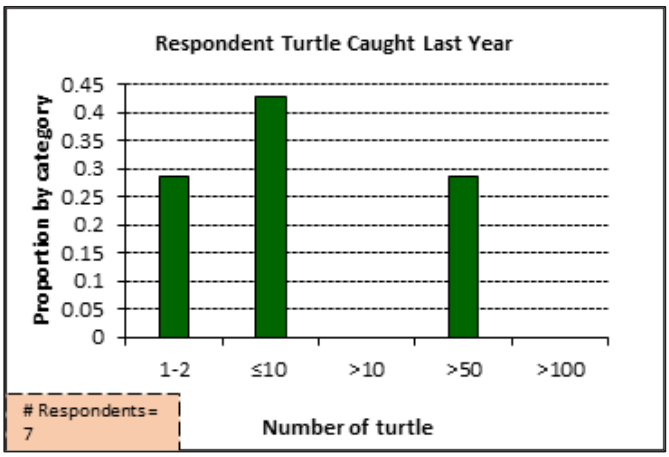

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Species
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Respondents = 62

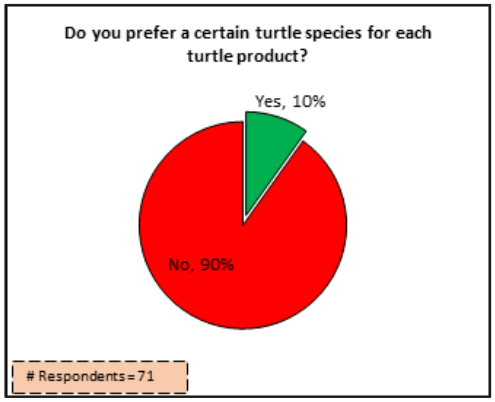

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 72

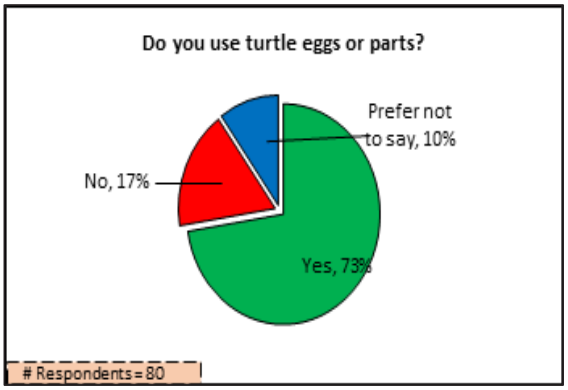

Do people in your community catch turtles?
Yes, 35%
No, 30%
Don't know , 35%
Respondents = 80

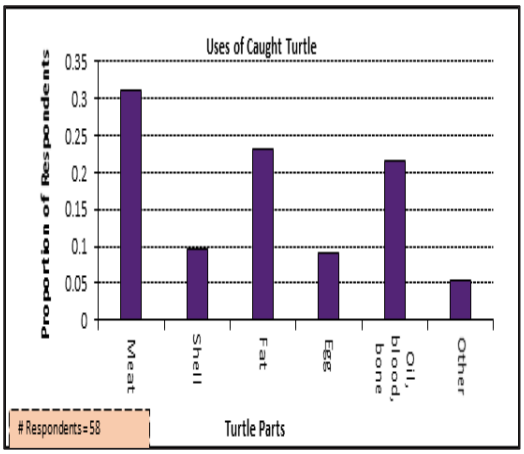

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 7

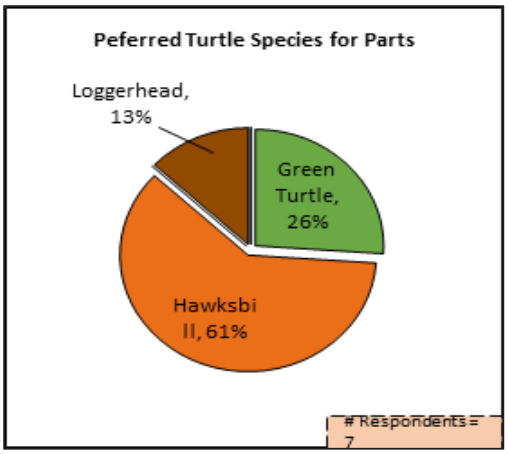

Did you catch any sea turtles in the last year?
Yes, 9%
Prefer not to say, 39%
No, 52%
Respondents = 80

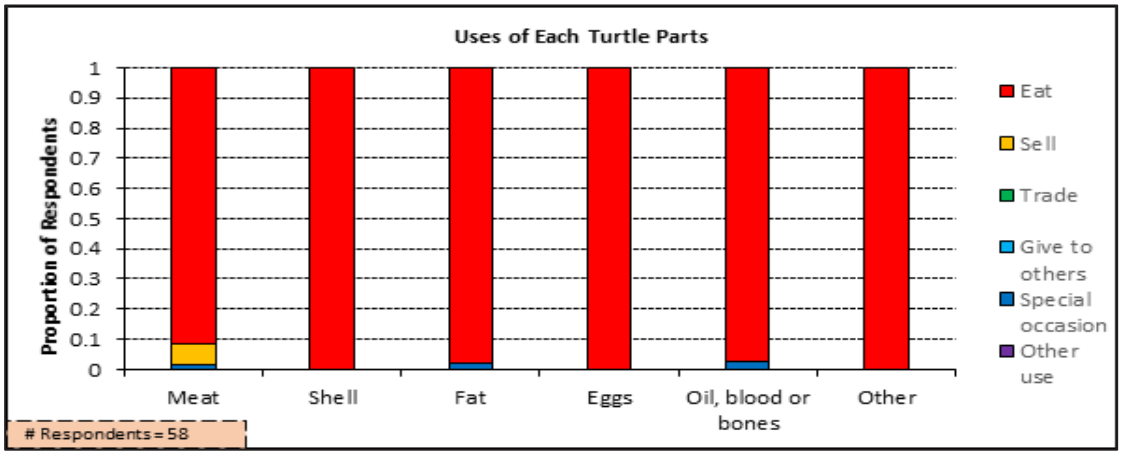

Respondent Turtle Caught Last Year
Proportion by category
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1-2
≤10
>10
>50
>100
Respondents = 7
Number of turtle

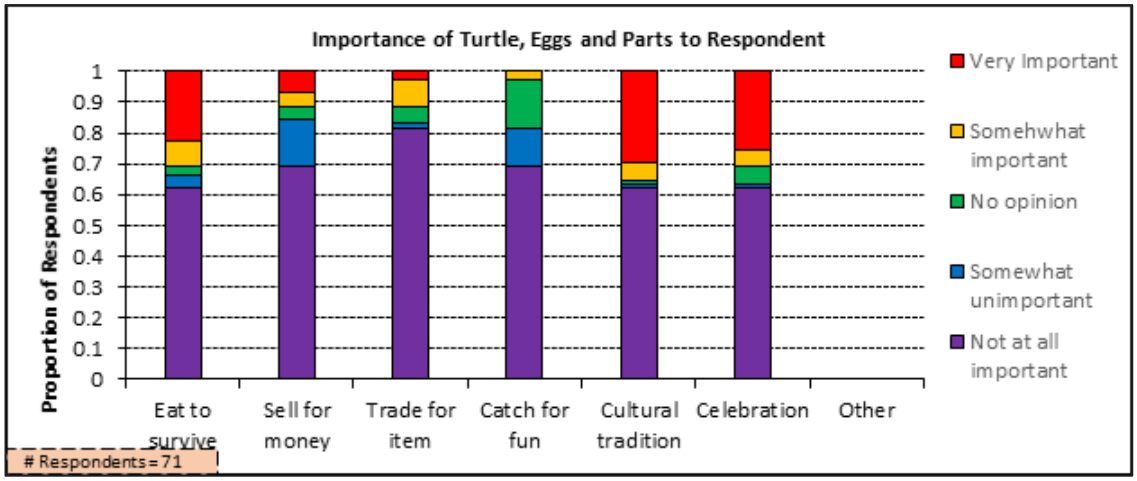

Do you prefer a certain turtle species for each turtle product?
Yes, 10%
No, 90%
Respondents = 71

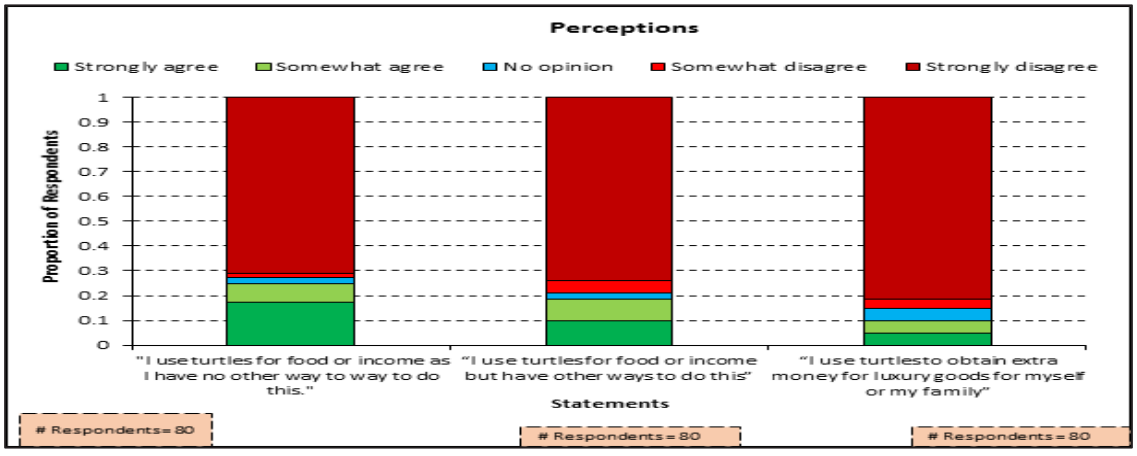

Do you use turtle eggs or parts?
Prefer not to say, 10%
No, 17%
Yes, 73%
Respondents = 80

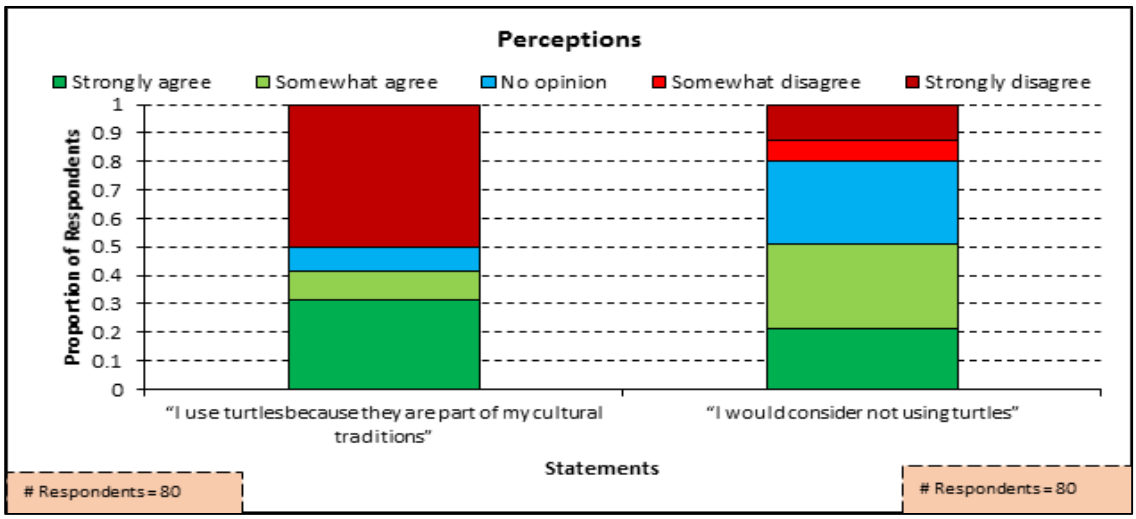

Uses of Caught Turtle
Proportion of Respondents
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Respondents = 58
Turtle Parts

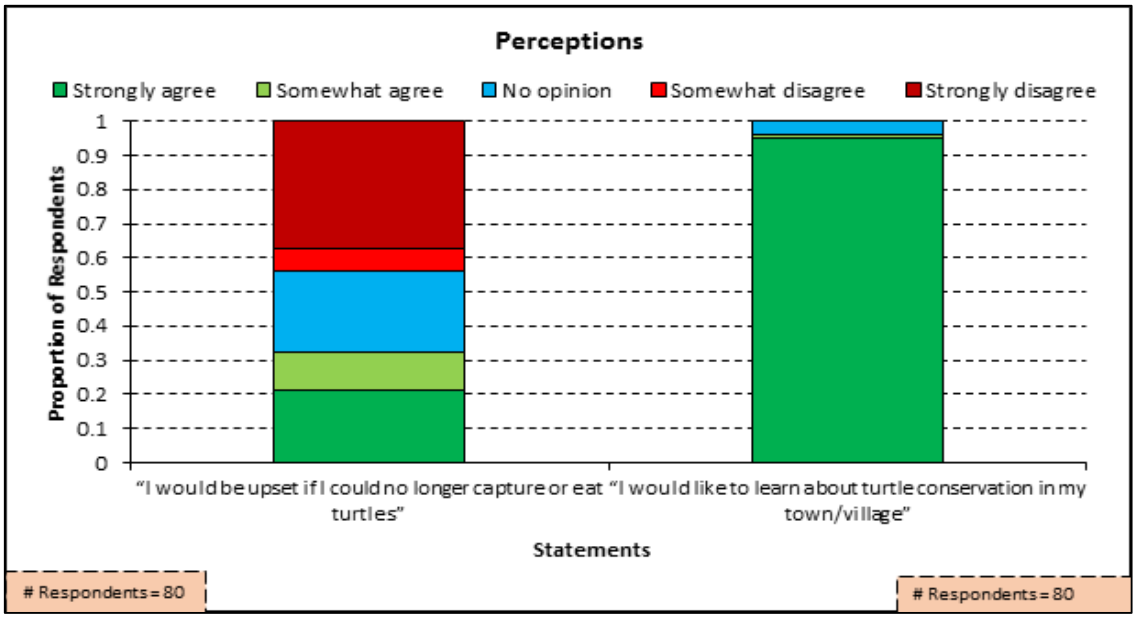

Peferred Turtle Species for Parts
Loggerhead, 13%
Green Turtle, 26%
Hawksbill, 61%
Respondents = 7


Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 58

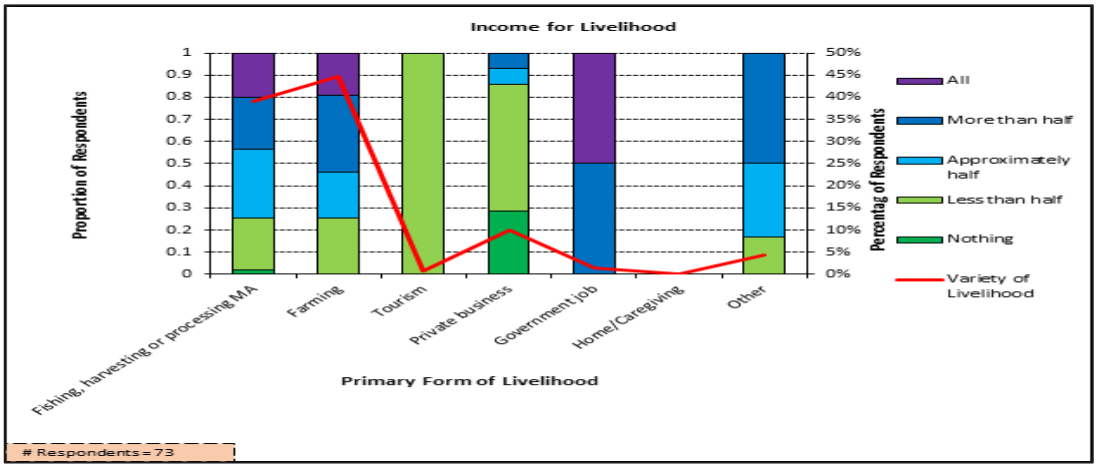

Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Sell for money
Trade for item
Catch for fun
Cultural tradition
Celebration
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 71

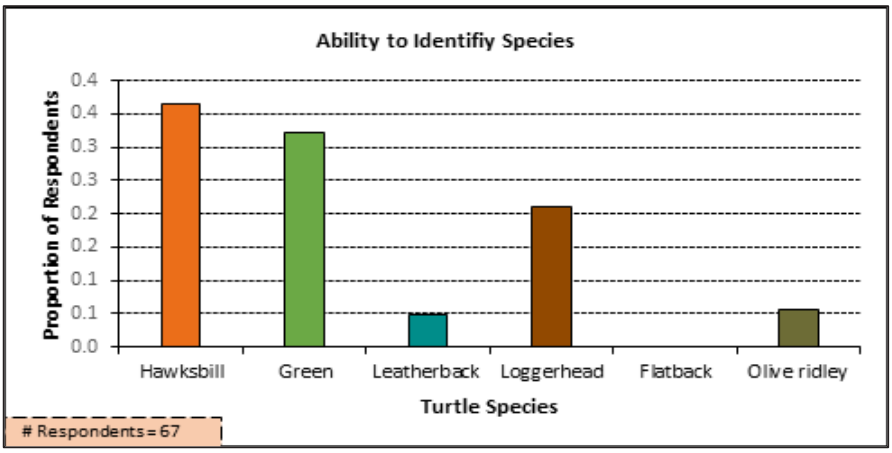

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 80
Respondents = 80
Respondents = 80

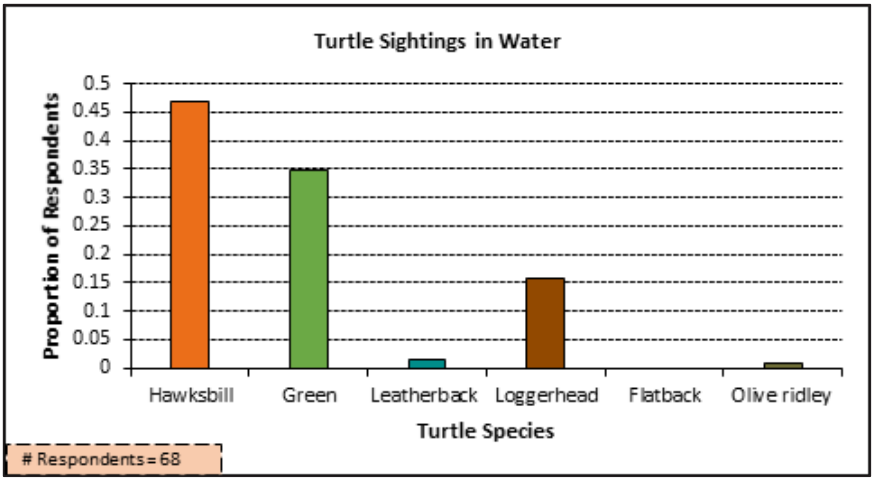

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 80
Respondents = 80

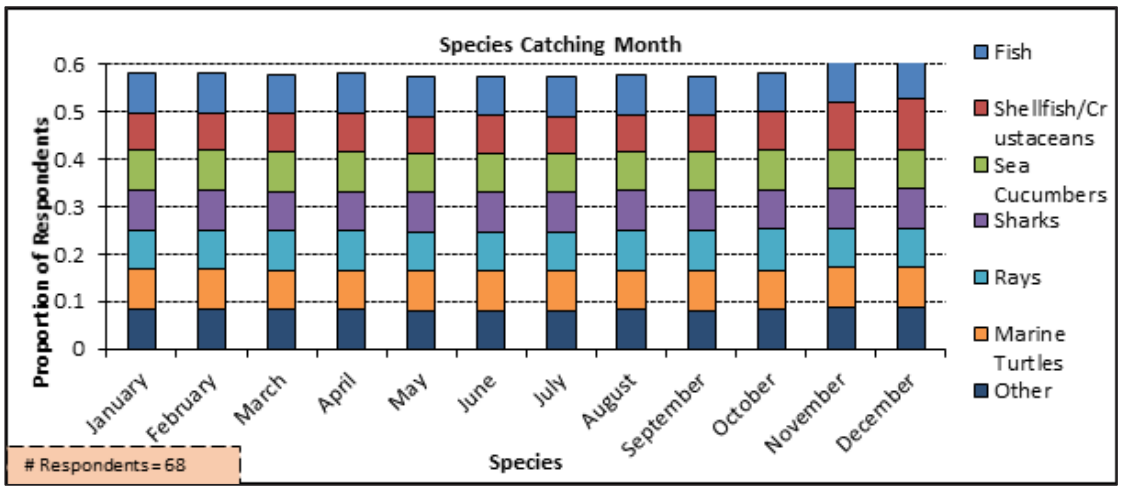

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 80
Respondents = 80

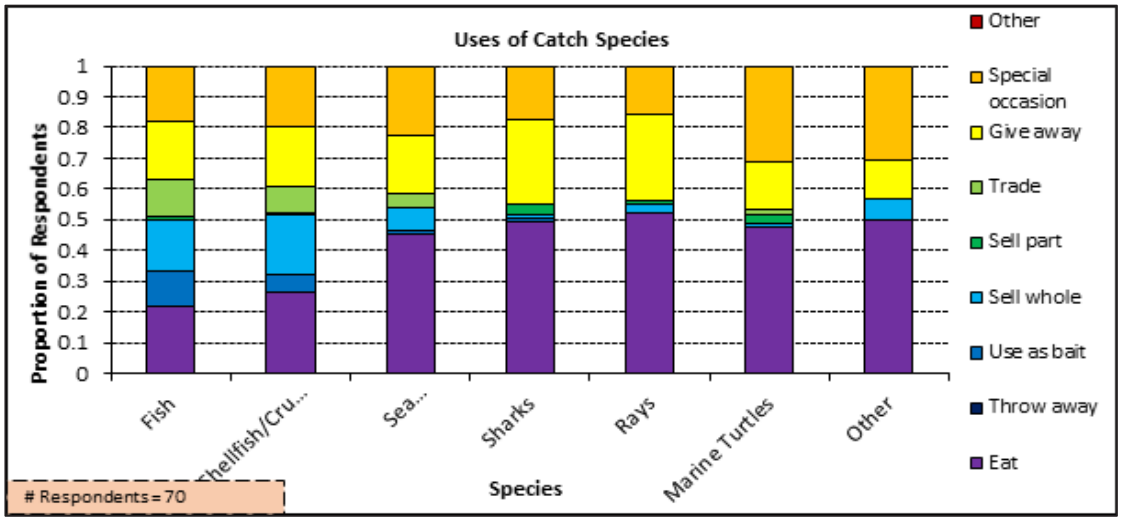
8.1.9 Tailevu Provincial Results

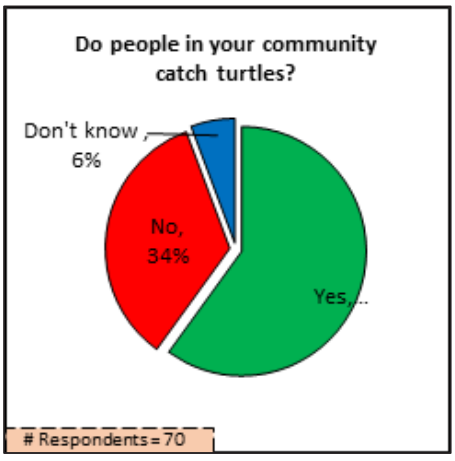


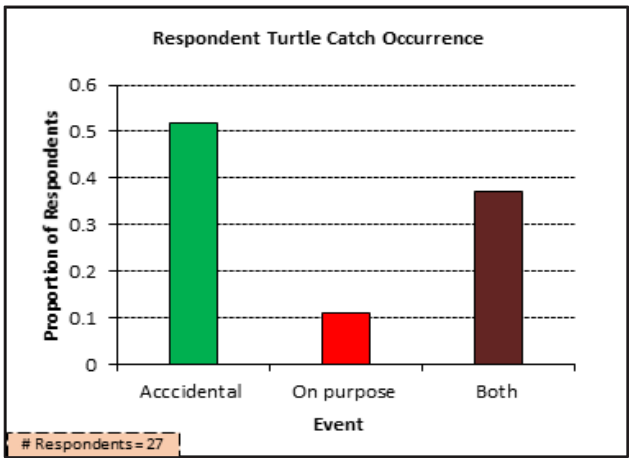


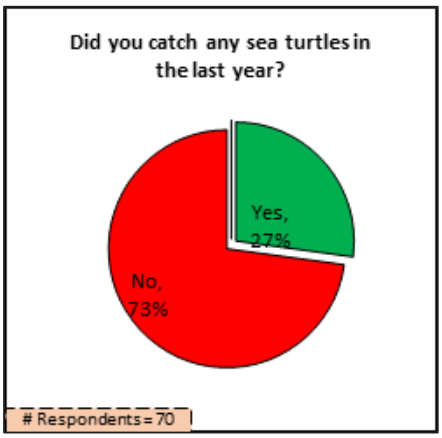


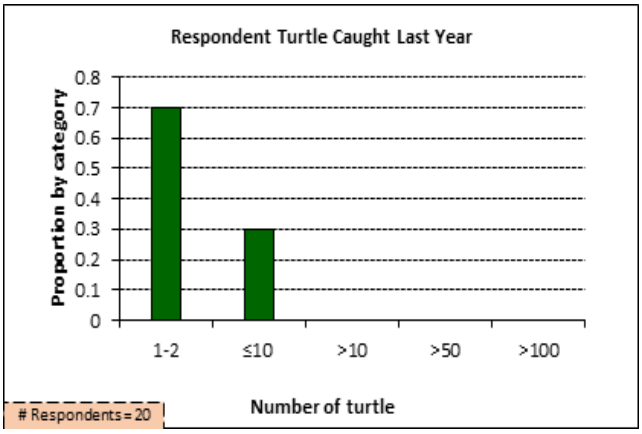

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Species
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Respondents = 68

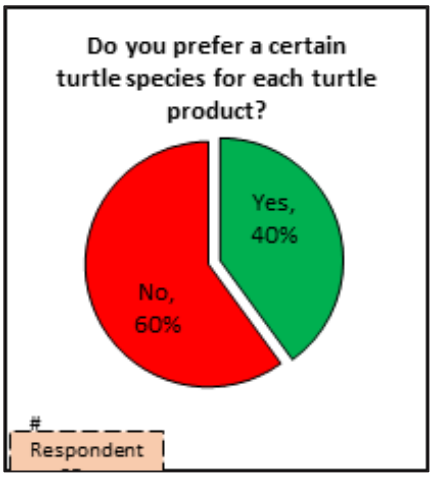

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Sea...
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 70

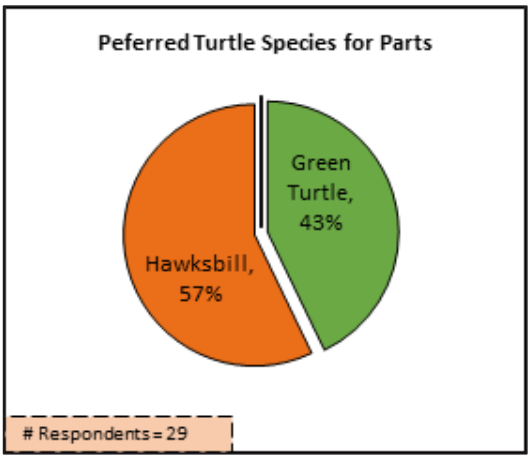

Do people in your community catch turtles?
Don't know, 6%
No, 34%
Yes,...
Respondents = 70

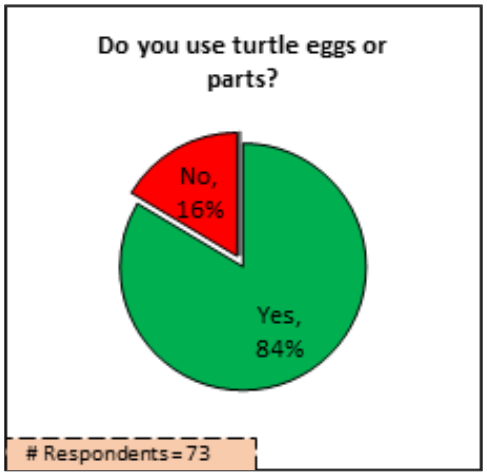

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 27

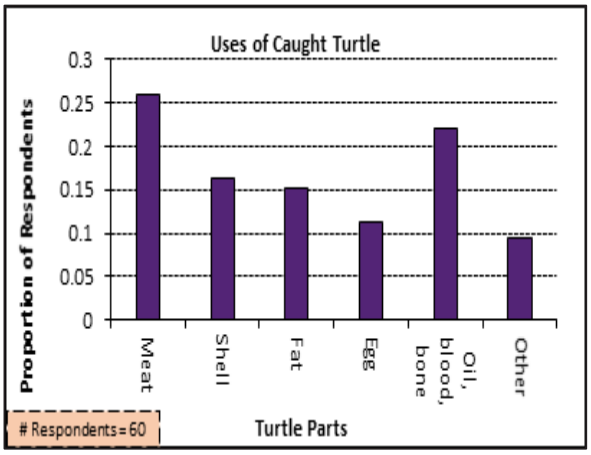

Did you catch any sea turtles in the last year?
Yes, 27%
No, 73%
Respondents = 70

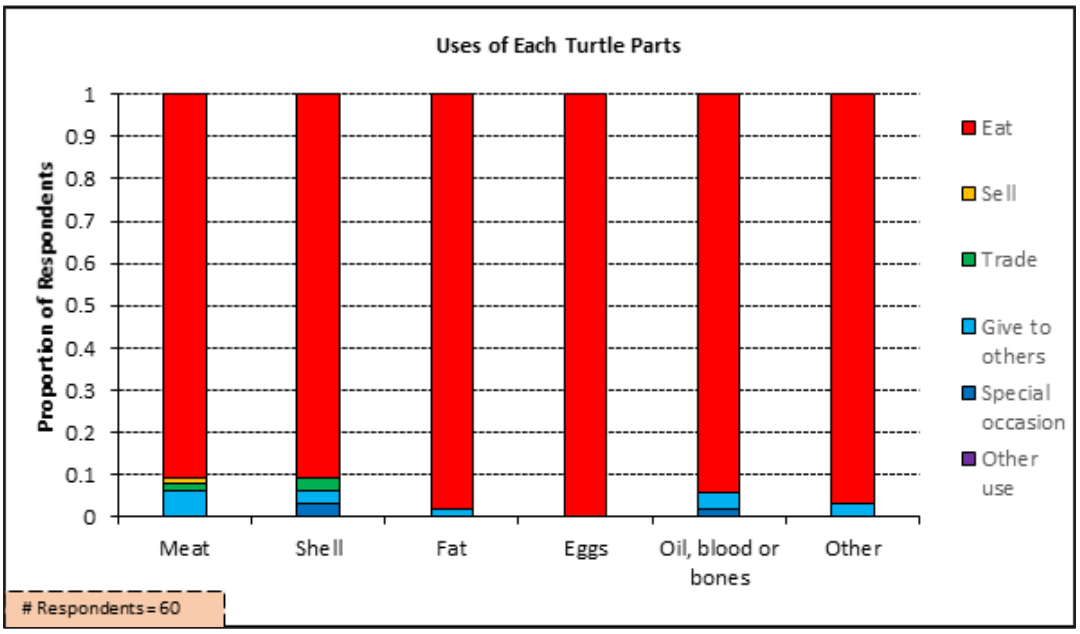

Respondent Turtle Caught Last Year
Proportion by category
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1-2
≤10
>10
>50
>100
Number of turtle
Respondents = 20

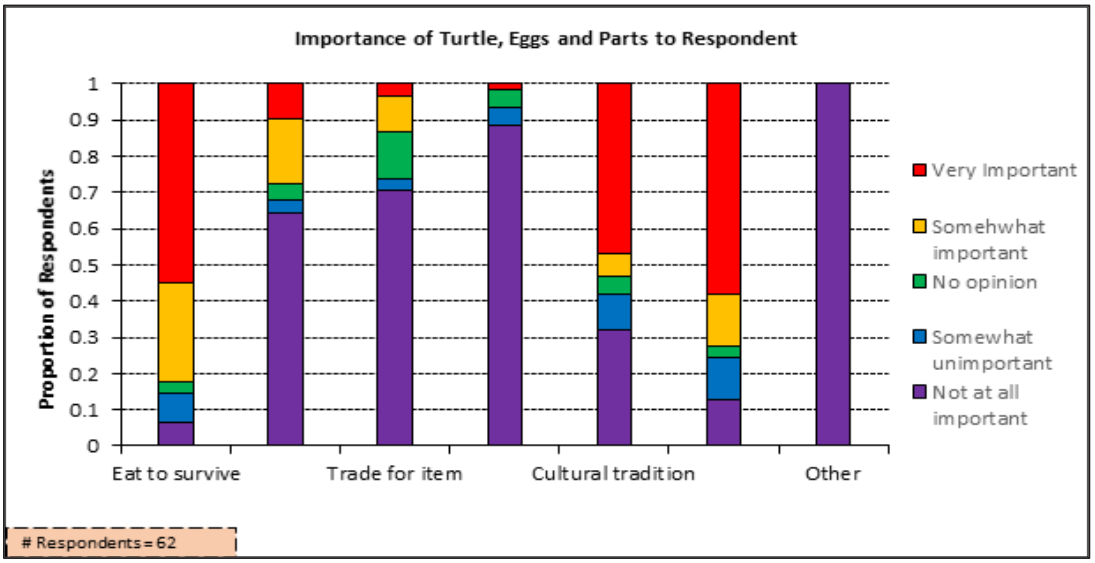

Do you prefer a certain turtle species for each turtle product?
Yes, 40%
No, 60%
Respondent

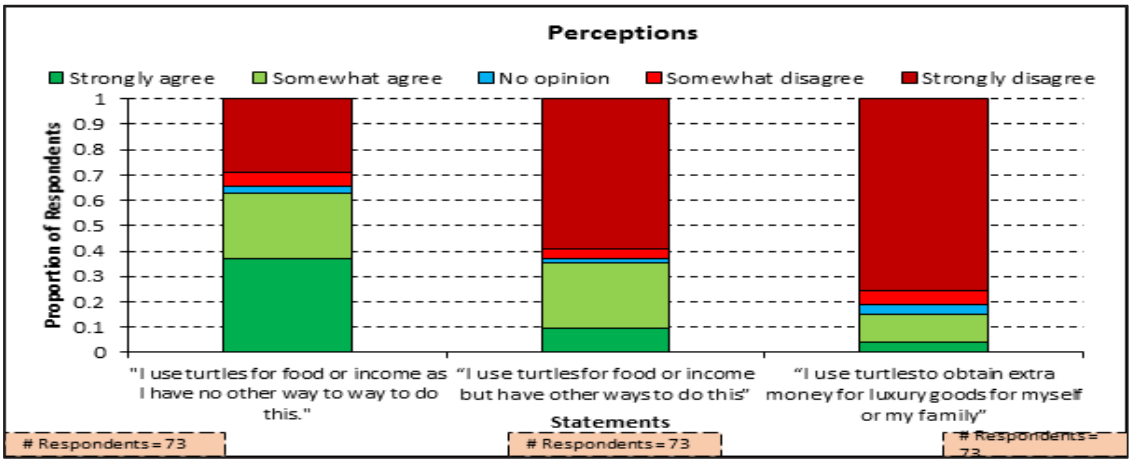

Peferred Turtle Species for Parts
Green Turtle, 43%
Hawksbill, 57%
Respondents = 29

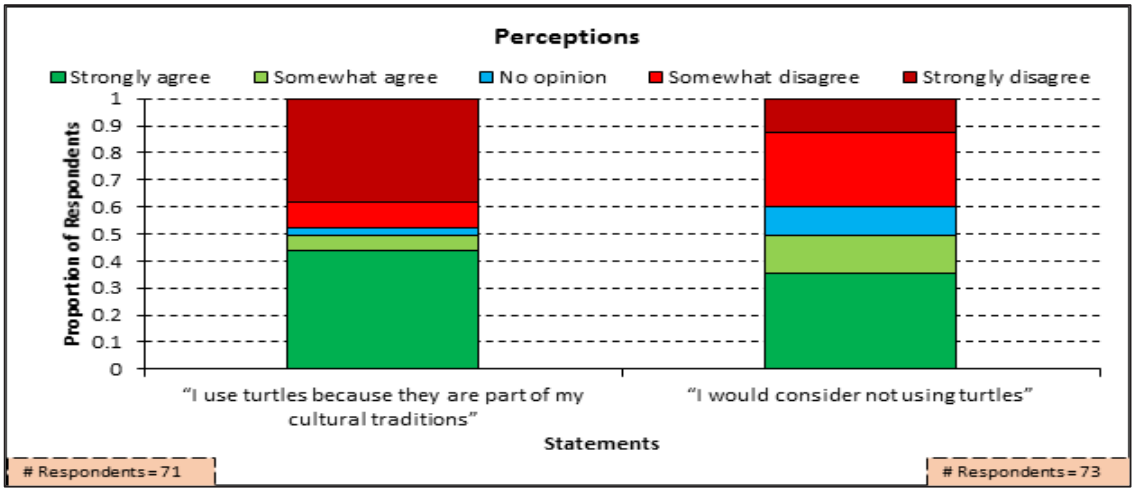

Do you use turtle eggs or parts?
No, 16%
Yes, 84%
Respondents = 73

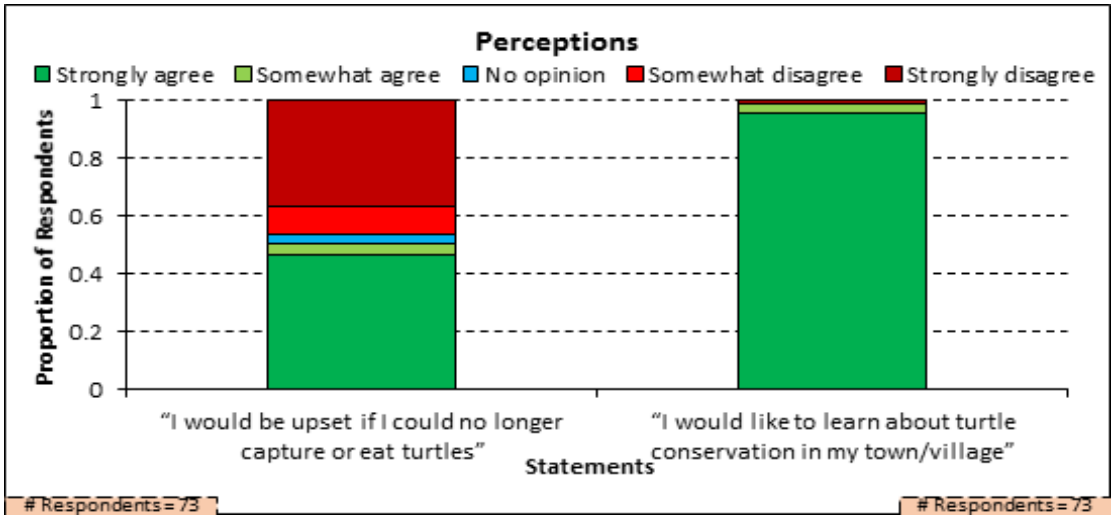

Uses of Caught Turtle
Proportion of Respondents
0.3
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood, bone
Other
Turtle Parts
Respondents = 60


Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use
Respondents = 60

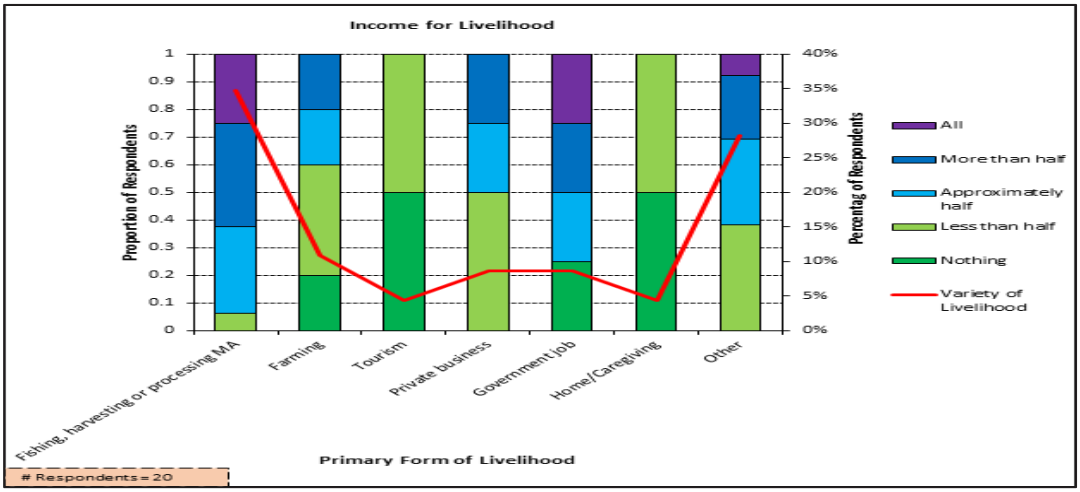

Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Trade for item
Cultural tradition
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 62

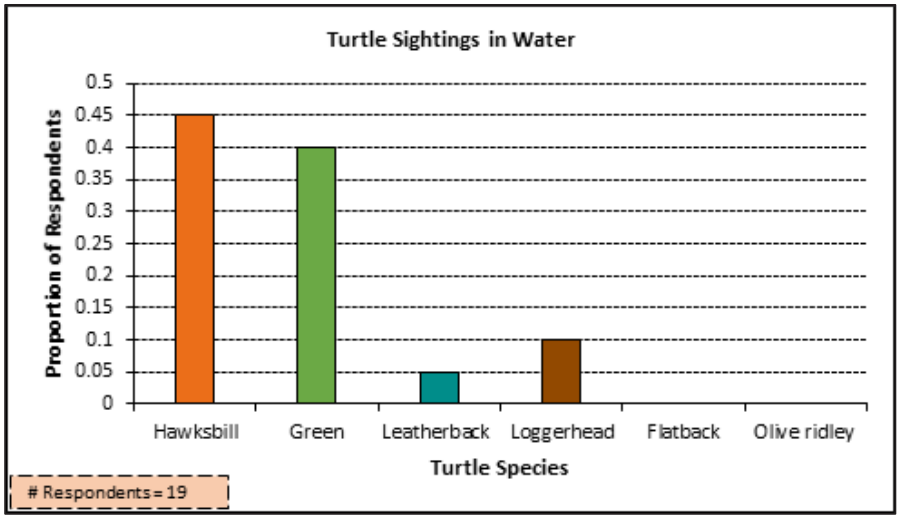

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 73
Respondents = 73
Respondents = 73

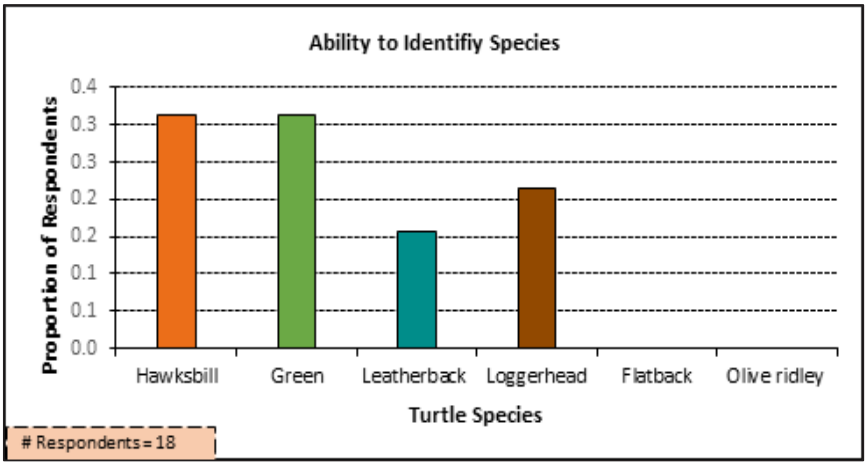

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 71
Respondents = 73

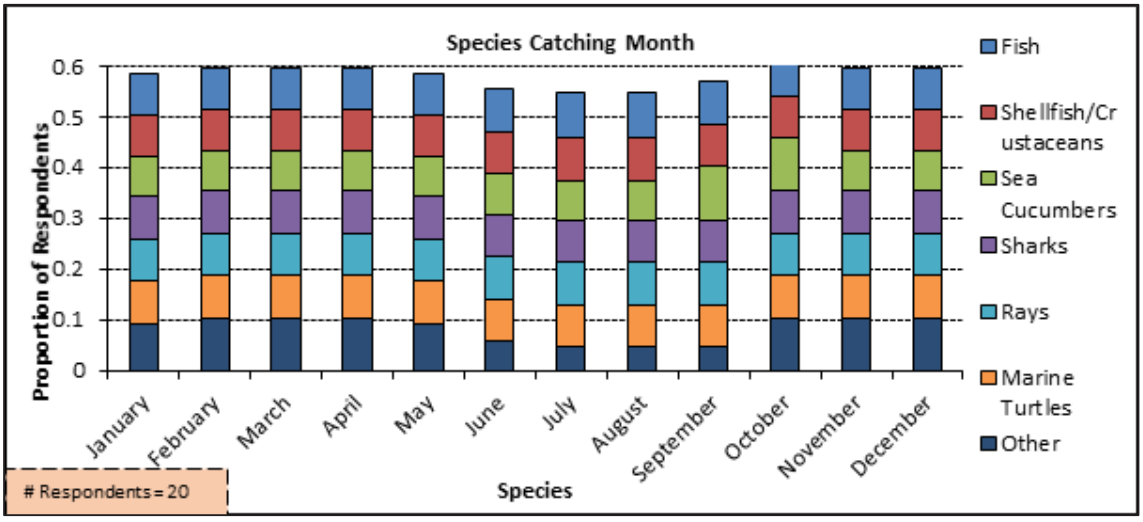

Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.8
0.6
0.4
0.2
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 73
Respondents = 73

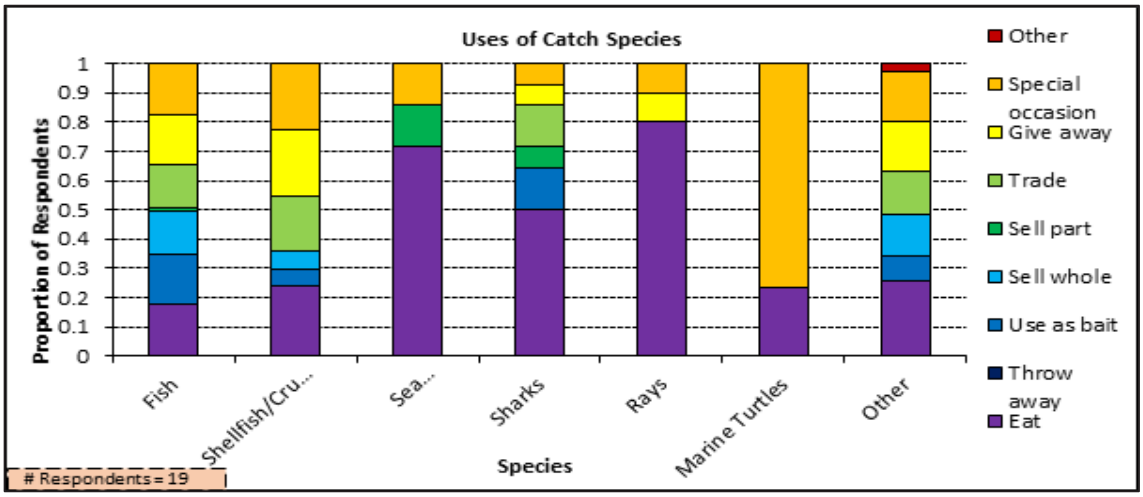
8.1.10 Yadua, Bua Results

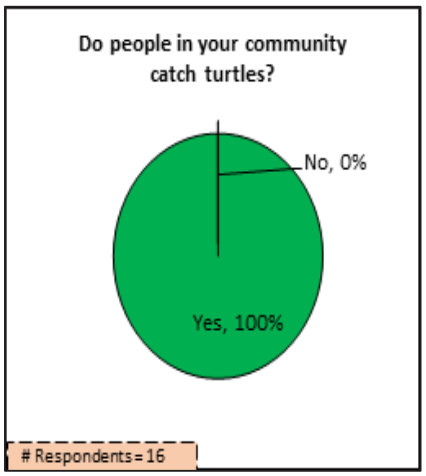


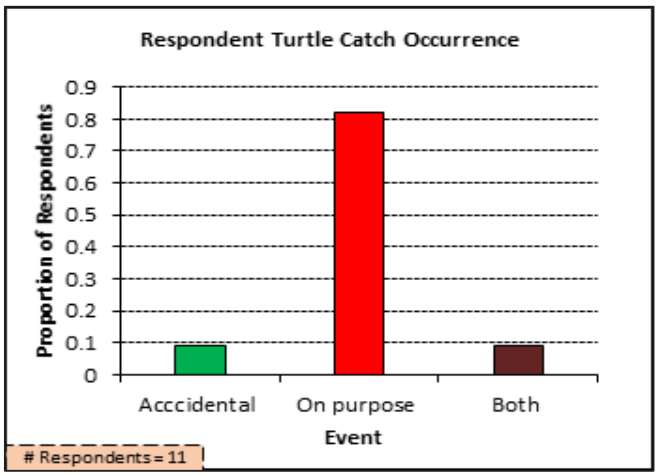


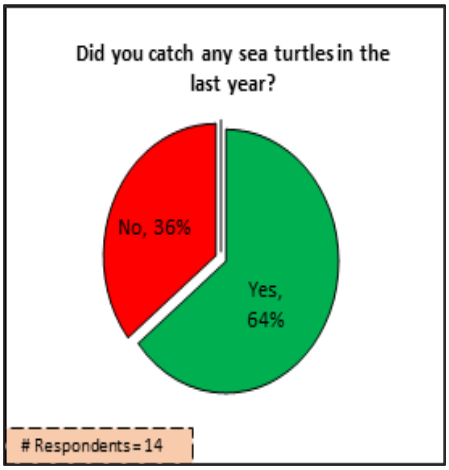


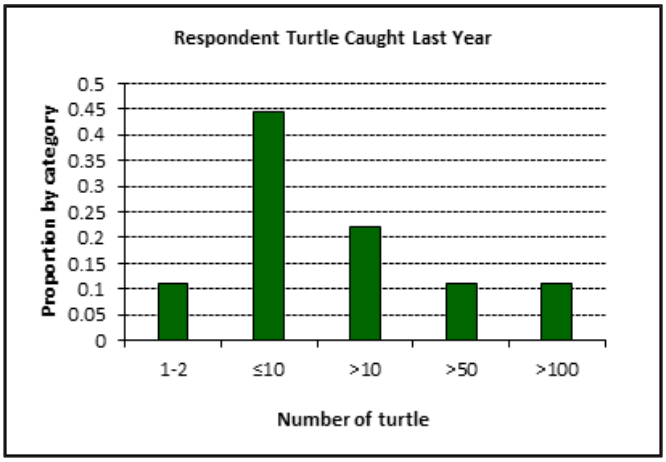

Species Catching Month
Proportion of Respondents
0.6
0.5
0.4
0.3
0.2
0.1
0
January
February
March
April
May
June
July
August
September
October
November
December
Species
Fish
Shellfish/Crustaceans
Sea Cucumbers
Sharks
Rays
Marine Turtles
Other
Respondents = 20

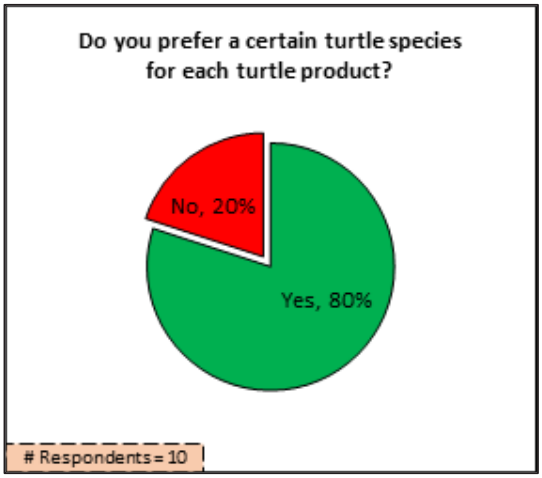

Uses of Catch Species
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fish
Shellfish/Cru...
Sea...
Sharks
Rays
Marine Turtles
Other
Species
Other
Special occasion
Give away
Trade
Sell part
Sell whole
Use as bait
Throw away
Eat
Respondents = 19

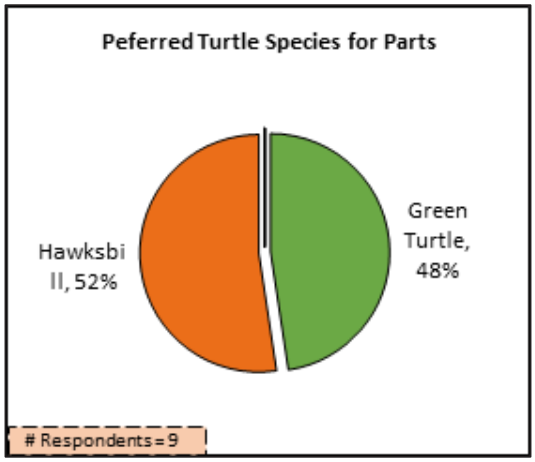

Do people in your community catch turtles?
No, 0%
Yes, 100%
Respondents = 16

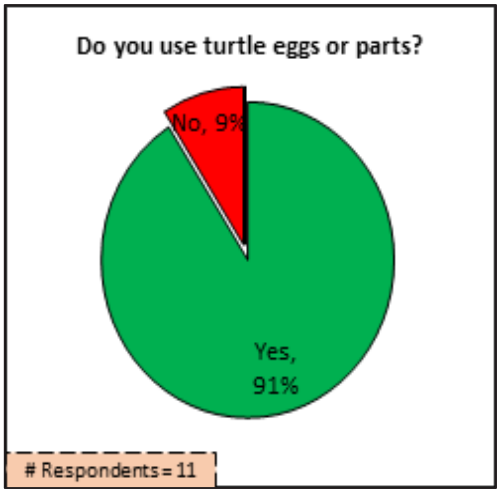

Respondent Turtle Catch Occurrence
Proportion of Respondents
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Acccidental
On purpose
Both
Event
Respondents = 11

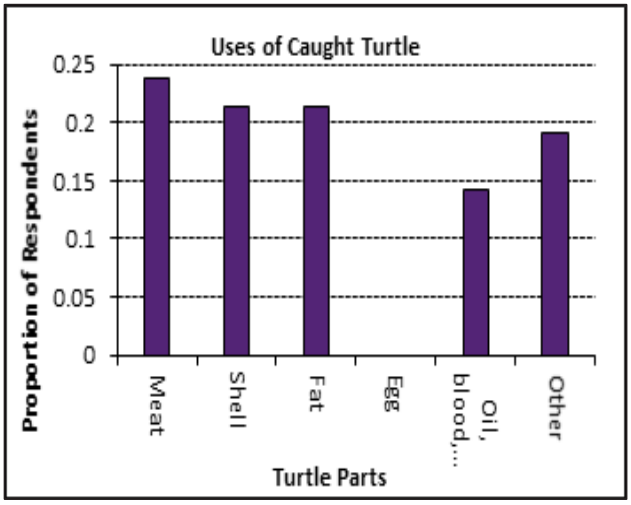

Did you catch any sea turtles in the last year?
No, 36%
Yes, 64%
Respondents = 14

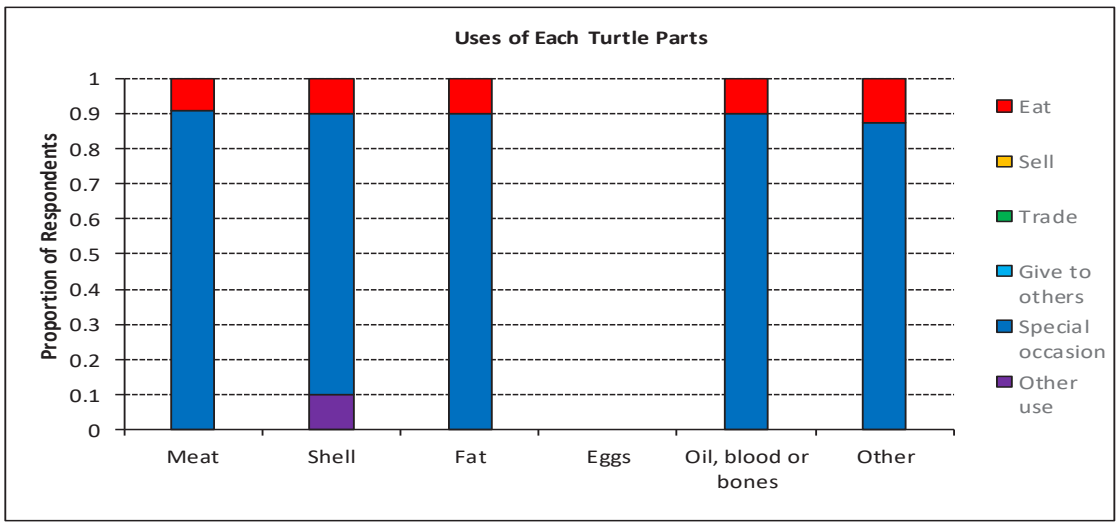

Respondent Turtle Caught Last Year
Proportion by category
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1-2
≤10
>10
>50
>100
Number of turtle

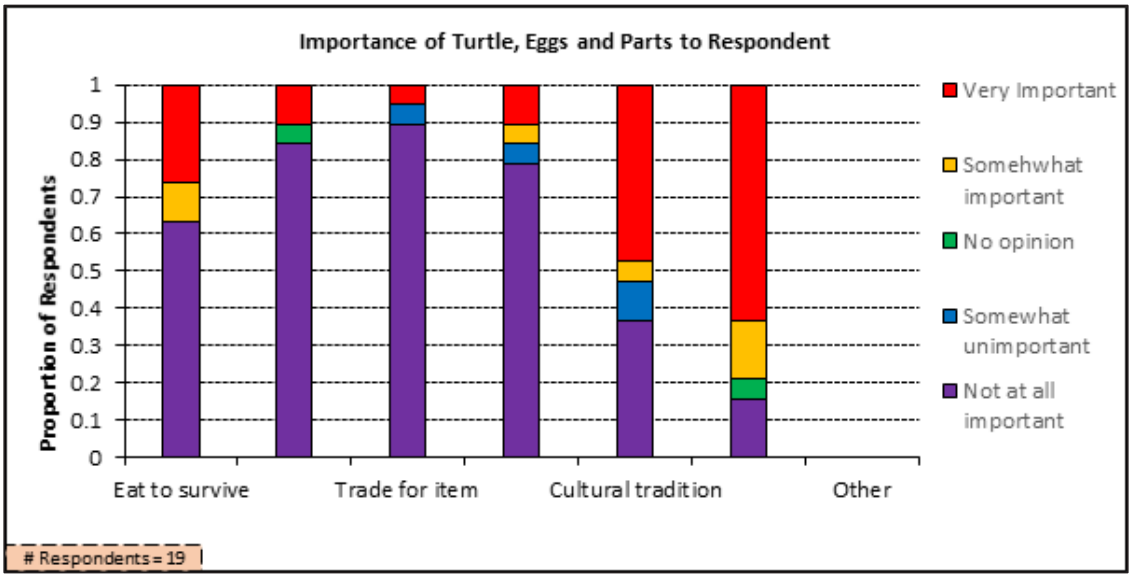

Do you prefer a certain turtle species for each turtle product?
No, 20%
Yes, 80%
Respondents = 10

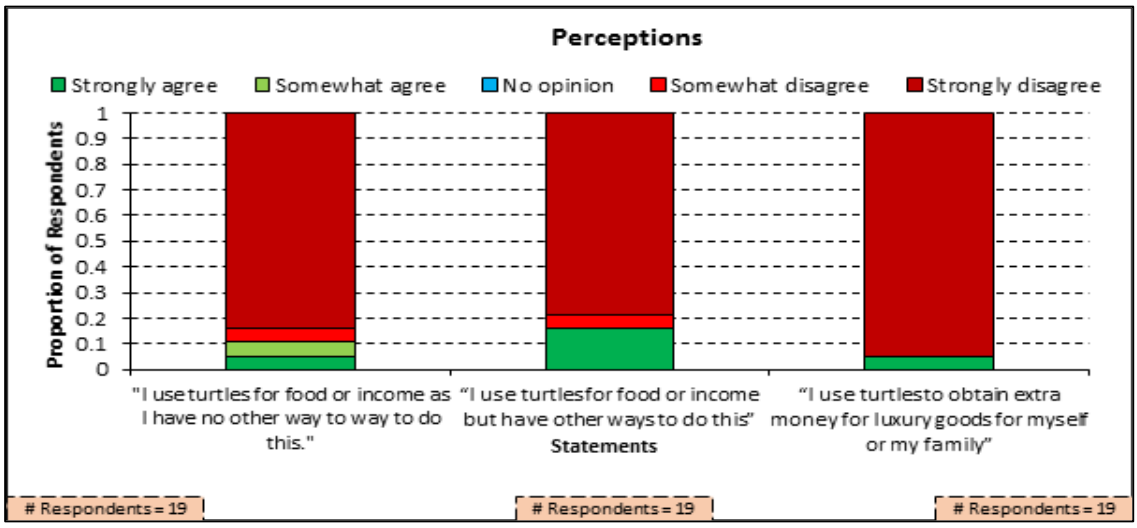

Peferred Turtle Species for Parts
Hawksbill, 52%
Green Turtle, 48%
Respondents = 9

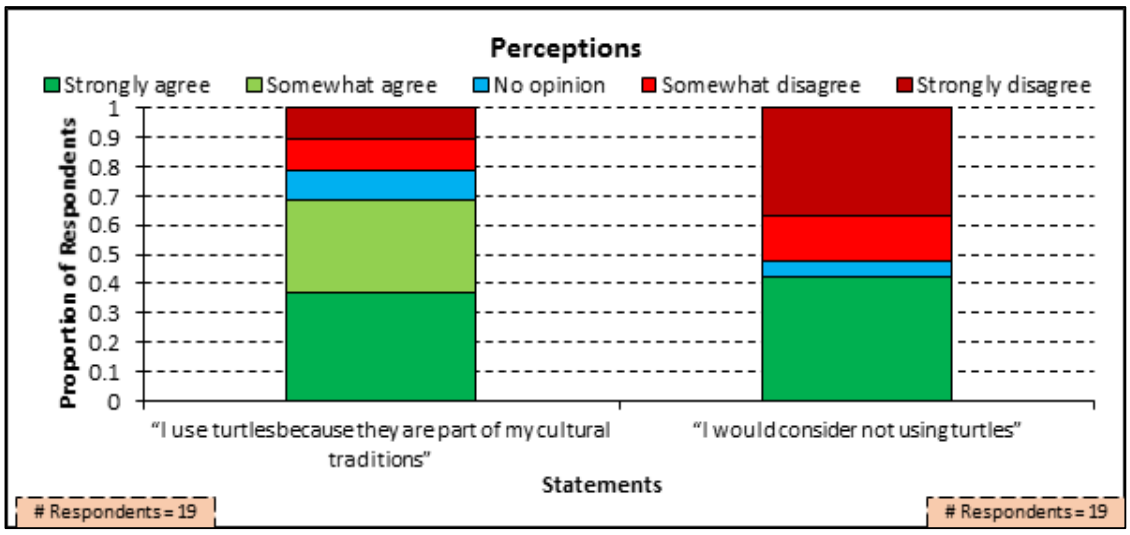

Do you use turtle eggs or parts?
No, 9%
Yes, 91%
Respondents = 11

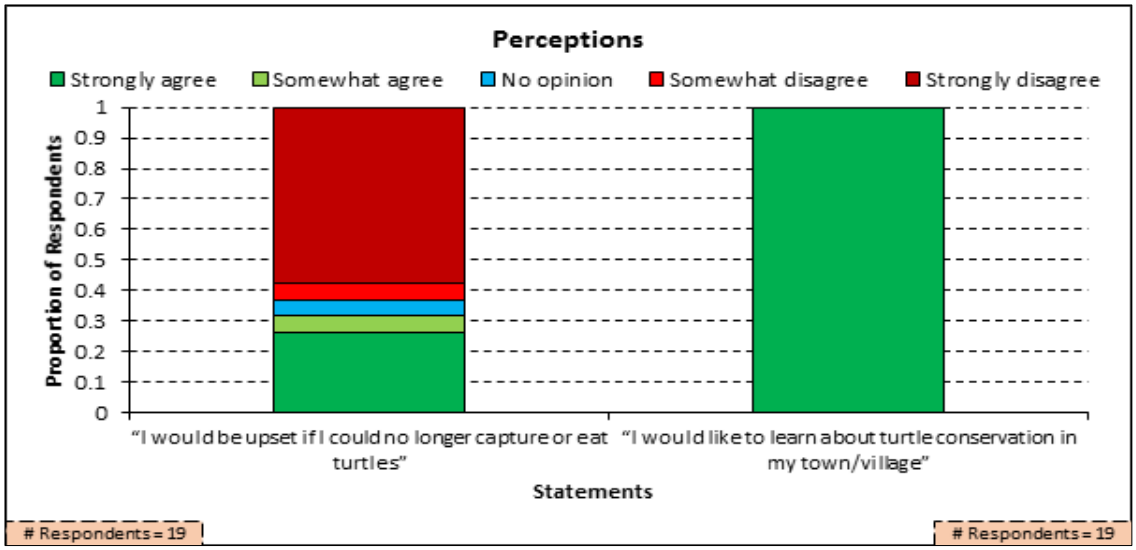

Uses of Caught Turtle
Proportion of Respondents
0.25
0.2
0.15
0.1
0.05
0
Meat
Shell
Fat
Egg
Oil, blood,...
Other
Turtle Parts


Uses of Each Turtle Parts
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Meat
Shell
Fat
Eggs
Oil, blood or bones
Other
Eat
Sell
Trade
Give to others
Special occasion
Other use


Importance of Turtle, Eggs and Parts to Respondent
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Eat to survive
Trade for item
Cultural tradition
Other
Very Important
Somehwhat important
No opinion
Somewhat unimportant
Not at all important
Respondents = 19


Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles for food or income as I have no other way to way to do this."
"I use turtles for food or income but have other ways to do this"
"I use turtles to obtain extra money for luxury goods for myself or my family"
Statements
Respondents = 19
Respondents = 19
Respondents = 19


Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I use turtles because they are part of my cultural traditions"
"I would consider not using turtles"
Statements
Respondents = 19
Respondents = 19


Perceptions
Strongly agree
Somewhat agree
No opinion
Somewhat disagree
Strongly disagree
Proportion of Respondents
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
"I would be upset if I could no longer capture or eat turtles"
"I would like to learn about turtle conservation in my town/village"
Statements
Respondents = 19
Respondents = 19


WWF