Workshop Report

Open research feedback session by the OctoPINTS project in Zanzibar

Open Workshop

Golden Tulip Hotel, Stone Town, Zanzibar, Tanzania.
July 6th, 2022

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Photo by Hamid Wazir Hamid and Johka Mohammed

Keywords

Reef Closures, Closure models, WIO region, Success, Methods, Qualitative Methods, Inductive Methods, Agent-based modeling, Processes.

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Participants and organizers at The Golden Tulip Hotel, Stone Town, Zanzibar, July 6th 2022.

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INTRODUCTION

Periodic reef closures for octopus (hence forth Octopus closures) are increasingly being promoted and adopted in the Western Indian Ocean. The OctoPINTS research project has, over the last three years, studied and explored the perceptions of different stakeholders or rightsholders as to what successful outcomes of closures are and what affects those perceptions.

As a step towards finalizing our OctoPINTS project we conducted a field visit back to Zanzibar to say thank you to those that participated in our research over the years, to validate our findings, and provide a space for discussion around our results and methods. On the final day of our trip, we hosted an open event in Stone Town, where practitioners, state representatives, researchers and students were invited. The invitation was shared further through our networks by snowballing, and thus many people we hadn't interacted with before came to the workshop. This report summarizes this open research feedback event.

The objectives of the workshop were to allow participants to learn from OctoPINTS findings, to stimulate reflection and ideas concerning the octopus closure model, demonstrate methods that others could take inspiration from, and support collaboration and co-learning. We also wanted to learn

Figure 1. Participants listening to presentations at the Golden Tulip Hotel, Zanzibar.

how our research and results were taken in by stakeholders. Specifically, if they saw usefulness in our qualitative inductive approach of the fieldwork, and the use of the agent-based modeling to outline mechanisms of why or why not closures are successful or collapse (i.e. if closures are either repeated or do not reach their intended term). This report provides an overview of the Stone Town workshop including a summary of the material presented, the content of discussions and the organizers' reflections on the meeting.

OctoPINTS Project Background

Periodic octopus closures are increasingly implemented across the Western Indian Ocean (WIO) region. In only ten years after pilots in 2004, this intervention has been replicated more than 200 times. These closures are of particular interest to fishery researchers and managers as they are locally led, can act as catalysts for co-management, and in most cases directly engage gender dynamics. Whether a closure is perceived as successful, depends on the diverse expectations and interests of different stakeholders, including managers, conservationists, fishers, local communities, exporters and traders.

The OctoPINTS project aims to collaboratively understand and make sense of short- and long-term outcomes of octopus closures, and why they occur, by collating experiences of octopus closures, and synthesizing knowledge of how they best can contribute to sustainable and equitable outcomes. We do this by combining expert knowledge and participatory empirical research with agent-based modeling (Lindkvist et al. 2020) to understand the mechanisms and processes at play.

Workshop Overview

The workshop took place on 6th July in a large conference room of the Golden Tulip Hotel in Stone town. About 20 participants attended, ranging from state employees, practitioners, researchers, and students from: MWAMBAO coastal community network, Marine Cultures, Aqua-Farms, WIOMSA, Ministry of Blue Economy and Fisheries (Zanzibar), The State University of Zanzibar and the University of Dar Es Salaam.

Following a welcome and introduction, the first part of the workshop comprised presentations. Emilie introduced the OctoPINTS project and Elizabeth (Liz) presented the qualitative, inductive methods used in the OctoPINTS fieldwork and the rationale for their selection.

Following this Liz shared a summary of the **fieldwork** results with respect to 1) **well-being** and perceived **inequities,** highlighting the diverse perceptions of success about the closure model and, 2) **compliance**, showing how different stakeholders felt and judged rule breaking. The aim of this presentation was to stimulate reflection and discussion about the complexity of both what could define 'success' and compliance.

Figure 2. Tim and Liz sharing results at the stakeholder workshop, Golden Tulip Hotel, Zanzibar.

Emilie continued to present the **agent-based modeling** work. This aims to represent dynamics and feedbacks around how fishers' acceptance of the octopus closure model can change over time with respect to poaching, patrolling, transparency and their landings at closure openings. She also explained how Liz's fieldwork was used in designing the model, e.g., fishers and their actions as well as how people change their acceptance.

We ended the formal content part of the workshop with a **play reading** to bring voices from the villages where fieldwork took place to the meeting, and to share with participants how we used play readings to communicate our results. Aiysha and Shariff (our enumerators) also shared **reflections from our recent feedback sessions in the communities**.

Next, we had designed a session mixing plenary and breakout groups to tackle questions of interest. However, it was clear that people had many questions and also wanted to share their reflections on the research and researchers in general so a questions, comments and answers session between OctoPINTS team members and participants was done in plenary.

Finally, participants completed an evaluation form before lunch that was served on the hotel rooftop terrace, to provide further opportunities for discussion and networking.

Participants' responses to the presented materials

The interpretive approach

Some interesting reflections emerged around the qualitative, inductive and interpretive approach of the fieldwork. The fieldwork emphasised hearing participants own stories and voices around closures rather than imposing particular questions or topics or measuring quantitative indicators. Liz used open-ended broad questions about experiences of closures and methods to encourage sharing of stories and experiences as a way to understand people's perceptions and feelings from their own points of view. In addition, we took a critical social science stance to understand **who benefits and who loses from closures**, specifically looking at the context and **mechanisms** behind those outcomes, through the agent-based modeling.

Some participants expressed that the research approach taken was **a new approach,** less commonly used in the work that they do. It was also a way to learn new ideas and to get **more feelings and less misleading "so called" facts**. It was highlighted that this approach could give insights into social interactions and conflicts around the closures.

Other participants had a more critical perspective on the interpretive research, informed from a natural-science, positivist research tradition favouring objective, quantitative data. This position did not appreciate the potential for data on perceptions and feelings to help understand behaviour and the micropolitics of closures.

The inductive approach, was also critiqued. For example, some participants felt that key dimensions such as health problems should have been reflected in our results (health did not feature in participants spontaneous comments about the effects of the closures on them). This followed a logic that one needs to go into a research situation with 'the right questions' to ask, favouring a deductive process in which researchers have a-priori topics and questions that are relevant to ask.

The agent-based modeling

Based on our feedback forms the modeling was appreciated. A couple of participants noted that the modeling was thought to reflect the real situation of what was happening in the field, while it was perceived by some as quite technical and requiring special skills to work with. Someone noted that it might be more useful for researchers than practitioners to take on and use. Another person thought the model was a bit simple, and useful as a tool to learn the basics around closures.

Discussions highlighted several interesting applications of the model to investigate particular topics, such as scenarios or experiments that would test the results of changing the size and duration of the closure, the opening length of the octopus closures, or adjusting the number of fishers able to enter at openings.

The focus on social groups

Our results on the key role of young, male skin divers in conflicts and non-compliance resonated with several participants from the NGOs who struggled how to address rule-breaking by this group. They agreed that directly engaging rule breakers needed more attention. Several stories from failures on **how to deal with these rule breakers**, as well as what could be opportunities to get such groups on board were discussed. For instance, certain groups known to rule break won't come to meetings even if the Sheha (village chief) calls them, so inviting them to formal meetings seems ineffective. Other approaches, such as individual NGO staff (ideally young males) making contact, socialising and building relationships, trust and an understanding with this group may be more efficient. The literature on young male fishers from a masculinity angle in fisheries could provide further insights into this problem. (e.g., see Fabinyi, 2007 and work by OctoPINTS intern Benedetta Veneroni, 2021).

Reflections by the organizers

Overall, the response of the participants to the research was mixed. Some engaged enthusiastically, with an interest in the concerns and perceptions of stakeholders that were revealed. The anonymous evaluation forms suggested that a majority of participants appreciated the research and the seminar. During discussions however, some voices focussed not only on critical comments about the OctoPINTS research but also on vocalising general problems around external research (i.e., Western led in a low-income country dealing with high levels of fishery related research fatigue, Hakkarainen, 2020). For instance, the problem that researchers fail to feedback their research, was raised, despite the explicit purpose of this trip and workshop. This limited the time available for more in depth discussion of the OctoPINTS research and its implications (Box 1).

Our main determinant for having a successful workshop was to share knowledge with different organizations that could be useful for their practices or research around closures. The discussions and evaluations suggest the inductive qualitative research was a novel approach for most participants, and that our results and methods supported or challenged participants' thinking. This may provide new insights or methodologies to understand the perspective of different social groups and the challenge of engaging them in the governance of octopus closures and in resolving conflicts.

The scepticism amongst some participants towards our research approach inspired us to explore the role of inductive, interpretative and process focussed research for marine conservation and management practise in a Mini-Symposium we held at the WIOMSA Symposia 2022 (Lindkvist et al., 2022).

READ MORE & REFERENCES

The OctoPINTS research project https://octopints.wordpress.com/

Summary of fieldwork methods
https://octopints.wordpress.com/2019/12/21/fieldwork-part-1-reflections-from-the-field/

Summary of research feedback to the communities

https://octopints.wordpress.com/2022/10/14/a-space-for-dialogue-research-feedback-by-the-octopints-project-in-zanzibar/

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Veneroni, B., 2021. Gender Beyond Women: Exploring Zanzibari Masculinities for Octopus Closures' Compliance. OctoPINTS website. https://octopints.wordpress.com/2021/11/11/gender-beyond-women-exploring-zanzibari-masculinities-for-octopus-closures-compliance/

Appendix 1. List of participants

Organizers

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Participants

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Appendix 2. Summary of Presentations by the OctoPINTS team

Welcome and opening

Dr. Narriman Jiddawi opened the workshop by warmly welcoming all participants and thanking them for leaving their duties and being able to be present. She emphasized that the workshop is a great opportunity to learn from the experiences of the octopint project and encouraged participants to share their experiences and ask as many questions as needed and informed them that hopefully the discussions in the workshop and the information shared can be applied effectively later in future in octopus collection sites

Talk 1 Overview of the Project by Tim Daw

Tim introduced the workshop by clarifying **motivations and expectations for the workshop** (Box 1), and attempting to set a less formal tone through icebreaker where participants met in pairs.

Box 1. Workshop objectives.
Our objectives were twofold. First, to **allow people to learn** from OctoPINTS findings and lessons learnt through:
1. **Creating a space** where the OctoPINTS project results can stimulate reflection and ideas for ongoing support for the octopus closure model.
2. **Demonstrating methods** and engagement as ideas that others could use/take inspiration from.
3. **Supporting collaboration** and co-learning by allowing participants to meet and learn about each other and develop common understandings.
4. Informing monitoring and evaluation of closure dynamics.
Second, to allow ourselves to learn:
1. **How do people react** to our stories, model and data?

> 2. **Do people see a usefulness** in qualitative/process assessment – why, in what context, how, for what purpose?
> 3. **Observe** how our research and results were taken in by stakeholders, what do they find stimulating, surprising, useful, or even ridiculous?

Who is the OctoPINTS project?

The OctoPINTS team was introduced with special thanks to MWAMBAO who supported our fieldwork and contributed with their knowledge through workshops and meetings. Blue Ventures has contributed with a series of online meetings over the years as well as attended our expert workshops.

We are Interested in **benefits, equity, short- and long-term outcomes** in the context of **octopus closures.** In this endeavor we are trying a **methodology for data-poor contexts** between expert knowledge, stakeholders workshops, qualitative fieldwork and computer simulations, and inform interventions for **social and ecological sustainability**. We want to explore what is successful outcomes of periodic octopus closure to different stakeholders (e.g., fishery actors, NGOS, government actors), investigate how things change over time and whether closures continue or not. To this end we use mixed methods (**Error! Reference source not found.**).
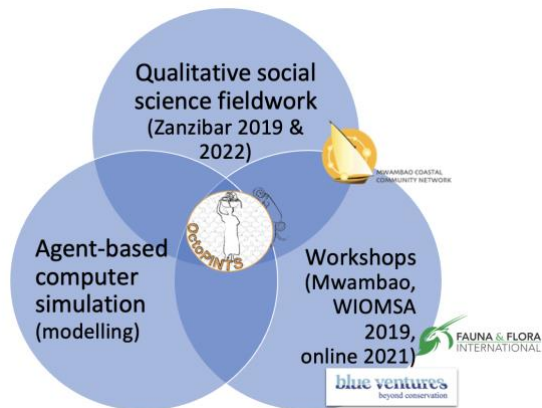
Figure 3. Mixed methods in the OctoPINTS project.

Our project wrap-up activities 2022

During our Zanzibar trip in June-July we
- held feedback sessions in fieldwork study villages
- held results dissemination workshops with MWAMBAO (Pemba, Unguja)
- presented to Pemba Districts Fisheries Officer with MWAMBAOs assistance
- additional fieldwork by Dr Rose Mwaipopo (USDM) and her two assistants.

We will also present our work at Wiomsa in October 2022
- We will host a mini-symposium presenting and discussing out results and methodologies
- Jineth Berrío-Martínez will present her work on modeling Octopuses movement

Documentation
  o Academic papers drafted
  o Stakeholder report from Liz's fieldwork (delivered by the end of 2022)
  o OctoPINTS website
    ▪ Story series – Booklet and podcast in English, French and Kiswahili
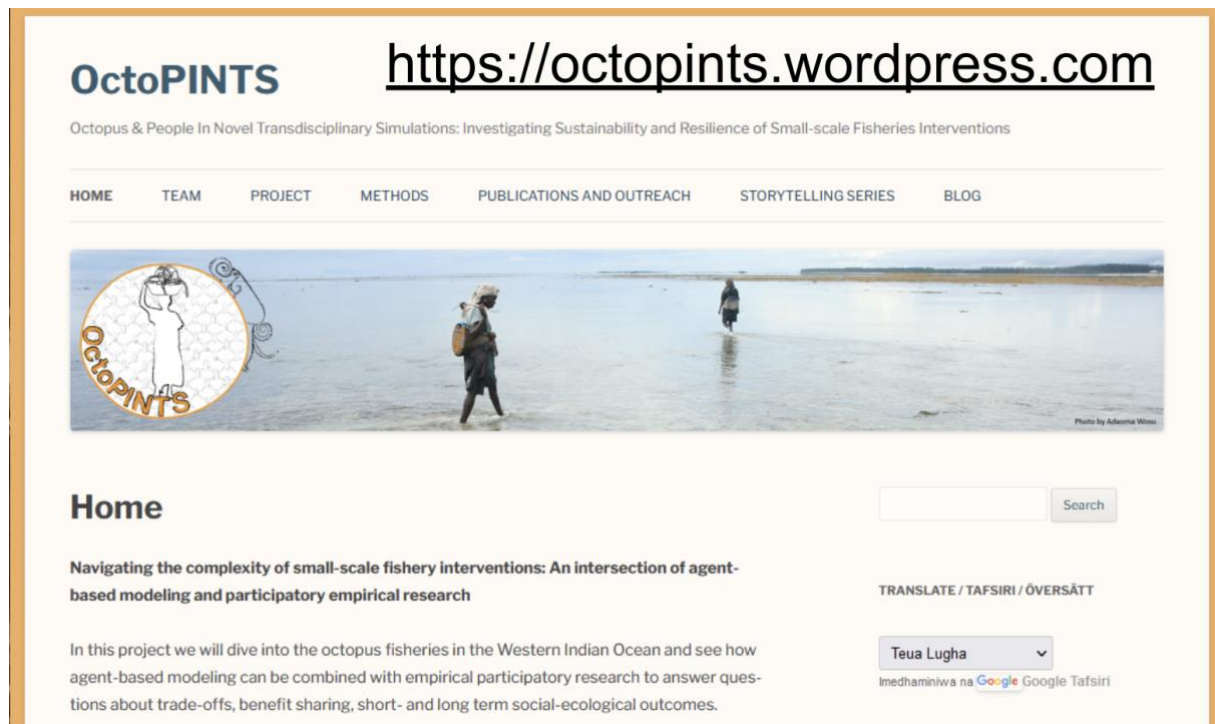
Next Liz presented her work.

Talk 2 by Elizabeth (Liz) Drury O'Neill- Qualitative inductive research

Liz's approach in the OctoPINTS project

My approach can be defined with a couple of different words. It was overall qualitative, and empirically based. It was explorative, subjective, focused on nuances, diversity, and disaggregation. Objective reality for me can't really be captured and the researcher and subject influence each other. Truth was what's authentic to the place and to the people one is researching with. The questions I was most interested in were the How and the Why questions.

This type of approach aligns with the way of doing science called interpretivism, or an interpretive paradigm. And this is based on the idea that reality is shaped by social contexts and social experiences, rather than being singular or objective. So the best way to study reality, or understand it is through the interpretations of research participants within their own context. My work was then based on the perspectives of the fieldwork participants, and they were able to define "the problem" in their own system, from their own point of view.

I used this approach for a couple of reasons. The first was kind of personal for the Zanzibar context, which is highly researched, especially in terms of Marine Science. I wanted to be as collaborative as possible, and have the research method as interactive rather than extractive. I wanted to prioritize the

voices of those within the system directly impacted by marine protected areas or closures. Secondly in terms of project interests, we wanted to be open, and explorative in our understanding of what octopus closures were, and how they impact different people. If we took such an open approach, then research could be directed by participants. Additionally what Emily was going to model could be also influenced by them. And thirdly in terms of academia, there's a gap around the kind of social subjective implications of marine protected areas, especially from the viewpoints of those beyond fishermen. Exploring the differential impacts of closures or protected areas, as defined by primary stakeholders. So there's a need to complement monitoring and evaluation with this type of more open qualitative storied research process.

Data collection

In 2019, I met with about 70 participants, we only got to go once to Zanzibar because of COVID 19. We worked with fisherwomen, Fishermen, skin divers (free divers), Traderwomen who made soup and fried octopus, tradermen who sold local or to export, Fisheries committees and village leaders. We worked at three sites in Unguja and Pemba, and used three different methods over the course of a week on three different days at each site. We met with each participant group type individually. The first method I used was story circles. This method comes from theater, and it involves people sitting in a circle, one storyteller is given the floor for five minutes or a designated time and the rest need to actively listen to them share their story. You just provide the participants with a theme and a story structure. This method allowed me to take a backseat, and it kind of centered on participants experiences with me as a listener, taking the heat off the foreign researcher. I also thought it would be interesting to see what they wanted to tell me on this first interaction? On the second day, I met with participants and we did photo elicitation tasks. These come from anthropology and basically involve looking at images, photos, art pieces etc. They can come from the interviewer or the participants. You talk about the art and elicit interpretations from participants. I chose this method because it was fun. It's not an interview, and again, it took the focus off me as the foreign researcher. It also helped people to remember different aspects of the closures that had already happened in the past. I found, when we talked about the pictures, it was easier to get some more emotional accounts of what had happened. It was also easier to chat about more sensitive subjects like participation dynamics. The last day I met with people, we did focus groups, this is just where a researcher assembles some participants together, a select group, and facilitates the discussion between them. Again the researcher is not at the center of the stage. You talk about a specific issue or topic, we had some specific questions about compliance and closure impacts, because of the interest of the collaborating NGO, and of the project itself.

Analysis

I analyzed the transcripts, both inductively and deductively. According to the two different papers I wrote, or that currently I'm writing for OctoPINTS. I used a software called MaxQDA. With this programme you basically bring all of your transcripts into the software, and you can use the programme to go through them and code for different themes or using a specific framework.

Results

I have some short results for the two papers that I'm writing, one is about compliance, because people talked a lot about compliance, especially in the story circle. The second is about wellbeing, because people naturally frame the impacts and the benefits around the various wellbeing dimensions, both from an individual point of view, collectively, and in terms of nature itself.

In the compliance paper (Compliance, Complexity and Cephalopods- Disaggregated Responses to Participatory Marine Conservation & Management- submitted to People and Nature), I drew on two sociological frameworks that also use cognitive sciences, and anthropology. Some quick patterns in and across the participant groups.

People's knowledge of the marine environment and the need for protecting it meant they were ready to uphold the laws and endorse the process - this convincing logic supports the relationship of local ecological knowledge, or LEK to compliance motivation, which you see in a lot of other cases. There was very little outright resistance only in one site that had a long complicated history of Western led conservation projects and a clear expectation of what *mradi* or project in kiswahili meant i.e. the direct benefits that they could or should get. One of the outliers to the previous pattern was presented by divers, the skin divers, who were more inclined to exhibit the most dynamic responses. So they changed their responses through the methods and according to the different situation they were talking about. But most commonly, they had a "keep them happy" kind of attitude towards authorities, and a clear reluctance towards the rules or authorities, which translated largely into blaming migrants, fishing migrants as the free riders. Thus meaning that it was futile to follow the rules, "why preserve for guests to come and take?". So these types of responses typically lead to non-compliant outcomes according to the theory.

It was men that were blatantly blamed for rule breaking across all sites, and by most groups. It was female groups, so traderwomen and fisherwomen, that tended to be most fixed in their positions to the rules and rule breaking throughout fieldwork. The traderwomen's high commitment to the process was associated with quite a strong moral opposition to breaking the rules based on necessity, meaning if you morally justify rule breaking due to the fact that you are poor. This dynamic was also seen with fisherwomen, they were also really committed. But this commitment, often translated into moral justifications around rule breaking, supporting the idea that following the rules can be futile, it cannot be worth it, because of the free riding men, especially skin divers.

In two sites, we see a lack of autonomy, meaning the legitimacy of the state to intervene was almost completely unchallenged. In fact, the involvement of the state was directly called for many times, especially in the Pemba sites, and amongst mainly the male groups, not in Unguja.

Ultimately, you could say at the general level, the intervention was a support system, signaling a likelihood of future compliance however, although groups were outwardly compliant, the interpretive approach helped us to to see the diverse and dynamic responses by groups, indicating on which basis and through which logics compliance behavior was condoned, or legitimated.

For the wellbeing paper "Temporary octopus closures' impacts on multidimensional human wellbeing" I used the social well-being framework, which looks at subjective material, and relational dimensions of human wellbeing. So universally across most groups, the benefits were the big and abundant octopus landings, the fact that one can celebrate and feel festive at the opening events, and

income from selling that can go to individuals, but also collectively to the community for community related projects. Universally felt losses included the conflicts that people had in their relationships and amongst the community around poaching, and also the direct loss of octopus because of poaching.

If we look at skin divers, they felt they lost access to the octopus fishery as the main octopus fishers in the system. And that meant a reduction in their income. They also had some issues because of all the conflicts and the blame that came their way - so their relations were negatively impacted. Traderwomen felt included in the process. They felt that the tools and procedures provided by the closure, which I labeled market organization, allowed them to have more fairness and justice in the process. They were also able to meet the educational needs of their kids a little better, like through buying school books, uniforms. However, one of the only negative impacts was the prices, which they felt were a bit low, and were unfairly decided. Fisherwomen could now meet their daily needs a little better and also felt included in the process. Just like traderwomen, they were better able to meet the educational needs of their kids. However, the conflicts around poaching, the fighting in the community really negatively impacted them. Fishermen felt that they had now gained access to a fishery that they weren't really using before, because they are the type of fishers normally fishing on boats with other gears and of other species. However, they felt prices were too low. And some felt that their access to other fisheries were impacted by the positions of the closure itself. Tradermen felt harvests had definitely increased (in abundance and/or sizes); however, the illegal buying and selling at opening events was negatively impacting them. They felt that they lost access to the huge amount of octopus product that they needed to export and to meet hotel or tourism demand in Unguja.

Talk 3 by Emilie Lindkvist: OctoPINTS Agent-based simulation modeling

Emilie's talk was inspired by the talk held at the communities as a way to show how we presented the model in the villages. The version presented today is slightly more technical. Notably it is impossible to share all details but we want to give a sense of the model and to share our first findings. For details, we can keep in contact for future presentations and written publications and possibilities of downloading the model open-source.

The Purpose of the modeling

The modeling sets out to investigate and outline cause-effect relations and feedbacks. Through this we can observe different closure outcomes over time as generated by the fishers' everyday activities such as **fishing & poaching** – (micro/individual level characteristics for different fisher groups. **Village investments in patrolling** (macro level context) or ecological scenarios of octopus growing, moving, being caught. We set up these simulations or experiments as scenarios. Hence, a **scenario** can be, for example, a certain set of closure design rules, a specific community context, or changing ecological or biological factors. By simulating different scenarios, we also observe results on **how outcomes may change** depending on which scenario we study.

The Methodology

As an entry point this component is the agent-based modeling. This tool is well-known for its ability to represent individuals such as fishers or octopuses in a more or less realistic way and modeling the behavior and actions of those individuals. We took a more unconventional way of designing the Model, that is an approach used for instance in anthropology, which is - that instead of using numbers and use the model to predict outcomes – we design the model based on the analysis of Liz's data and compare

the outcomes to narratives of her work. We combine this with literature and expert interviews on octopuses' biology for modeling the octopuses, and build on expert workshops for selecting interesting scenarios. Through the link with Liz's fieldwork naturally include gender lens even in this work.

Model design

In the model we represent different social groups such as **women foot fishers**, **male skin divers**, and **incoming fishers** (who are those that don't normally fish octopus but are attracted to the openings). These social groups have variables that describe their perceptions of the closure, and other personal attributes. **Acceptance** is the key variable that determines if they perceive the closure model as successful or not. Acceptance of the closure of an agent (or actor) will increase if they get big octopuses that openings at the openings, increase because of the festive
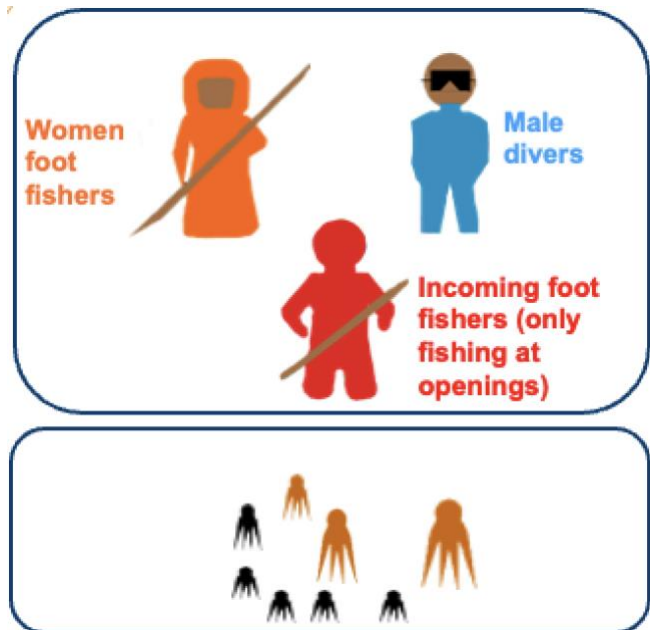

Figure 4. Actors (called agents in modeling terms) in the agent-based model. Octopuses are also represented as individual octopuses that grow, move and reproduce.

feelings. Acceptance will decrease if poachers are not caught and pay their fines. They also have a **propensity to poach** which is affected by the acceptance of the closure, the level of patrolling, and also which social group they belong to. **Octopus** in the model can grow, move, reproduce, immigrate and emigrate.
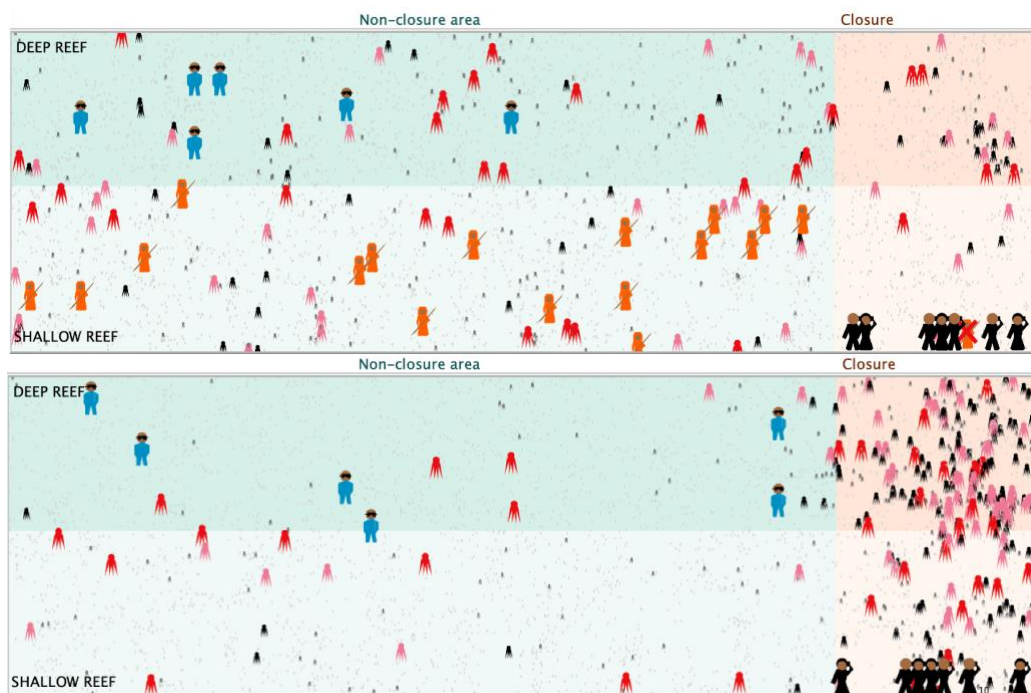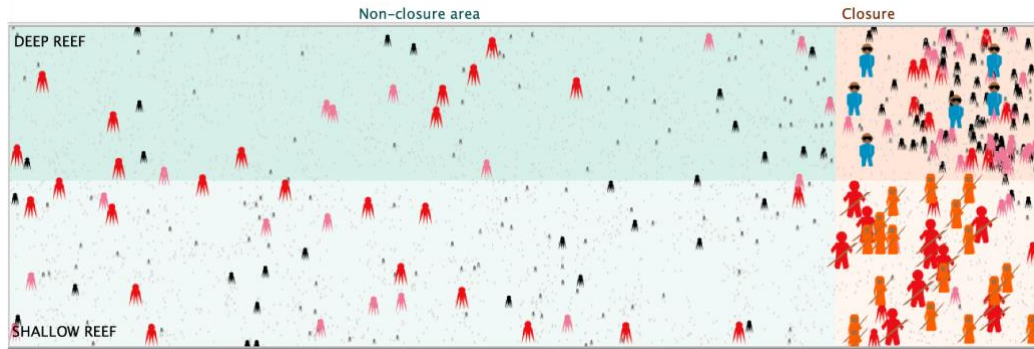
Figure 5. Model graphical interphase. The figures of the model looking at the reef, and the closure area to the right, with guards in black patrolling the closure. Panel 1) day 1 of the closure being put in place. Panel 2) day 83 just before opening and at high

Simulated scenarios

We presented three scenarios:

1. Baseline scenario
2. Lack of funds scenario
3. Women First Scenario

On the following slides/pages we present each scenario.

1.Base line scenario

For the **Baseline scenario** (or the **happy game, Mchezo wa furaha**) fishers are pretty happy about putting the closure in place and the village has invested in a lot of patrolling meaning that they catch most of those that are taking from the closure. The results show that income is higher for divers than for women and other incoming foot fishers. Octopuses in the closure area are much bigger than the open area and acceptance is increasing over time. The mechanism-based explanation is that because the patrolling is effective, acceptance of the closure increases, this leads to even less taking from the closure, which leads to even more benefits from the closure.
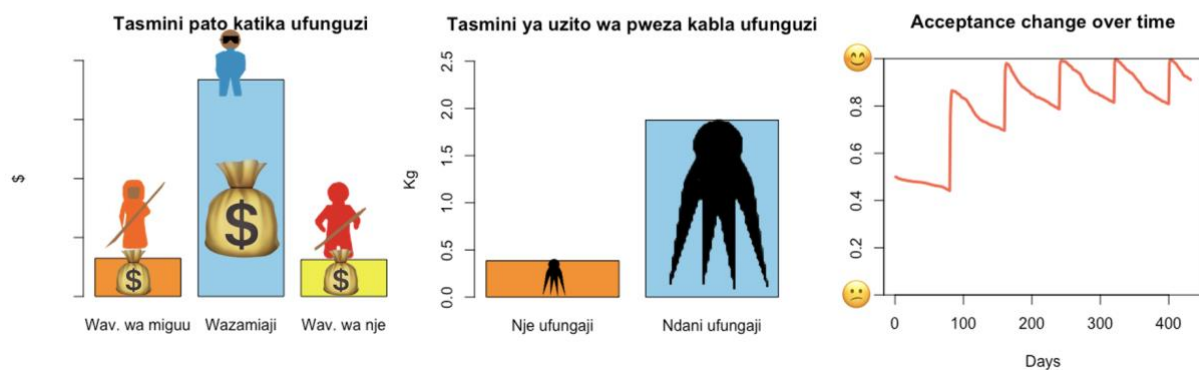

Figure 6 The Baseline scenario (happy scenario, Mchezo was Furaha). *First panel shows the average income at openings for each fisher groups. The second panel, average octopus size in the open area (orange), and in the closure area (blue), third panel shows how the acceptance changes over time for each day (time step) in the simulation, each peak is an opening where people accept more because they are happy with the festivities, and catch big octopuses, while the slower declines in acceptance are because people are poaching and not being punished properly.*

2. Expensive patrolling scenario

In the expensive patrolling scenario it is more expensive to patrol and the patrolling is not sufficient to catch those that take from the closure. The results show that the income from openings decrease for all social groups and the octopuses in the closure are almost the size of the open area. The mechanism-based explanation for this is that the high patrolling costs leads to inability to have efficient patrolling, which leads to acceptance going down, which leads to people taking from the closure, which leads to less benefits for all (smaller octopuses, less income).

Mchezo kuiba 😕

High patrolling costs → can't patrol → acceptance goes down → people taking from the closure → less benefits from closure
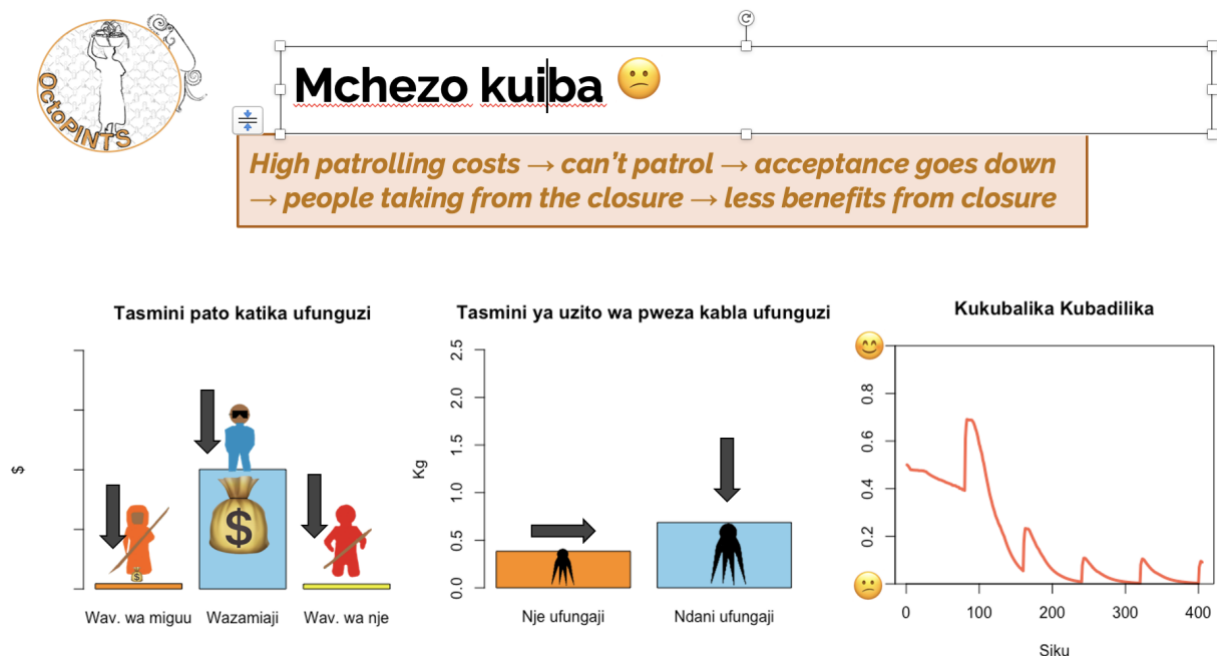
Figure 7. The expensive patrolling scenario (Mchezo kuiba). Compared to the first scenario incomes go down, smaller octopuses in the closure area and the acceptance goes down over time.

3.Women First Scenario

Changed setting for the scenario compared to the baseline scenario were the entry rules. Women can enter the opening 1 day before the other foot fishers (Incoming fishers are still coming at the opening but the second day). Results show that women now make more than incoming fishers but otherwise no big differences. The mechanism-based explanation is that women get higher catches and bigger octopus leads to → higher overall satisfaction in the community because more landings within the community, which leads to → less poaching over time which leads to → that the landings at openings increase over time.
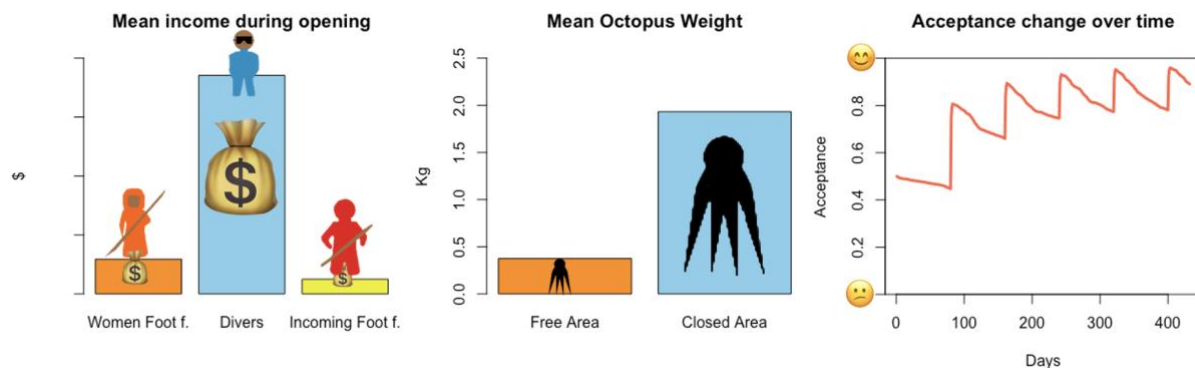

Figure 8. Compared to the baseline sceanario, women here has a higher income than the incoming fishers, and incoming fishers make less.

THE END