

TUNA THINK TANK

SUMMARY REPORT



August 31, September 1st and 2nd, 2010.

Klein Zwitserland Bilderberg Hotel, Heelsum, The Netherlands.

Hosted by Wageningen University and the WWF Coral Triangle Programme

Organizing committee

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Summary

The question we were addressing

Develop new or alternative models of juvenile tuna management in the Western Central Pacific and Coral triangle and its associated fisheries that channel a portion of tuna's economic value back into sustainable management initiatives.

Final ideas to go to the prototyping phase

At the end of the 3-day event, we formulated new ideas and approaches that are ready for the prototyping phase. The group discussed identification of solutions that can be easily implemented (low hanging fruits will be identified during prototyping). These “low hanging fruits” should be easy wins for the purpose of either demonstrating early success, creating momentum for more complicated large-scale projects, or to test potential solutions.

The following are the main ideas that we came up with to reform the tuna sector management and help raise revenues that will support conservation and management of juvenile tunas in the Western and Central Pacific and the Coral Triangle.

1. Business driven approaches to stop canning juveniles

Assist the development of retail sourcing policy and brand strategies for reducing the use of juveniles in the canning industry, either by addressing by-catch or reduced capacity and effort of small purse seiners.

2. Financial incentives and cap-and-trade

Reducing juvenile by-catch in the purse seine fleet implemented by purse seine organizations. Given the diversity of these industry organizations, three options were identified 1) an incentive fund to reward crews on vessels with the lowest big-eye catches, 2) a cap and trade scheme that operates on a private sector allocation basis that may lead to capacity reduction and/or 3) a credit/quota scheme to ‘tax’ the catch of juveniles.

3. Documentary film

Creating awareness through a documentary film on two key aspects of the tuna fisheries of the Western Pacific – the tuna lifecycle, with a focus on juvenile ecology, and the challenges of sustainability in the Coral Triangle, with attention given to fisher's livelihoods and international trade.

4. ‘Get a new net’ program

A hand in program or ‘amnesty’ to hand in small mesh nets and fund reinvestment in larger mesh nets, with the goal of allowing a higher percentage of juveniles to escape and higher value of the fish caught.

5. FADs to TADs

Reduce fishing on fish attraction devices (FADs) by turning them into tourist attraction devices (TADs), thereby reducing effort and by-catch of juveniles while also providing alternative opportunities for coastal fleets in diving and sports fishing tourism.

Outcome

The next step in the process is to identify who should be involved in the development of these prototypes. Each prototype 'cluster' should also identify what new ideas (or new details on 'old' ideas) to carry forward, as well as what configuration of people can initiate change through their normal working lives.

Overview of the process

The U turn methodology

The group was taken through the U Turn methodology for profound change developed by Scharmer (2007) (see Figure 1). The Tuna Think Tank is the first step of a longer process of change. As such, participants only went through the first four stages of the model – co-initiating, co-sensing, presencing and co-creating (identification of prototyping ideas).

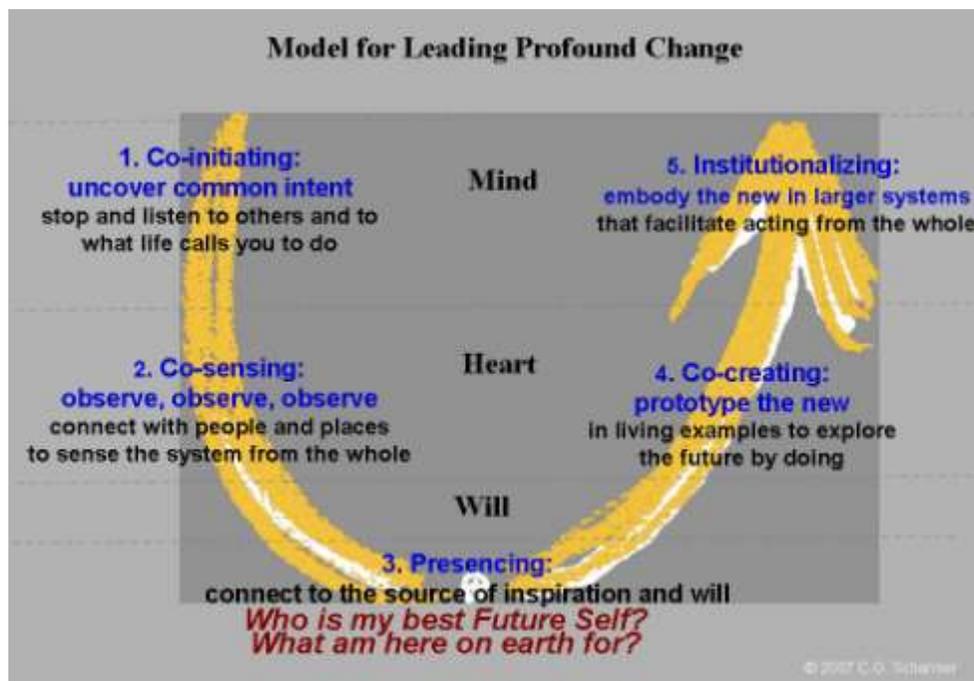


Figure 1. U Turn model for change

Co-initiating: Reflection on current context

The first two days of the Think Tank involved reviewing the context in which tuna fisheries and management is carried out in the Western Pacific and Coral Triangle. The morning and afternoon of the first day involved videos and presentations by participants. These started from the broad perspective of ocean conservation (video presentation Sylvia Earle), issues around fisheries management in relation to biodiversity conservation (video presentation Ray Hilborn) and gradually narrowed in on specialist information; the status of tuna stocks (John Hampton), issues of access and jurisdiction surrounding the Law of the Sea (Martin Tsamenyi,

Francisco Laurel), rights based fisheries (Vishwanie Maharaj and Bob Deakin) and market-based management approaches (Paul van Zwieten and Simon Bush)¹.

The discussion from these presentations was wide and far reaching. The main themes that emerged can be summarized in the following points:

- ⇒ The uncertainties of science and scale of impacts to the oceans are so immense that it is difficult to know where to begin. However, the first step is to decide .What we agree on, what we disagree on and the agenda for finding solutions.
- ⇒ There is a need for space to create compromises. The conservation centered approaches need to put people back in the frame and appreciate the growing demands for protein is on the rise and that there remains a place for fisheries. Management options that take into consideration equity issues surrounding artisanal fishers is needed.
- ⇒ There is a wider growing appreciation for business sustainability strategies and consumer power in society in the face of poor governmental responses. Nevertheless, while government may be slow to take the lead it is necessary for them to follow and provide legislation.
- ⇒ There is a lack of common understanding over the challenges facing the oceans. Why has there not been a common process to define these problems as in the climate debate? A wider forum might help to beyond narratives of decline to a more consensus based approach to dealing with impacts of fisheries on biodiversity.
- ⇒ There is widening gap in the debate over fisheries crisis because the main source of information is in peer reviewed articles. These resemble fog horns more than a discussion. Science is not creating discussion. Unlike climate change, there is no link made between public conversation and scientific information. A great deal of information relevant for the discussion is in the hands of fishers and hardly available to others.

The co-initiating process finished mid-way through Day 2 with a reiteration of the central focus of the think tank: to find specific solutions to pressures on juvenile tuna in the Western Pacific.

Co-sensing the field

Co-sensing involved continued sharing of information around the various issues at hand. There was concern that the workshop needed to include more of the stakeholders directly involved in the tuna fisheries, the danger being the imposition of solutions from afar. As a proxy for travelling to the region to engage these stakeholders a café style session was held in which experts from among the participants were asked to engage in conversations in small groups. The objective was for participants to further engage with issues related to policy, tuna fisheries management, consumers, and practices in the fishing industry. The following summarizes some of the main points discussed in these groups.

¹ All papers and most video's are available via shortcut wwf.panda.org/coraltriangle/tunathinktank/.

Policy group

The policy group discussed the challenges of bringing in all countries of the Western Pacific into a coherent management arrangement. Indonesia and the Philippines were pointed out as posing a particular difficulty. Indonesia has set the ambition of expanding its fisheries production three fold by 2015. The country is also largely impervious to international market pressure because most of the demand for juvenile tuna is domestic. The Philippines poses a challenge because of the large industrial fleet that is also set to expand. This contrasts with the positive initiatives taken by the PNA countries, which represents around 15% of world catches, to establish a separate management plan and seek MSC certification.

Drawing Indonesia and containing its canning and purse seine industry, while addressing the protein and livelihoods needs of coastal population was identified as a central challenge. This would also have the regional benefit of increasing the amount of fish for other countries. It is unlikely serious change will come through government. It is therefore necessary to provide incentive based solutions through the market: improving returns from good management, questioning the viability of domestic investments, reduction of capacity, providing alternative opportunities for investors and provide a premium for fishers to change their practices.

Industry group

The industry group focused on the relative impact of different types of fishing on tuna in the Western Pacific. A point of clarification was the division between free school, FAD and animal associated purse seining. Discussion also focused largely on the relative catch composition that juveniles make up in different size classes of purse seiners. The classification in Table 1 shows the relatively high impact of small purse seiners on juvenile stocks given their high dependency on coastal fisheries and FADs. Medium purse seiners fishing on free schools have a low proportion of juveniles but a high impact because of their high number of boats currently fishing.

In contrast ring netters because of their more coastal fishing operations and targets - mainly small pelagic - do catch tuna catch of predominantly juvenile sizes but caters mainly to the domestic markets. The ring fishery therefore supplies takes care of the food security issue of the country.

The discussion also reflected on the control of the canning industry in the region who, in the case of the Philippines, buy 80% of the fresh tuna caught. Cannery do choose from which type of boats they buy from. However, discerning buyers need cooperation of the fleet to record where and how the fish were caught. Buying practices would be improved if independent observers, as currently used in the PNA countries, are made mandatory. Pending this, buyers remain dependent on their existing relationships with boats.

Table 1. Composition of juveniles in catches by size of class of fishing boat²

| Size class | Boat length (m) | Estimated juvenile proportion of catch per set | Perceived impact |
|--------------------------|------------------------|---|-------------------------|
| Ring netters | ≤24 | 95% | Low |
| Small purse seiner | 24 | 70-80% | High |
| Medium size purse seiner | 45-75 | 50% on FADs, 2% on free schools | High |
| Super seiners | ≥75 | 50% on FAD, 2-3% on free schools | High |
| Long liners | | | |
| Hand liners | | 0% | Low |
| Poll and line | | 20% | Low |

More sustainable technological changes such as the size of mesh and use of winches are currently available to fishers. Based on trial experiments by Japanese purse seine, such innovations showed improved success rate of free swimming sets (14 to 40%), reduce big eye catch (2% down to 0.7%) and reduced the proportion of juveniles (43% down to 9%) (Taro Kawamoto, pers. Com). However, currently the cost to retrofit medium-sized purse seiners is estimated at US\$500,000. Programs are needed to create incentives for vessel owners to invest in the infrastructure – one suggestion was to increase the vessel day scheme for boats that set only on free schools and not on FADs. This would require increased closure of FAD fisheries from 3 to 6 months and increased observer presence on boats.

Consumer group

This group discussed the different expectations of consumers in developed and developing countries. Consumers are regarded as important actors for inducing change, as evidenced by the rise of certification and labeling. But questions remain over what consumers in the EU and US expect in terms of sustainability, especially when faced with issues as complex as the challenges faced by juvenile tuna stocks in the Western Pacific. Conversely, what patterns of consumption are evident in countries within the Western Pacific and Coral Triangle? Do consumers have a choice and can their choice also play a role in bringing about change in fishing practices?

Western consumers are regarded as sensitive to price but with a growing awareness about food quality issues. Food safety remains the primary concern, but information provided by their supermarkets leads them to also consider sustainability. They would rather their supermarkets make choices for them given they generally trust their professional expertise. They may well find the issues surrounding tuna as important; they want their children to also have access to tuna in the future. But details make decisions more difficult and most likely find it difficult to

² Francisco Laurel, personal communication, Sept. 8, 2010.

distinguish the difference, in sustainability terms, between canned and non canned tuna. Their most likely reaction will be to stop buying any tuna at all if there is too much information or if they are bombarded by information from media and friends. If they stop buying tuna they have a very wide choice of alternative fish and other meat products.

However, there are regional differences. Consumers from the US are likely to not discern good and poor canned tuna. This is the same for Northern Europe, but consumers here may have a higher receptiveness to sustainability issues (being used to organic and MSC labeling). If they are from Southern Europe there will be less awareness on sustainability, but a much higher expectation of the structure and quality of the tuna meat.

Consumers in the Western Pacific are on the whole more discerning about quality as well as more dependent on tuna fish for protein. The vast majority of tuna is available in the fresh market. Canned tuna is available but more expensive. The markets are located close to the fishery and consumers look for chilled - not frozen - fish sold whole as an indicator of quality. Nearly all tuna species are available in municipal markets less than four hours from the coast, but yellow fin is the most sought after. If fresh fish are not available, then they buy other small pelagic species, canned tuna and sardines in tomato sauce, or dried tuna. It is incorrect to say that these consumers do not discern quality. But it does appear there is a stronger reliance on tuna (and fish in general) as a source of protein for their food and nutrition security.

Fish-buying decision by consumers in the Coral Triangle countries, notably the Philippines is governed by cultural and economic considerations. Whole table sized-fish are preferred over the fillet ones, with the fish head a highly preferred part. For larger-sized fish, the whole fish is cross-cut and each family member gets a share but the fish head is usually reserved for the head of the family. The preference for smaller and hence juvenile tunas is partially dictated by the buying power of the consumer.

Management group

This group discussed the challenges of managing fisheries in the Western Pacific, which were identified as balance between economic, environmental and social goals, namely striving for recognition for special access to the EU for all countries, sustainable management of stocks and the maintenance of livelihoods and food security for coastal communities. It was proposed that reaching economic goals can lead to both environmental and social outcomes. If fishers are able to get a premium for their MSC certification, a larger size of fish caught or a fair trade mechanism it would increase returns to the region, create spin off commerce and fund changes in management.

The PNA countries are already seeking MSC certification. If they are successful nearly 15% of the world's tuna stocks will be recognized as being sustainably managed. In return they expect a price premium of 15%, made possible, it is argued, by the decision of EU and US supermarkets to sell only MSC certified fish by 2012. This will in turn provide incentives to expand responsible management activities to other areas of the Western Pacific, including 100% observers, 100% retention of tuna (no by catch) and landing (no transshipment).

The extra profit from certification is planned to be channeled back into programs to reduce fishing effort by reducing capacity through a buyback schemes. It is proposed that reduced capacity has the added advantage of increasing the value of the fish caught. Maintaining

currently low catches of skip jack (which could be doubled and remain within MSY) is done so to maintain a high market price. If overcapacity remains then the fishery will be drawn into competition with Thailand, which currently cans as much fish as is caught in the PNA area.

Presencing

Presencing is a process of reflecting on the challenges faced and finding a source of inspiration and will to find solutions. A part of this process is to determine what personal role each of the participants will play in the ongoing problem of juvenile tuna management in the Coral Triangle and Western Pacific. Two activities made up this stage of the process: personal reflection and creative modelling.

Personal reflection was carried out in pairs who spent an hour alone discussing what drew them to the problems faced by tuna in the coral triangle and how they are going to involve themselves in the future. The aim of this activity was for each participant to reflect on what they had taken in from the co-initiating and co-sensing stages and what contribution they can and will make to any prototypes the group may develop.

The second activity was a creative workshop in which groups of participants sculpted the ‘what is wrong in the coral triangle’. The activity served as a creative means of summarizing the vast array of complex issues that make up tuna management in Western Pacific. Based on this model they were then asked to identify three key problems (see Table 2). On the morning of the third day the model and list of key problems was then used to identify ‘pinch points’ where changes would have to be made to create an alternative future scenario in which juvenile tuna was managed sustainably. The main pinch points taken forward to the prototyping were canneries and the market, governance, and management within the industry.

Table 2. Current and future status of tuna fisheries in the Western Pacific as perceived by participants

| Current status | Future status |
|---|---|
| Governance: | |
| <ul style="list-style-type: none"> • The government is broken and chaotic, • Weak institution for certification • Enforcement not working • Archipelagic issue blocking change/creating opportunity • RFMO is too removed from the situation • Corruption | <ul style="list-style-type: none"> • Funding tied to scorecard controlled by NGOs • Industry (canneries) takes the lead in creating change and states follow • An alternative platform to an RFMO including private sector and fishers • Changed archipelagic access policies in Indonesia & the Philippines policy |
| Management | |
| <ul style="list-style-type: none"> • Complex interaction between large fishing sectors (purse seine, longline, pole and line), Medium and small vessels at play, damaging small mesh nets and use of FADS • Over-capacity of fisheries leads to impacts on juveniles | <ul style="list-style-type: none"> • Eradication of FAD fishing in coastal fisheries • Capacity reduction of offshore fleet • Gear/mesh size changes across all boat categories |
| Market pressure: | |
| | <ul style="list-style-type: none"> • |

- Consumers can play a role but there is currently no concerted effort
- Canneries can play a strong role given their economic power
- Juveniles make up large share of local markets
- Small-fish should not go into canneries.
- Juvenile free cans or bigeye free tuna
- Retailer and processor leverage pushes for no juvenile canning
- Certification of tuna with criteria determined by the consumer
- Consumers aware of issues
- Fair trade issues is taken seriously

Economic incentives and equity

- Low revenue for artisanal fishers
 - Large fish attracts a premium but no flow of benefits back to communities
 - Need to focus on creating incentives which can lead to funding management
 - Cap & Trade limits to juvenile catch.
 - Tax subsidies on fishers within quota
 - Revenue into fund for management (scrap vessels, decompsate vessals, no by catch bigeye)
 - Alternative employment programmes in place
 - Compensation for small scale fishers
 - Low interest loans for gear change
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Prototyping

The final afternoon of the third day focused on coming up with the final ideas for prototyping. The guideline for deciding on these prototypes was that they should be achievable by people in their current line of work and in the short term (see appendix for the conditions to selecting prototyping ideas). This would enable both participants and people in their networks to take up the ideas to develop further and have fast results which in turn generate motivation for further ideas and action.

A long list of 11 prototypes was created by four working groups (Box 1). Participants were then given four votes. The result was a refined list of the final five prototypes. Each of these elaborated in the final section.

Box 1. Long list of prototypes

- | |
|--|
| <ol style="list-style-type: none"> 1. 'Taxing' big eye catch to fund management 2. Cannery led 'juveniles free' cans 3. Fish attraction devices to Tourism Attraction Devices 4. Brand strategies for reducing effort and by-catch 5. Retailers sourcing policy for minimum size of fish 6. 'Get a new net program' 7. Retailers adopt a region of the CT 8. 'World tuna day' promoting industrialized countries to reduce capacity 9. '30% standard' of canned fishing aimed at one large supermarket 10. Baby tuna film 11. Fish to fork online restaurant advocacy |
|--|

Elaboration of the prototypes

1. Business driven approaches to stop canning juveniles

Assist the development retail sourcing policy and brand strategies for reducing the use of juveniles in the canning industry, either by addressing by-catch or reduced capacity and effort of small purse seiners.

This prototype is a combination of three different ideas proposed by different working groups that all identified the need for a business driven approach to stop canning of juveniles. The focus of this idea is the skipjack tuna industry for canned tuna products. As such, the strategy should be driven through the value chain by making demand conditional on reducing the overall impacts of canned tuna on the water. These impacts included reducing overall effort, reducing the catch of juvenile/undersized skipjack, and the elimination or at least significant reduction of non-skipjack species (see Box 1). Alternatively short term focus may be to use one objective, such as ‘juvenile free canned tuna’. This one concept could be used to simultaneously reduce the market demand for juveniles and leave the juveniles for local consumption, thus contributing to the food security.

One key leverage seen in this strategy is not the management on the water at the one end or even consumer demand at the other but rather the requirement to have either retailers or large brands send clear signals to the fishing and canning industries about what is acceptable and what is not. Preference for retail policies was given because their private labels make up 50% of the canned tuna market Europe. Others preferred brands because of central role as market leaders. Changes to brand strategies and retail policy in parallel could speed up the process and encourage the movement of businesses (brands or retailers) that are lagging behind in their efforts.

In order to motivate retailers or brands to do this, they will need to understand how it is material to their business. This can be divided into two general categories—risk and opportunity. On the risk side, overfishing can reduce the fish available to them in the future as well as damage their industry’s reputation. The industry has already worked together to reduce dolphins and other key bycatch. In fact tuna is now certified as dolphin safe. The question going forward is whether tuna can be “tuna safe,” e.g. can we catch and utilize tuna in ways that guarantee that all oceanic tuna species are available for future generations?

There are also opportunities associated with the three specific strategies in Box 2. We can reduce impacts if we can prove to the industry and the rest of the supply chain that they will make more money, reduce their risks, or improve their bottom line. We need to show that the different strategies make financial sense in terms of either being more efficient and reducing costs, retaining access to markets as these and other similar strategies become required for market access, or allow entrance into new markets. As such the cost and/or benefit of each of the following suggestions would need to be understood and presented using credible data to encourage brands to adopt any of the suggested strategies. The goal, then, in the prototype stage will be to gather enough information to suggest how each of these strategies could financially benefit or at least be cost neutral to the skipjack, canned tuna brands in the short and medium terms as well as beneficial for tuna sustainability in the longer term.

Box 2. Key management targets for retail and brand strategies

1. Reduce Effort

- Longer-term purchase contracts developed between boats and canners, and canners and brands.
- Link credit to reduced effort and more efficient, targeted operations.
- Buy less, pay for quality and timeliness.
- Lock in purchase volumes each year

2. Reduce Capture of Juveniles

- Canners reject juveniles (e.g. refuse to purchase it)
- Banks and other lenders link boat and cannery finance (both working capital and long-term investment capital) to the reduction in catch of juvenile skipjack. This would increase the catch of skipjack volume in the future.
- Observers are placed in the canneries to verify performance.
- Long-term purchase contracts are adopted as an incentive to reduce the catch of juveniles by shifting the relationships of buyers and sellers from transactional spot purchases to longer-term partners. Such contracts make such entities better credit risks. Adopt long-term contracts as an incentive to eliminate juvenile catch

3. Reduce By-catch of other Species

- Canners refuse to purchase by-catch at any price.
- Banks and other lenders link boat and cannery finance (both working capital and long-term investment capital) to the elimination of by-catch. This would reduce the risk of lending to such borrowers.
- Observers are placed in the canneries to verify performance.
- Long-term purchase contracts are adopted as an incentive to eliminate by-catch by shifting the relationships of buyers and sellers from transactional spot purchases to longer-term partners. Such contracts make such entities better credit risks.

2. Financial incentives and cap-and-trade

Reducing juvenile by-catch in the purse seine fleet by establishing either an incentive fund for crews with the lowest big-eye catches, tradable by-catch quotas, or a credit scheme to 'tax' juvenile by catch.

This idea reflects the need for incentivized forms of catch reduction of juvenile big-eye in purse seine catches through financial and economic incentives that would be undertaken by the harvest sector (purse seine organizations). Three options to this overall model were proposed; i) one which could create innovation for reduced juvenile by-catch: an incentive fund to reward crews/ vessels with least juvenile catch; ii) a cap and trade scheme and iii) a credit/tax system to promote reduced catches of juvenile tunas.

- i) A harvester association incentive fund could provide a reward scheme for good performance in reducing big-eye juvenile by-catch. It is proposed that revenues, for instance raised from penalties on big-eye catches, would go into a fund that would provide benefits to those vessels that do not catch big-eye, or have the lowest big-eye catches. To ensure incentives are spread widely, rewards could go to crew bonuses. Ideas for other uses of the fund are also possible, so

- long as improved management of juvenile stocks remains in place. For example, funds may also be used to create pension or health care plans for the crew members, or invested directly in conservation measures. Such ideas may work well in Japanese fishery associations, but similar solutions could be sought for other situations.
- ii) “Cap and trade scheme” – for juvenile tunas where quotas or a cap on juvenile catch are allocated to “vessels/ organizations.” The harvester organizations would manage the trading of the catches of juvenile tunas to avoid excessive harvest. In some cases such trading may lead to reduction of capacity.
 - iii) Tax on catches of juvenile tunas - This suggestion is a variation based on the fact that catch of juveniles could not be avoided. Each vessel is given a limit on the catch of juvenile tunas and pays a certain “amount or tax”. A much larger tax could then be paid if the vessel exceeds its limit. The “in-quota” and “over the quota” taxes can be formulated in many ways, as well as forms of redistribution as incentives for good behavior or innovations.

The three options would be available at a national scale or within a fisheries association. Prototypes could be tested on a small scale for a specific duration and continued if successful. Their success could then be up scaled to a national context and ultimately to the regional scale driving reform at the regional or national governance level. Funds collected could also go to the management of juvenile tunas.

3. Documentary film

Creating awareness through a documentary film on two key aspects of the tuna fisheries of the Western Pacific – the tuna lifecycle and the challenges of sustainability in the Coral Triangle.

It was agreed throughout the Think Tank that consumer awareness about the sustainability of big-eye and yellow fin tuna in the Western Pacific is low. Awareness is deemed especially important for any of the initiatives addressing

This prototype came together through two separate ideas that may or may not be combined into one project. The idea for a film on the tuna lifecycle is to focus on the complex linkages of tuna from juvenile to mature adult across spawning and nursing grounds, to migratory patterns across the Western Pacific. It was thought that powerful images on the ecology of tuna, similar to that shown in a documentary about swordfish, would communicate a sense of urgency amongst consumers in Europe and the US.

The second idea was for a film on the sustainability challenges of big-eye and yellow fin tuna is a complimentary to the first. In addition to the biology and ecology of these tuna it was felt awareness is also needed around the challenges faced by fishing nations as well as fishers themselves. The film should focus on the differences between large industrial fisheries and small artisanal fisheries, the issues of access and use surrounding both and their contribution to countries within and without the Western Pacific.

4. ‘Get a new net’ program

A hand in program or ‘amnesty’ to hand in small mesh nets and fund reinvestment in larger mesh nets.

This idea promotes economic and legislative support to reduce the use of small-mesh size nets for purse seines which impact juvenile tuna species. The cost of changing to larger mesh size nets and pull winches is prohibitive for many small and medium purse seiners. A new net program therefore has to be based on both economic incentives and legislation.

The program should be directly supported by legislation which prohibits the use of small mesh size nets after a certain date. The time horizon then creates an amnesty period during which fishers can hand their small mesh nets in to the government and receive a subsidized large mesh net as a replacement. Funding for the program could come from a number of sources, including international aid, debt for nature swaps or national funds. At the end of the program the new legislation is enforced.

Various economic incentives exist for fishers to enter the program, including performance efficiencies and a more valuable catch of mature fish sold to fresh markets. Punitive market incentives may also be implemented by canners (perhaps through the ISSF platform) to refuse purchase of boats who did not register with the program.

5. FADs to TADs

Reduce fishing on fish attraction devices (FADs), where juvenile catches are higher, by turning them into tourist attraction devices (TADs).

This idea responds to over-exploitation of juveniles through over-capacity and by-catch around FADs. Recognizing the importance of the fishery to coastal fishing fleets (both artisanal and medium-sized purse seine fleet), alternative livelihood activities also has to be taken into consideration. As such, reducing the number of FADs without any alternative for these fleets is considered unrealistic. Redirecting the use of FADs from fishing, where juvenile catches are higher, to tourism will reduce fishing capacity and allow for alternative income opportunities. If timed during peak spawning/ recruitment, a lot of these juveniles, given their fast growth, could avoid being caught in areas with very high fishing intensity.

Two specific ways to shift FADs to TADs that take into consideration both large and small medium fishers include:

- The development of recreational fishing on FADs through an 'open season' for recreational fishers with access regulated through small boats retrofitted to cater to sport fishers.
- Create FAD enthusiasts through the development of diving and/or snorkeling activities on FADs with medium sized purse seiners retrofitted into live aboard or dayboats to cater to divers and snorkelers.

These prototypes may be developed separately or in parallel. If they are successfully implemented within a fisheries association consideration could be given to upscaling to national and regional scales.

References

Scharmer, C. O. (2007) *Theory U: Leading from the Future as it Emerges – The Social Technology of Presencing*. The Society for Organizational Learning, Cambridge.

Appendix A List of participants

Steven Adolf (participant) is a journalist, writer and economist. He has written a Dutch book about Tuna soon to be translated in English and other languages.

Dr Isabelle Aelvoet (participant) is Head of the Programme and Communication Office at the Global Petcare Sustainability Leadership Team at Mars.

Martin Kalungu-Banda (facilitator) holds qualifications in Organisation Development, Public Affairs, Philosophy, Development Studies, Anthropology and Coaching.

Ephraim Patrick T. Batungbacal (participant) is a member of the Philippine delegation to the WTO negotiations specifically on fisheries subsidies / non-agricultural market access and Alternate Representative to the Committee on Fisheries and Aquaculture under the National Agriculture and Fisheries Council. He works full time as Senior Faculty Researcher at the Lyceum of the Philippines University, teaching Environmental Science to students.

Maurice Brownjohn (participant) is the current Commercial Adviser to the Parties of the Nauru Agreement (PNA) Office, and member of the Board of the National Fisheries Authority (NFA) of PNG. In service to the PNG government, Maurice has held various positions and worked in various capacities as Head of Delegation, State Delegate, Industry advisor to the Multilateral High Level Conference on Tuna, PREPCON and WCPFC Commission and has attended FFC, PNA, SPC, KOBE II since 1994 as a government representative.

Henk Brus (participant) founded Atuna bv, a global tuna trading company covering the total vertical supply chain. He was a co-founders of the World Tuna Purse Seiner Organization, and acting as Co-chairman of the World Tuna Conferences. He founded Sustunable bv, which now supplies over 15 supermarket formulas throughout Europe with tuna that meets the highest environmental and social standards, and provides consumers with full “Boat to Throat” traceability for each tuna can online.

Dr Simon Bush (organizer) is an assistant professor in the Environmental Policy Group (ENP) at Wageningen University in the Netherlands.

Dr Jason Clay is WWF’s Senior Vice President of Market Transformation, and manages the WWF Network’s private sector advisory board and led the development of WWF’s private sector engagement strategy. He is the author of more than 250 articles and 15 books on the topics of environment, agriculture, aquaculture and poverty alleviation and CSR.

Mike Crispino (participant) is the Communications Manager for the International Seafood Sustainability Foundation (ISSF), a global partnership among leading scientists, the tuna industry and WWF with a focus on improving tuna fisheries management.

Jennifer Purcell Deacon (participant) is a volunteer to this think tank.

Allistair Graham (participant) works with WWF on ocean governance reform and high seas management. He has some 25 years experience in developing, negotiating and implementing a variety of regional and global fora, including negotiation of the Convention on Biological Diversity and the stillborn Antarctic Minerals convention.

John Hampton (participant) is an internationally recognized scientist with SPC with specific expertise in the biology, stock assessment and management of tuna.

Dr Jose Ingles (organiser) is the Tuna Strategy Leader of WWF’s Coral Triangle programme. He catalyzes business and government action to reform the tuna sector towards a path of sustainability.

Dr Svein Jentoft (participant) is a sociologist and a professor at the Norwegian College of Fisheries Science at University Tromsø, Norway, and a guest professor at Gothenburg University in Sweden. He has worked on fisheries social issues throughout his entire career, specialising on industrial organization, community development, fisheries governance and resource management. He has also acted as consultant to the Norwegian Development Agency (NORAD), and was until recently for a decade the coordinator of a university-to-university collaboration in Nicaragua.

Taro Kawamoto (participant) is currently the General Manager of the Kyokuyo Suisan Company, Ltd., Japan, the parent company of a vertically integrated seafood company with processing facilities in

Vietnam, Thailand, Indonesia, China, Netherlands and USA. He has also done work for the Japan Far Seas Purse Seine Fishing Association, has developed and provided training modules for fisheries, delivered lectures and attended and represented Japan in various fora. He has published several papers in fisheries journals.

Francisco Tiu Laurel Jr (participant) is the President of the family-owned FRABELLE CORPORATION, a conglomerate of twenty corporations engaged in fishing, processing, ship repair/ building, food distribution, and realty sectors with investments in the Philippines, Papua New Guinea, Indonesia, Vietnam, Africa, and China. Aside from being a businessman, Francisco Laurel is also Honorary Consul of the Federated States of Micronesia in the Philippines.

Dr Vishwanie Maharaj (organiser) is the Senior Program Economist for the WW-US Fisheries Program and leads WWF's work on rights-based management. Prior to that, she was Director of Economics for the American Sport fishing Association and an economist for the South Atlantic Fishery Management Council. She also served as member of the federal Ecosystem Approach and Federal Investment task forces.

Filipa Monteiro (participant) is legal counsel for McKinsey & Company in London, with primary responsibility for Europe, Africa and the Middle East. Filipa has decided to pursue an MSc in Environmental Technology at the Centre for Environmental Policy of the Imperial College this fall.

Julio Moron (participant) is general director for OPAGAC (Spain) and a most influential EU tuna industry representative, the key partner of ISSF in EU and keen to lead Spanish tuna sector to sustainability and best social standards.

Rupert Murray (participant) is a film director working in London who began in advertising and then went on to make television documentaries for Channel Four's Cutting Edge series and short films. In 2009 he directed The End of The Line, a feature documentary about the effects of overfishing. The film and subsequent campaign has resulted in major retailers changing their fish sourcing policy. Murray is currently working on a film about climate sceptics for the BBC and is developing an innovative marine conservation project.

Gorjan Nikolik (participant) is an industry analyst specialising in global fisheries, aquaculture and the seafood processing industries employed with Rabobank International (RI), the investment banking arm of the Rabobank Group. His main role is as an internal advisor to product groups such Mergers & Acquisitions, Leveraged Finance, Venture Finance, Trade and Commodity Finance. He has a role in the Rabobank credit process, evaluating client business risk, and occasional consultancy roles with RI's Corporate Social Responsibility department.

Dr Mariëlle van Riel (participant) is a researcher at the Centre for Ecosystems (ESG) at Wageningen Research Centre The Netherlands. She contributed to research projects in Indonesia and Curaçao.

Dr Lida Pet-Soede (organiser), leads WWF's coral triangle program.

Emil Bambang Sumirat (facilitator) is a Presencing Institute member and IDEAS MIT Fellow who has been promoting Theory U for the past three years in Indonesia. In addition to that, Mr Sumirat is a frequent lecturer about innovation and Theory U to the Trisakti University Master Magister Corporate Social Responsibility (MM-CSR) programme. Emil Bambang Sumirat is also an Information Technology (IT) entrepreneur owning 3 start-up companies.

Martin Tsamenyi (participant) is currently Professor of Law and Director of the Australian National Centre for Ocean Resources & Security (ANCORS) the University of Wollongong in Australia. Martin is a world-recognized expert in international fisheries law and policy and the Law of the Sea. He previously served as the Fisheries Law Adviser to the Pacific Islands Forum Fisheries Agency and is currently the legal adviser to the Western and Central Pacific Fisheries Commission.

Paul van Zwieten (organiser) is a fishery biologist and assistant professor at Wageningen University with more than 20 years experience in (applied) fisheries research. He is responsible for the research programmes of the group on the impacts of fisheries and eutrophication of Nile perch stocks of Lake Victoria (SEDEC) and social and ecological drivers of shrimp culture in mangrove ecosystems in the coastal areas of Southern Vietnam and Kalimantan, Indonesia (RESCOPAR).

Appendix B - Think Tank Agenda

| Time | What | Purpose | How |
|-------------|-------------------------------------|--|--|
| 08:30–10:30 | Discovery of Common Intent | Participants to discover Common Intent on environmental sustainability & the Tuna Industry | <ul style="list-style-type: none"> Welcome by Convener and Presentation of the 3 Day Programme [15 min] Setting the tone: speeches by CEO of WWF – NL (15 minutes) and Rector of Wageningen (15 minutes) In small groups, participants share: “Who am I? What is my work? My personal journey that connects me to the work on environmental sustainability and/ or the Tuna Industry. What are my expectations for this week?” [45 min] Sharing common threads in Plenary [30 min] |
| 10:30–11:00 | | | |
| 11:00-11:30 | Attending to Leadership Blindspot 1 | Participants Reflect on current context. | <ul style="list-style-type: none"> Participants see “Earl on Oceans Life” video Group Reflections on: “What struck you?” Sharing in Plenary |
| 11:30-13:00 | Leadership Blindspot 2 | Participants to reflect on what can help with innovation & change | <ul style="list-style-type: none"> Two Sources of Learning Presentation on Voices of Judgment, Cynicism, & Fear Presentation on Four Levels of Listening. Participants watch the Placido Domingo video In Groups: “What struck you?” Sharing in Plenary |
| 13:00-14:00 | LUNCH BREAK | | |
| 14:00-15:45 | Co-Sensing the Field 1 | Deepening understanding of the Tuna Industry context. | <ul style="list-style-type: none"> First Research Results sharing (Tuna Fisheries Management and Ecology) Questions of Clarification (plenary) Second Research Results sharing (Why is management of Tuna so difficult?) Questions of Clarification |
| 15:45-1600 | | | |
| 16:00-16:30 | Co-Sensing 2 | As above | <ul style="list-style-type: none"> Participants watch WWF Video on Tuna (The supply chain perspective of the Tuna industry) |

| | | | |
|-------------|---------------------|--|--|
| 16:30-17:30 | Co-Sensing 3 | As above | <ul style="list-style-type: none"> In small Groups, Participants discuss the Research results and the video: “What caught my attention? Why?” Sharing in Plenary |
| 18:45 | DINNER | | |
| 08:30-09:00 | Reflection | To focus attention | <ul style="list-style-type: none"> In a circle, Participants share their reflections/ insights from previous day and intentions for the day |
| 09:00-09:55 | Co-Sensing 4 | To gain greater knowledge of the Tuna Industry | <ul style="list-style-type: none"> Third Research Results sharing (Market based management systems) Questions of Clarification |
| 09:55-10:15 | | | |
| 10:15-11:15 | Sensing Journeys 1 | Learning form an innovative team | <ul style="list-style-type: none"> Facilitator shares the 5 movements of the U. Participants watch the IDEO video [25 min] Groups Discussion: “What struck you? How can the lessons be applied to the change we want to see in tuna industry?” [15 min] Plenary Conversation |
| 11:15-12:00 | Getting Ready | Getting ready for sensing journeys | <ul style="list-style-type: none"> Facilitator explains how to successfully do Sensing Journeys [Space for participants to prepare: (a) what they expect to hear (b) the questions to ask] |
| 13:00-14:00 | | | |
| 14:00-16:00 | Sensing Journeys 2 | Participants in out to learn from other experts. | <ul style="list-style-type: none"> Café conversations with tuna experts: Laurel/Brown (fisheries); Henk/Kamamoto (buyers); Hampton/Graham (policy); Crispino (consumer). |
| 16:00-16:30 | Coffee Break | | |
| 16:00-18:00 | Sense-making | Process data from sensing journeys | <ul style="list-style-type: none"> Journaling Plenary Participants sculpture current “Eco-system of the Tuna Industry/ the Coral Triangle and how it is Managed” |
| 19:15 | | | |
| 08:15-08:40 | Sense-making | Process data from sensing journeys | <ul style="list-style-type: none"> Reflection in Groups on Day 2 In (sensing journey) Groups, Participants complete their Sculpturing work. |

| | | | |
|-------------|-----------------|---|---|
| 08:40-09:15 | Sense-making | Process data from sensing journeys | <ul style="list-style-type: none"> Participants share their sculptures |
| 09:15-10:00 | Co-Presencing 1 | Accessing insights for change by connecting to source | <ul style="list-style-type: none"> Participants go on Dialogue Walk with the Question: “What does the current state of the Tuna Industry mean for me?” “What can I do about the situation?” “What can we do as a group?” |
| 10:00-10:30 | | | |
| 10:30-11:00 | Co-Presencing 2 | As above | <ul style="list-style-type: none"> In Plenary Participants share their reflections from the Dialogue Walks. |
| 11:15-13:00 | Prototyping 1 | As above | <ul style="list-style-type: none"> Participants sculpture the “Tuna Industry of the Future” [60 minutes] (till 12:15) Participants do a walk about to see and listen to other Groups’ sculptures (Key Elements are noted on a flip-stand) |
| 13:00-14:00 | | | |
| 14:00-14:30 | Prototyping 2 | Creating landing strips for Change/innovation | <ul style="list-style-type: none"> Participants take Solo Walk: “What do I feel called to do about the Tuna Industry?” |
| 14:35-16:00 | Prototyping 3 | As above | <ul style="list-style-type: none"> In Groups, participants identify 2 ideas for prototyping. Presentation of the ideas in Plenary [30 min] Selection (by voting) of 3-4 prototyping ideas [15 min] |
| 16:00-16:20 | | | |
| 16:20-17:10 | Prototyping 4 | As above | <ul style="list-style-type: none"> Participants indicate how they would want to be involved in the future on Tuna, especially the prototyping phase. |
| 17:10-18:00 | Closing | Hearing each other’s final Reflections | <ul style="list-style-type: none"> In a circle, participants share their final reflections Closing remarks from the Convener |

Appendix C Conditions for Selecting Ideas for Prototyping

The following “7 Rs” will help to determine which ideas to select:

1 – **Relevance:** Does it matter to the stakeholders involved: individually (the persons involved), institutionally (for the organizations involved), and socially (for the communities involved)?

2 – **Revolutionary:** Could it change the situation? Could it have a major impact on the status quo?

3 – **Rapid:** Can it be done fast? One must be able to start right away, in order to have enough time to get feedback and adapt (avoiding analysis paralysis)

4 – **Rough:** Can one do it on a small scale and locally? It is important to start simply and allow for meaningful experimentation. Let the local context teach you how to get it right. Trust that the right helpers and collaborators will show up when you issue the right kinds of invitations and intentions.

5 – **Right:** Is it focussing on the right things? Can one see the whole in the microcosm that the prototype focuses on? Get the dimensions of the problem or project definition right.

6 – **Relationally** effective: Does the prototype make optimum use of the strengths, competencies, and possibilities of the existing networks and communities?

7 – **Replicable:** Does it have potential to scale up? Any innovation in business or society hinges on its replicability, whether it can grow to scale. In the context of prototyping this favours approaches that activate local participation and ownership and excludes those that depend on massive infusions of external knowledge, capital and ownership.

Otto Scharmer (2007), Theory U: Leading from the Future as it Emerges.