Workshop on Mariculture Issues and Priorities in the Marshall Islands

Summary of Workshop Findings

February 24, 2004

Majuro, RMI







Convened by the

Marshall Islands Mariculture Development and Management Planning Team

Mariculture Workshop February 24, 2004 Majuro, RMI



Summary of Workshop Findings

Objectives

The workshop was convened by the RMI Mariculture Development and Management Planning team to promote the sustainable development of mariculture in the Marshall Islands. The results from the workshop will be incorporated into a profile of mariculture issues and priorities in the RMI. This is the first step in the preparation of action strategies for mariculture development.

The principal exercise of the workshop was group work and constructive discussion on key components of the mariculture supply chain, including production, transportation, product development and marketing, government, environment and conservation, and customers. The objectives of the workshop were to:

- identify the major issues/priorities that should be addressed in mariculture development;
- engage a broad group of people in a highly participatory process;
- increase participants' overall understanding of mariculture;
- generate ideas and discussion, and;
- have FUN!

Participants

Guest Speaker: Hon. John Silk, Minister of Resources and Development

Workshop Facilitator: Nicole Baker

Steering Committee—Mariculture Development and Management Planning

John Bungitak, Director of EPA Don Hess, CMI Marine Science Lenest Lanki, Secretary of Internal Affairs Jim Tobey, URI Danny Wase, Director of MIMRA

Working Group—Mariculture Development and Management Planning

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Other Contributors

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Begonia Alik, Jaluit High School Maity B., Jaluit C.L. Cheshire, UHH Junior DeBrum, Likiep, MIMRA Jan Fellenius, Visitor Larual Heine, Northern Islands High School, Wotje Houston Lomae, MIMRA & CMI Dean Jacobson, CMI Marine Science Souvenior Kabua, RMI-EPA Anir Lal, CMI Marine Science

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Welcome by John Silk, Minister of Resources and Development and Chairman of the MIMRA Board

Ladies and gentlemen, on behalf of the Marshall Islands Marine Resources Authority I would like to welcome all the participants to this National Mariculture Planning Workshop. I would like to recognize several mayors that are with us today: James Capelle from Likiep, Len Lenja from Mili, and Amos McOuinn from Namdrik.

Mariculture in the Marshall Islands is in its infancy. Several successful projects have already been developed here but there is much potential for expansion. The outer islands need to find supplemental income generating activities and mariculture is an opportunity to provide this. Furthermore, mariculture can be used for restocking of near-depleted species.

As of now, there is no national development plan nor significant policies in effect that would help the growth of this industry. The overall purpose of this workshop is to identify the issues that need to be addressed in developing mariculture for the RMI. In so doing, we will all gain an appreciation for the complexities as well as the opportunities involved. It is important that this process incorporate the views of all stakeholders and that is why we have invited you here today. It is my hope that we can all work together and share our collective knowledge to gain an understanding of mariculture and work towards a national development plan.

In conclusion I would like to thank the organizers of this workshop – Terry Keju from MIMRA, Karl Fellenius from the College of the Marshall Islands, Nicole Baker from RMI – EPA and Matang Ueanimatang, CMI aquaculture extension agent. I would also like to recognize our off island participants – Jim Tobey from the University of Rhode Island and C.L. Cheshire from UH Monoa Pacific Business Center.

Exercise 1: Identification of Mariculture Key Issues (5 issues per participant)

Each item listed represents an issue as it was expressed by participants on post-it paper. The issues have been grouped into general categories. This highlights both the perception of issues and their frequency.

Community Awareness, Local Involvement, and Local Benefits

- 1. Greater awareness
- 2. Community awareness
- 3. Community awareness
- 4. Not enough community awareness
- 5. Promotion of public awareness
- 6. Concern and understanding about the issue
- 7. Traditional leaders and community support and involvement
- 8. Education
- 9. Outreach program



- 10. Way to meet people
- 11. More community participation
- 12. People (not interested)
- 13. Local involvement
- 14. Provide economic benefits to outer atolls
- 15. Make sure wages are fair and meet international standards
- 16. Happy communities
- 17. Catalyst for economic development
- 18. Make sure as much work as possible is kept on island (not just growing)
- 19. Food stability
- 20. Cultural/traditional issues

Production, Facilities, Species, and Profitability

- 1. Lack of full use of existing facilities (use current rather than build new)
- 2. Equipment and maintenance of facilities
- 3. Inventory of existing resources and facilities
- 4. Suitable species
- 5. New species
- 6. Culture of non-indigenous species vs. local species culture
- 7. Putting farms in the right locations
- 8. Availability of broodstock
- 9. Production
- 10. Product quality
- 11. Legitimate operations not just chasing funding, but that produce product
- 12. Economic viability: all ventures must be able to stand alone. Government funding is no good in the long run.
- 13. Protection of locally operated businesses from "unscrupulous foreign business scammers"
- 14. Protection of already established operations from competition
- 15. Reliability of supply of mariculture products by local producers
- 16. Tools for maintenance
- 17. Cooperation between hatcheries and grow-out farms

Marketing

- 1. Marketing
- 2. Marketing
- 3. Markets and transportation costs
- 4. No marketing
- 5. Marketing problems: few buyers
- 6. Marketing problems: cheaper markets elsewhere
- 7. Marketing problems: perishable products
- 8. Marketing of RMI mariculture products is weak, need the assistance of other trained people
- 9. Stronger relationship with international trade companies
- 10. Marketing problems of small-scale production—difficult to match production with wholesaler requirements in terms of quantity and timing
- 11. Black pearls: RMI black pearls are of higher quality than other Pacific Island pearls. Why are they not selling as well?
- 12. Too many middlemen
- 13. Linkages: linking producers, brokers, markets
- 14. How to get mariculture items to the final consumer through established channels
- 15. A fair price to producers

Financial Resources

- 1. Funding
- 2. Funding
- 3. Funding
- 4. Money
- 5. Money
- 6. Money
- 7. Money (not enough)
- 8. No Money
- 9. More money for funding and support
- 10. Financial support
- 11. Pure economics
- 12. Attracting long term financial capital to complete projects
- 13. Attract private sector investment
- 14. Industry needs capital, to kick start projects, training, etc.
- 15. Investment: currently most overseas investment is for deep-sea fishery (tuna, etc.). Should we focus on promoting mariculture as an alternative?

Role of Government

- 1. No government support
- 2. Need better implementation of laws and policies that support this type of industry/foreign investment
- 3. Mariculture should be a government priority
- 4. Appropriate role for government? What should government agencies do/not do?
- 5. Lack of local government ordinances
- 6. Need for public sector support and coordinated planning
- 7. Governance
- 8. High authorities in government need to understand the issues and how they can be of assistance to this industry
- 9. No plan
- 10. EIA process (part of permitting process?)
- 11. Enforcement of fishery regulations should be strong
- 12. Need for an understanding on land ownership issues between landowners, entrepreneurs, government people, etc.
- 13. Problems with monitoring

Links to the Environment

- 1. Risks to environment: are there any biological hazards to local species with the introduction of mariculture?
- 2. Environmentally sustainable
- 3. Environmentally friendly
- 4. Conservation of marine life
- 5. Water pollution
- 6. Lead contamination: what if lead from batteries gets into reef fish food chain. Is any testing being done?
- 7. Nutrient loadings: What if excess nutrient, food, and waste get onto reef and causes damage?
- 8. Marine protected areas
- 9. Restocking
- 10. International donors to fund restocking as part of commercial operation
- 11. Depletion of stock

Training, Extension and Technical Skills

- 1. No skills
- 2. More workers and skills are needed
- 3. Finding workers and technicians
- 4. Form of education (learning)
- 5. Aquaculture education
- 6. Skills
- 7. Skilled workers
- 8. More hands-on technical training workshops (grafting, tanks, etc.)
- 9. Local extension training to replace outside expertise
- 10. Availability of highly trained Marshallese for technical positions
- 11. Appropriate role for technical assistance providers (CMI, IFAFS, etc.). What should it do/ not do?

Transportation

- 1. Transportation: getting product to Majuro from outer atolls and getting product to international markets
- 2. Cost of transportation
- 3. Transportation is limited
- 4. Transport (not enough)
- 5. High shipment costs
- 6. Isolation of sites
- 7. Mariculture shipping and handling



Exercise 2: Strengths, Weaknesses, Opportunities and Threats

Participants were located in groups of the mariculture supply chain based on their preferences/area of work and experience. Strengths, weaknesses, opportunities, and threats (SWOT) of mariculture from the perspective of the specific group were first discussed. Ways to resolve SWOT problems or build on SWOT strengths and opportunities were then developed, often through cross group interaction.

1. Government Facilitation

Strengths		Opportunities		
-	Direct access to donor countries	-	Getting grants and loans from	
-	Participation in regional and international		donors/partner countries/international	
	organization		organizations	
-	Coordinating body for atoll governments	-	Remove barriers to foreign markets (export	
-	MIMRA, CMI, Local government, EPA,		restrictions)	
	MoE	-	Provision of technical assistance	
-	Marshall Islands Development Bank	-	Area zoning	
	(MIDB)			
We	eaknesses	Th	reats	
-	Unavailability of funds for grants/loans	-	Lack of management skills	
-	Lack of communication of needs from the	-	Misuse of funds and equipment	
	public	-	Lack of/diminishing support from local	
			government/community	
		-	Lack of coordinated efforts (resulting in	
			introduction of new species, diseases,	
			environmental threats	
		-	Careless packing/shipments (gives poor	
			reputation)	
		-	Lack of assessment/review of projects	
		-	Ownership	

Solutions

- More grant writing
- Coordinate discussion among stakeholders (facilitate action)
- Easier access to funds loans
- One-stop process for permits, etc.
- Need policy for land tenure issues and foreign investment
- Vocational opportunities funded by government to train workers
- Coordination between producers and local government for restocking purposes
- Use MIMRA as facilitator
- Small Business Development (SBDC)
- Protect local businesses

2. Product Development, Marketing and Export

Strengths		Opportunities	
-	Wide range of products	-	Lucrative resource
-	Good facilities	-	Increasing volume of sales
-	Air transport	-	Become established as a "major player" in
-	Professional		raising RMI GDP and employment
-	Good market contacts		
-	Good "clean" image of RMI and facilities		
W	eaknesses	Th	reats
-	Operating costs and start-up loan	-	Indonesia and Philippines
-	Labor costs and capacity for intensive work	-	Local competitors (if they arise)
-	Reliability of production quality and	-	Downturn in US economy
	laborers	-	Disease
-	Transport concerns		
-	Government agency "meddling"		
-	Land tenure		
-	Overly demanding land owners		
-	Costs of marketing		
-	Costs of shipping materials and power		

How to increase *Strengths*

- "Clean" image of RMI (create awesome website)
- High profile marketing
- Link clean image of mariculture to alternative modes of income, e.g. tourism

How to reduce Weaknesses

- Partnerships to increase cash flow
- Training of labor force to become competent
- Liaise closely with producers (lower prices, maintain quality)
- MOU with transportation sector
- Establish long term lease plans

How to take advantage of Opportunities

- Develop plans to see what resources can be produced sustainably and what numbers
- Liaise with other atolls to see what they can offer
- Search for investors for major expansion and stronger capital inflow

How to avoid Threats

- MOU with suppliers so they only use you
- Create brand image
- Legislation to protect already established businesses
- Try to become a shareholder in competing companies/suppliers
- Liaise with EPA so they don't build dumps near farms
- Regular monitoring of clam farm water

3. Wholesalers, Retailers and Consumers

Strengths		Opportunities		
-	Free to choose among producers Able to demand product characteristics (e.g. color of clam mantle)	-	Growing number and diversity of products to choose from Improved transportation and access to new sources of supply Creation of collector clubs	
		-	Linking maricultured animals with ecotourism in the places they are located	
Weaknesses		Threats		
-	Competition with other wholesalers (e.g. buyers from Europe that also influence product demand)	- - -	Fashionable (variable) customer demand Dependence on single supplier Inadequate supply	
-	Uncertain product quality and reliability of supply Producer/customer relations	-	Disease	

How to increase *Strengths*

- Go to trade shows
- Search for new products
- Consult customers to determine demand (do consumer survey)
- Visit and consult with producers
- Discuss product development with producers

How to reduce Weaknesses

- If possible, form contracts with producers to minimize "dead on arrival" losses and risks of unreliable quality and timing of supply
- Develop long term relationship with producers
- Verbal agreement with supplier not to sell to other wholesalers

How to take advantage of Opportunities

- Promotion and improved marketing
- Create website for collectors
- Expand to other markets

How to avoid Threats

- Promotion of mariculture products
- Expand number of suppliers
- Preventative disease management

4. Transportation

Strengths		Opportunities		
-	Availability of ships, boats, planes, and	-	Linkages between outer islands and Majuro	
	automobiles	-	Expansion and development	
-	Resources	-	Private linkages	
-	Ministry of T & C	-	International tradelinks	
-	Communication between Majuro and outer			
	islands and international			
-	Reliable air schedule			
Weaknesses		Threats		
-	Unreliable water transportation schedule	-	Fluctuating fuel prices	
-	Lack of necessary tools and maintenance	-	Maintenance	
-	Limited funds	-	Technical difficulties (prolonged loading)	
-	Limited space available for shipping	-	Weather	
		-	Budget	
		-	Severing of ties with outside markets	
			(being labeled as unreliable supplier)	

How to increase Strengths

- Improve the overall management system in place (supply of tools, regular maintenance, strict adherence to schedule)
- Guaranteed schedule
- Reliability
- Regular service

How to reduce Weaknesses

- Financial support from government (fuel subsidy)
- Purchase bigger vessels
- Purchase necessary tools/experts to maintain assets

How to take advantage of Opportunities

- Government support
- Privatization/localization
- Guarantee safe space for priority products
- Insurance
- "Last loaded, first unloaded". Labeling and tracking of shipments
- Special rates

How to avoid Threats

- Regular maintenance
- MOU
- Have a plan B (alternative plans)

5. Environment/Biodiversity/Conservation Group

Strengths		Opportunities		
-	EPA – monitoring of marine species on Jaluit	-	Access for technical assistance –	
-	Awareness to community (Councils;		monitoring	
	Landowners; Schools)	-	Income generating activities	
-	Regulatory bodies (MIMRA/EPA/Local Govt.)	-	Merge EPA/MIMRA permitting	
-	EIA – regulations exist		process/local government	
-	Local government ordinance process	-	Restocking reefs (MPAs)	
-	Government ratified biodiversity convention	-	Communicate possible threats	
-	Awareness of managers	-	Capacity building in outer islands	
-	Resources (agency personnel available)	-	Work with producers	
W	eaknesses	Th	ireats	
-	Lack of coordination, EIA not implemented	-	Exotic species	
-	Biodiversity convention not well implemented	-	Over stocking could introduce disease	
-	Lack of enforcement (regulation)	-	Over harvesting	
-	Lack of education	-	Unbalanced ecosystem (food chain,	
-	No framework		competition)	
-	Permitting not incorporated into mariculture	-	Loss of investment due to uncertainty	
-	No real process of quarantine		of environmental requirements	
-	Knowledge of EIA details			

Solutions to SWOT

• <u>Restocking of *T. Gigas* (true giant clam) for fisheries objectives as well as biodiversity</u> For Jaluit and other atolls with candidate marine protected areas. May need external funding (e.g. ROC, Japan) as there is little incentive for industry to produce non-exported products. The government (either MIMRA or local government) needs to become a regular client of mariculture operations through public/private partnerships that reintroduce threatened/depleted species into areas that already have community compliance as no-take (greater chance of survival, spillover into adjacent areas, etc.). Such a process requires community education about potential benefits, strong MIMRA/local government leadership, and at least one private sector company willing to engage in a pilot. Alternative can be to use a public facility (e.g. Likiep Hatchery).

• One-Stop Permit Process (MIMRA, EPA, and local government)

Development and/or modification of a mariculture facility affect the coastal environment and is under the jurisdiction of the EPA (EIA process). Review and approval of the type of mariculture product is done by MIMRA (lead agency for mariculture). Sites under local government jurisdiction are owned by Marshallese landowners so the local government council has to give final approval. Operations at an ongoing mariculture facility involve export of mariculture products. The type and volume/number needs to be submitted to MIMRA on an export basis assuming local government approval based on regular activity updates by MIMRA

• <u>Developing/strengthening institutional arrangements among agencies/levels of government</u> For there to be a one-stop permit process, government needs to clarify and streamline its regulatory role in mariculture. Staff need to be designated and resources provided to deal with proponents in an effective and timely manner. A monitoring program needs to not only keep track of exports and physical/procedural changes to production facilities, but also to gauge and adapt their institutional ability to deal with a dynamic and growing industry currently in its infancy in the RMI.

Exercise 3: End of workshop, round-robin identification of priority issues for mariculture development

Issue	Links to categories of issues identified earlier
1. Create a good atmosphere for mariculture development	Role of government
2. Climate for attracting private investment	Role of government
3. Clarified role and responsibilities between key players	Role of government
4. Clear policies and regulations	Role of government
5. Streamline the permit process/zoning	Role of government
6. Secure land leases	Role of government
 Distinctions among land ownership/business ownership clarified 	Role of government
8. A plan to achieve goals of restocking/income	Role of government
generation and business development	
9. Welcoming and aware community	Community awareness, local
	involvement, and local benefits
10. Inclusion of aquaculture education in school	Community awareness, local
curriculum for both vocational training and awareness	involvement, and local benefits
11. Clear benefits of local ownership balanced with	Community awareness, local
using foreign investment	involvement, and local benefits
12. Extension/training to outer islands	Training, extension and technical skills
13. Train-the-trainer	Training, extension and technical skills
14. Business oriented education	Training, extension and technical skills
15. Environmentally sustainable	Links to the environment
16. Importance of restocking for biodiversity and food	Links to the environment
security with the support of international donor	
funding	
17. Maintenance of facilities and equipment for long-	Production, facilities, species, and
term use	profitability
18. Reliable/economic transportation	Transportation

Highlights of Key Findings from the Workshop

In this section we highlight some of the recurrent themes, concerns, and ideas that frequently came up in discussion at the workshop. The headings can be viewed as broad policy areas and each description as the beginnings of a strategy to address the policy. These strategic issue priorities require further development and will be the focus of subsequent meetings of RMI mariculture stakeholders. They are in no particular order. In fact, many of them need to proceed concurrently.

• Fundraising

A consistent theme was the lack of RMI financial resources and staff to provide the government services needed to promote mariculture and to fulfill the roles and responsibilities of government agencies. The implication is the importance of a directed and concerted effort at fundraising with external donor organizations. The issue profile and subsequent action plan should provide a tool for grant making proposals. Other innovative strategies, such as earmarking revenues from tuna licensing to mariculture development, also need to be developed.

Restocking

Restocking of threatened/depleted species (e.g. *T. gigas* giant clams) in parallel with MPAs in community-based fisheries management planning was an area of recurrent discussion and importance to many participants. Critical gaps and potential solutions were discussed. There needs to be a pilot program to test the effectiveness of restocking efforts. Jaluit Atoll has expressed a will to engage in this process and are uniquely positioned among atolls with respect to their developing monitoring program. Potential sources for *T. gigas*, for example, are the Wau Island Farm in Mili as well as the MIMRA hatchery in Likiep. Issues related to using adults or juveniles need to be addressed.

Maximize Use of Public Facilities

Many voiced concerns that existing facilities are in poor condition, lack necessary tools and equipment, and that the various public facilities do not coordinate sufficiently. To maximize the use of public facilities there is a need for improved coordination and planning among the organizations operating public facilities (MIMRA, Land Grant, and CMI). Commercial operations that at times rely on production at public facilities need to be actively involved in this review process.

Institutional Arrangements among MIMRA, EPA and local governments

While a permitting process needs to be developed beyond the tracking of exports currently conducted by MIMRA, there are fundamental issues related to institutional arrangements in government that need to be dealt with first. The general theme of inadequate coordination among MIMRA, EPA, and local governments recurred throughout the workshop. Institutional roles and responsibilities in the development and regulation of mariculture, restocking, and protected area management need to be clarified. All institutions should be working under a common vision for mariculture development. Roles and responsibilities need to be made operational with strategic development and fundraising plans. Specific permitting issues such as EIAs can be developed once effective institutional arrangements are in place.

• Educational Outreach and Training

Community awareness, public education and local involvement in mariculture emerged as a theme of particular interest. Curriculum at all levels of education in the RMI need to incorporate mariculture. Many participants highlighted that the successful High School education program (e.g. Jaluit) should be continued and expanded to other atolls. Economic development and career planning workshops can be used to stimulate awareness of mariculture in the public mindset.

Local Benefits

Finding ways to provide outer island benefits from mariculture and maximizing RMI income and employment benefits was also an area of wide concern. For example, public hatcheries that sell product to private companies need to benefit people/local govt. in the atoll where the product is produced, not only the national government. Strategies for expanding local benefits to outer islands need to be developed. The advantages and disadvantages of foreign ownership of business also need to be considered. Should mariculture enterprises be majority-owned by residents of RMI? What policies can increase the trickle down of benefits of business operations?

Land Ownership and Leasing

Land ownership and land tenure issues came up on many occasions during the workshop. Security of land tenure arrangements and clarity on land and water availability for mariculture are critical for long-term business planning and smooth operations. There is a need for further dialogue to clarify land tenure issues and to find solutions to land use issues. However, interim measures agreements can be used as a tool to defer ownership decisions in the interests of moving forward on mutually beneficial economic development.

Private Sector Coordination

There are currently three commercial mariculture businesses in operation. Despite the small number, they play a pivotal role in guiding the development of the industry especially given the theme highlighted earlier concerning lack of government funds for mariculture. More formal coordination and planning mechanisms among the private sector (such as an industry association) may be beneficial, for example in providing leadership on a vision for mariculture growth, promoting voluntary best management practices, and providing a single business voice to lobby for sustainable mariculture development both in RMI and externally. Such an association can also contribute effectively to the developing "Mariculture and Aquaculture Management" standard under the Marine Aquarium Council.

Promotional Outreach

Another theme was the unique natural beauty and marine diversity of the Marshall Islands and the environmentally pristine and clean image of mariculture (e.g. Pearl of the Pacific). The opportunity to build on this strength to market and promote environmentally responsible mariculture came up in many of the discussions. Some opportunities identified in the workshop are to link mariculture with tourism, create a highly visible website, and produce colorful informational brochures.