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EXPLORING SCALE IN OCEAN AND COASTAL GOVERNANCE IN THE WIDER CARIBBEAN

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ABSTRACT: An early childhood attraction to the sea led to a career in marine ecology, fisheries and ocean and coastal governance. This paper tracks the development of my career from tertiary education, through a variety of jobs and positions with government, private sector, international and academic organizations. These positions took me from national to regional levels of governance, then down to local levels and ultimately back up to regional and global levels. At each stage new concepts join those already there to build what is ultimately a multilevel perspective on ocean and coastal governance. This perspective is built around ideas of institutional architecture and process, complemented by a learning-by-application approach. Its growth and application in the Wider Caribbean has been a fascinating and rewarding journey, with the biggest reward being the many, many amazingly smart and dedicated people encountered at every stage.

KEY WORDS: Fisheries, regional governance, civil society, Caribbean Sea, Large Marine Ecosystem

THE EARLY YEARS

You want to be a marine biologist?

My earliest memories are of the sea. Growing up in Jamaica, the sea was where we went on weekends and holidays; to Port Royal and its Cays or to the north coast. A mask and snorkel was basic equipment, as was a fishing line wrapped around a Coke bottle. Jamaica's many beautiful rivers were also a source of fascination and adventure. This fascination with water endured through teenage years in Barbados (1962–68), where a surfboard was added to the equipment list. The Lodge School in Barbados, where I attended secondary school, was an incubator for many boys with an interest in biology. Yes, it was boys only. Our biology teacher, Herbert Gooding, had done his masters at McGill University on coastal vegetation in Barbados and had published it in *Ecology*. He had a discovery approach to biology. Most of his students went on to medicine, but a couple, Wayne Hunte and I, went on to study marine biology. At that time, when I told my parents I wanted to be a marine biologist, I had no answers for their question “what will you do when you graduate?” There were no jobs for a ‘marine biologist’ in Barbados then.

I cannot imagine a better place or time to study marine biology than at University of the West Indies (UWI), Mona (1968–1971). The Cave Hill Campus in Barbados was only just getting going then, and the St. Augustine campus in Trinidad was all about agriculture and engineering. With a class of only 6 specializing in marine biology and mentors like Ivan Goodbody, Jeremy Woodley and Barry Wade (Figure 1), it was a wonderful experience. A lot of time was spent in the field in the mangroves and cays near the Port Royal Marine Laboratory and in Kingston Harbor. Companion students Wayne Hunte and Karl Aiken became lifelong friends and colleagues, each contributing significantly to Caribbean marine science over their careers. We learned to SCUBA dive

FIGURE 1. Three leading figures in Caribbean marine science who helped shape my career. A. Dr. Barry Wade. B. Professor Ivan Goodbody. C. Dr. Jeremy Woodley.

together, a requirement of the program. We also had our first shipboard research experiences together on the Duke University R/V *Eastward* which came to Jamaica 3 years running for a 2-week cruise (Figure 2). The many strange and new creatures we saw come up from the deep sea around Jamaica on those cruises only amplified our fascination with the sea. I also vividly remember walking into the first day of John Munro's fishery course to be confronted by the Beverton and Holt yield-per-recruit equation on the board, $Y/R = F e^{(-M^*(T_C - Tr))} W_{\infty} [1/z - 3S/(z+k) + 3S^2/(z+2K) - S^3/(z+3K)]$, where $S = e^{-K^*(T_C - t_0)}$, with John standing to one side with a mischievous

FIGURE 2. About to set sail on the RV *Eastward* 1970, L-R Denzil Williams, Peter Reeson, Robin Mahon, Ronnie Thompson and Wayne Hunte.

smile, enjoying the look of shock on our faces. My final year project on the response of benthos in Kingston Harbor to pollution was to give me my first taste of publishing (Wade et al. 1972). I graduated in 1971. My father died soon after, and was never to know that one can have a career in the Caribbean based on marine science.

A freshwater detour

After a couple years hiatus teaching at Campion College in Jamaica and exporting aquarium fishes to make ends meet, the next stage in my career was graduate studies in Canada. Supported by a Canadian Commonwealth Scholarship, in 1974 I found myself at the University of Guelph almost 2,000 km from Canada's nearest ocean (which was too cold anyway). I turned my attention to the next best thing, a large lake and learned a great deal about fish biology and ecology studying lakeshore lagoons on Lake Erie (Mahon and Balon 1977). My supervisor Eugene Balon had worked on fish ecology in Lake Kariba, Zambia, but was now indulging his passion for ecological embryology, which left a lot of scope for self-supervision and consulting with other graduate students. Studying in Canada gave me the opportunity to explore freshwater interests relating to fish communities and to connect with many colleagues who went on to make significant contributions to fisheries science and management in Canada. Mike Chadwick and I found our ways through our research together. He was to become a leading Atlantic salmon expert out east, and a lifelong friend and colleague.

Fate, in the form of love, kept me in Guelph for my PhD. I returned to one of my earlier passions – rivers, combined it with a love of travel and compared fish communities in streams of Ontario and Poland (Mahon 1984). Streams are amazingly fascinating with lots of potential for comparative analysis and even replicated experiments in ecology. I was sure this was to be my life, but fate had other plans. As graduation drew near, and I was applying for postdoctoral fellowships to prepare myself for a career as an academic, Mike Chadwick called to tell me that the Canadian Department of Fisheries and Oceans was hiring fishery research scientists at the Bedford Institute in Dartmouth Nova Scotia. I told him that was not my thing. He said 'why not go for an interview, you will get a trip to Halifax and it could be a backup if your other plans fall through.' I applied. I went for an interview. Other plans were slow in materializing. They offered me the job. I took it, and a few months later in mid-1980 I was sitting at a desk in the Marine Fish Division at the Bedford Institute of Oceanography (BIO, see Table 1 for a list of abbreviations), in Dartmouth, Nova Scotia.

Back to the sea

I was back to the ocean (the one that was too cold). My five years at BIO (1981–1986) was a whole new education. Tasked with assessing haddock on the eastern Scotian Shelf and encouraged to develop fisheries ecosystem approaches on the Scotian Shelf, I learned fishery ecology and the nitty gritty

TABLE 1. List of abbreviations of institutions, organizations and terms used in this paper.

Initials	Organization
ABNJ	Areas Beyond National Jurisdiction
ACS	Association of Caribbean States
BIO	Bedford Institute of Oceanography
CAFSAC	Canadian Atlantic Fisheries Advisory Committee
CARICOM	Caribbean Community
CERMES	Centre for Resource Management and Environmental Studies
CFRAMP	CARICOM Fisheries Resources Assessment and Management Programme
CIDA	Canadian International Development Agency
CLME	Caribbean Large Marine Ecosystem
CORECOMP	Coastal Resources Comanagement Programme
CRFM	Caribbean Regional Fisheries Mechanism
CSC	Caribbean Sea Commission
CSI	Caribbean Sea Initiative
EBM	Ecosystem Based Management
FAC	Fisheries Advisory Committee
FAO	Food and Agriculture Organization of the United Nations
GEAF	Governance Effectiveness Assessment Framework
GEF	Global Environment Facility
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICOD	International Center for Ocean Development, Canada
IOCARIBE	Intergovernmental Oceanographic Commission Sub-Commission for the Caribbean and Adjacent Regions
IW	International Waters
LME	Large Marine Ecosystem
NMFS	National Marine Fisheries Service, USA
OECS	Organization of Eastern Caribbean States
PCM	Permanent Coordination Mechanism
RPC	Regional Project Coordinator
SAP	Strategic Action Programme
SusGren	Sustainable Grenadines (Project and Incorporated)
TCP	Technical Cooperation Programme, FAO
TDA	Transboundary Diagnostic Analysis
TWAP	Transboundary Waters Assessment Programme, GEF
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
UWI	University of the West Indies
WCR	Wider Caribbean Region
WECAFC	Western Central Atlantic Fisheries Commission

of stock assessment from colleagues such as Bob O'Boyle, Michael Sinclair, Derrick Iles and George White. The ecosystems side of my mandate brought me together with scientists from the renowned Marine Ecology Laboratory at BIO. Just

being in the same building with top scientists like Ken Mann, Alan Longhurst, Lloyd Dickie, and Steve Kerr made me feel smarter. The Scotian Shelf Fisheries Ecology Program that I co-coordinated brought together physical and biological oceanographers, benthic and fishery biologists and fisheries scientists. It was my first excursion into multidisciplinary work and was to lay the foundation for my future thinking (Smith et al. 1989). The people side of things (the human dimension to fisheries) was yet to come.

The 6 years in fisheries in Atlantic Canada also introduced me to the importance of institutional arrangements. Fisheries assessments were carried out by fisheries scientists, then vetted through the technical subcommittees of the Canadian Atlantic Fisheries Advisory Committee (CAFSAC) before being converted into advice for managers by the CAFSAC Steering Committee. Taking my assessments to the ground-fish subcommittee, to be torn apart by the cadre of top assessment minds there, was a lesson in humility. Even the best of the best were not spared and their work was inevitably improved. The importance of peer review of technical analysis that leads to advice that will impact on people's livelihoods was firmly cemented in my mind.

Serving on the CAFSAC Steering Committee as Chair of the Marine Environment and Ecosystems Subcommittee I also saw firsthand the end point of a process in which data and information are analyzed and reviewed to provide technical advice which was then interpreted and reformulated as advice to the minister and the fishing industry. The experiences at BIO were to influence my view of fisheries science for the rest of my career, and to determine my orientation on return to the Caribbean.

You can take the boy out of the Caribbean, but you cannot take the Caribbean out of the boy. Soon after I arrived at BIO, Wayne Hunte, who had completed his PhD at UWI, Jamaica and a postdoc at Dalhousie in ecology and population genetics, became Director of the McGill University Bellairs Research Institute in Barbados, cross-appointed with UWI, Cave Hill. Our collaboration started in 1980 with an exploration of the fisheries landings data (focussing on flyingfish) that were available for Barbados. Ph.D. student Hazel Oxenford had just arrived from the UK to work on dolphinfish and joined the collaboration. In the next few years as Hazel completed her research, two things became immediately clear. The first was that although we knew a lot about the biology of flyingfish from the work of pioneer John Lewis at Bellairs, we knew very little about the seasonal drivers and dynamics of the population and the fishery. The second was that any research on flyingfish would need to involve all the countries in the fishery, not just Barbados. Together Wayne, Hazel and I plunged in, seeking support from the International Development Research Centre, Canada. They agreed and the Eastern Caribbean Flyingfish Project was underway (1987–1993), ultimately leading to a sound population ecol-

ogy basis for management of the flyingfish fishery (Oxenford et al. 1993, 2007). Together we would design and carry out one of the first completely regionally based fishery surveys done in the eastern Caribbean (Oxenford et al. 1995; Figure 3). That project was the start of a collaborative relationship with Hazel that was to carry through the rest of my career.

While still at BIO, I attended my first Gulf and Caribbean Fisheries Institute (GCFI) Conference in Mayaguez, Puerto Rico, in 1981 and presented an early analysis of the Barbados fishery landing data (Mahon et al. 1982). After the talk, John Caddy, then Technical Secretary of the FAO WECAFC came up and mentioned that FAO was planning to base an outpost Fisheries Resources Officer for the eastern Caribbean in Barbados for 18 months. Might I be interested? Well of course I was.

FIGURE 3. Wayne Hunte and Hazel Oxenford at Bellairs Research Institute planning our Eastern Caribbean Flyingfish Survey around 1988.

BACK TO THE CARIBBEAN

The FAO position took several years to materialize and negotiate, but by June 1986 I was on secondment from BIO, sitting in an office at Bellairs, Barbados in front of a 286 desktop computer with two 5.25" floppy drives (no hard drive), 512 kb of RAM and a mandate to provide technical support to the fisheries departments of eastern Caribbean countries. I was to pay special attention to transboundary resources and implications of the newly claimed 200-mile EEZs for fisheries development. These were exciting times for fisheries in the eastern Caribbean. The Organization of Eastern Caribbean States (OECS) had just established its Fisheries Unit in St. Vincent and the Grenadines (1986) funded by Canada's also recently established (1985) International Centre for Ocean Development (ICOD). The OECS countries had just adopted harmonized legislation under an FAO initiative and the stage was set for fisheries to develop into an economically significant, sustainably managed sector. In the eastern Caribbean, with countries in close proximity to each other, transboundary issues were thought to be a priority. Scoping

these with John Caddy led to the Expert Consultation on Shared Fishery Resources of the Lesser Antilles in Mayaguez in 1986 (Mahon 1987). While we recognized that in the close geographic quarters of the eastern Caribbean, pretty much all resources could be transboundary, the focus was on large pelagics. This is where countries thought the best potential for expanding fisheries lay. This consultation was my first contact with Miguel Rolon and Richard Appeldoorn, highly respected colleagues with whom paths would cross repeatedly for decades.

Where are the data?

One line of thinking was that to take advantage of the pelagic resources in the new sea space provided by EEZs, some expansion into larger vessels was needed; at least along the lines of the 'iceboats' of Barbados which were staying at sea for several days and bringing fish back iced. Another view was that the future was probably mainly in upgrading small-scale fisheries through safer boats, better landing facilities, reduced post-harvest losses, value-added initiatives, and organizing fisher folk. Following up on these lines, it was soon clear that throughout the eastern Caribbean little was known about current fishing capacity, fishing practices and landing sites. There was even less information on landings and effort and almost none on the biological characteristics that were needed for conventional stock assessment. Addressing these deficiencies in a situation where there was extremely limited manpower in countries' fisheries departments became a focus of the latter part of the FAO outposted assignment. Colleagues Costas Stamatopoulos of FAO and Andy Rosenberg of Imperial College London were to be important allies in this task. An inventory of vessels, gear and landing sites in OECS countries, Tobago, and Barbados was used to develop cost-effective data collection systems for these countries (Mahon and Rosenberg 1988). The emphasis was on using sources of data that already existed.

It was about this time that it began to dawn on me, not a little aided by discussions with Patrick McConney, then Chief Fisheries Officer in Barbados, that even if we had all this information there was little, if any, context for its uptake. The new OECS fisheries legislation called for fisheries management plans, few of which had been formulated. It also required the establishment of fisheries advisory committees (FACs) to provide for stakeholder input in developing plans, reviewing them, and providing advice to the Minister. This it seemed, was as close as we were going to get to a CAF-SAC-like process and getting plans developed and approved seemed like the critical next step. With the support of John Caddy in Rome and Freddy Zenny, the FAO Representative in the eastern Caribbean (Figure 4), one of the most enlightened development professionals I have had the pleasure of working with (he went on to be the FAO Secretary General's Chef de Cabinet), we developed an FAO Technical Cooperation Program (TCP) project to promote fisheries management

FIGURE 4. Individuals critical for the development of an FAO Technical Cooperation Program project to promote fisheries management planning in the eastern Caribbean and for my permanent return to the Caribbean. A. Freddy Zenny, FAO representative to Barbados and the OECS. B. John Caddy, Technical Secretary of WECAFC.

planning in the eastern Caribbean. It was funded. I gave up my position at BIO. I was home for good. Implementing that TCP project in 1988 brought a focus on preparing the foundation for harmonized fishery management planning in the OECS, Tobago and Barbados (Mahon 1990).

Stock assessment anybody?

The other sharp realization during my time with FAO (1986–1989) was that even if we were able to obtain the data needed for the assessments there was little technical capacity to analyze it. This posed difficult questions. Should each country have their own expertise? Highly improbable for small island states. In Atlantic Canada each stock had its own scientist. I argued that just because island stocks were smaller and generated less revenue than a large commercial fishery off Nova Scotia, it did not mean that they were any less technically challenging to assess. The idea that one assessment biologist in a fisheries department could assess all the resources of that island country seemed very far-fetched to me. What then? Should assessment skills be centralized, for example at the OECS fishery desk? Should we rely on outside expertise, for example from FAO, or the US National Marine Fishery Service (NMFS), or from our neighboring French experts at IFREMER (Institut Français de Recherche pour l'exploitation de la Mer), or an opportunistic combination of the preceding? In the latter scenario, the country stock assessment person would be a generalist who would work with these regional and external experts to generate the advice needed by the country. But, who would pay for this?

These deliberations also raised the question as to whether conventional stock assessment was right for the eastern Caribbean situation or whether something simpler would serve better (Mahon 1997). At that time, FAO and Denmark seemed determined that every country should have capacity for conventional stock assessment (Sparre and Venema 1998). This thrust even raised the question as to whether small country fisheries departments, staffed predominantly by biologists, were set up the right way in the first place. Perhaps there should be less focus on stock assessment and more on engaging people in stewardship (Mahon and McConney

2004, 2011). These ideas ran counter to those of most Fisheries Officers throughout the Caribbean who expected that responsibility for, and the opportunity offered by expanded sea space, would lead to increased human resources and even autonomous fisheries departments. They envisaged fisheries being released from the yoke of being subsumed under ministries of agriculture that were predominantly land focused. While there was some upscaling of fisheries administrations in a few countries, notably St. Lucia and Belize, by and large there was little change. Fisheries Officers were left torn between holding out for bigger departments that could do everything, and accepting that this would not happen and streamlining functionality with what they had. This remains a conundrum to the present with little clear progress in either direction.

UP TO THE SUBREGIONAL LEVEL

Crossing swords with the Canadian International Development Agency (CIDA)

While we and a cadre of very able Chief Fisheries Officers throughout the eastern Caribbean were contemplating and even grappling with these emerging questions, the Canadian International Development Agency (CIDA) was busy developing a massive project based on the very stock assessment paradigm that we were questioning. The proposal which arrived in the region in 1987, pretty much as a done deal, was to use trawlers, recently left idle by the collapse of the Atlantic cod fishery, to estimate fish biomass throughout the waters of member states of the Caribbean Community. The assumption was that rock-hopper bottom trawls and midwater trawls could be used to assess demersal fishes and small to medium schooling pelagics in coastal waters. This thinking was deeply flawed both technically and in terms of the assumptions that were being made about institutional capacity to manage and make use of the data that would be generated. The CIDA consultants had not done much checking beyond talking to the CARICOM Secretariat which had no fisheries expertise and had in turn assumed that the Canadians knew what they were doing. After all, Canada was a leading source of fisheries expertise globally. Fortunately, the flaws were clear to several fisheries experts in the region, including Milton Haughton, who had just become CARICOM Fisheries Development Officer, and Bissessar Chakalall, FAO Regional Fisheries Officer based in Trinidad and Tobago. However, the task fell to myself (ironically a product of the Canadian fisheries system) and Wayne Hunte to prepare a brief pointing out the proposal's many flaws and to suggest an alternative approach.

The brief was not well received by CIDA. They complained to FAO that I was interfering in relations between Canada and CARICOM and demanded that I be dismissed. Fred Zenny and John Caddy intervened and suggested that what was more important was whether the critique was correct. They suggested that an independent opinion be sought.

The CIDA sent the proposal to John Gulland, then at Imperial College London, who agreed with our critique. To make a long story short, my neck was saved, and the proposal was abandoned. The ICOD was engaged to develop an alternative proposal for the Caribbean. They sought my input via Harry Winsor, an old Caribbean hand from Canada who had run the UNDP/FAO Caribbean Fishery Development Project (1965–1971; Wolf and Rathjen 1974). Acting as a conduit for the ideas that had emerged from the collaboration with fisheries officers and experts in the eastern Caribbean during my time there with FAO, we developed a proposal that was ultimately to become the Caribbean Regional Fisheries Assessment and Management Program (CFRAMP). The CFRAMP was designed to address fisheries comprehensively. The proposal that ICOD submitted to CIDA in 1989 included components on:

- Fisheries management planning
- Fisheries assessment
- Fisheries data collection and management
- Licensing systems
- National advisory and decision-making mechanisms
- Fisheries extension services systems
- Fisheries training
- Regional fisheries mechanisms

Caribbean Regional Fisheries Assessment and Management Program (CFRAMP)

A full account of CFRAMP would be another entire paper; one that should be written, as there were many development and fisheries lessons learned in its years of implementation. Here I will reflect on a few key points that were relevant to the future direction of fisheries in CARICOM Member States and by extension to my career. CFRAMP began in 1991 based in Belize City and with an eastern Caribbean office in St. Vincent and the Grenadines. CFRAMP was due to wrap up in 1996, but was given a no-cost extension to 1998, then a funded extension to 2001, when it finally concluded. CFRAMP had a turbulent time, but ultimately was deemed by its evaluators to have made a significant impact on the way that fisheries were approached in CARICOM countries. There were advances, to varying degrees, in all the areas listed above. However, the most prominent and enduring output was the development and establishment of a regional fisheries mechanism that would provide support to CARICOM Member States after CFRAMP concluded.

CFRAMP got off to a strong start. I was Canadian¹ Chief Scientist, based in St. Vincent, joined shortly after by Karl Aiken as CARICOM counterpart. Still later in 1992, Milton Haughton joined as CARICOM counterpart Deputy Program Director based in Belize. There was a strong team of highly experienced and qualified Canadian and Caribbean scientists and administrators (Figure 5), and despite chal-

¹ Having acquired Canadian citizenship while working there

lenges with a Canadian director who thought that Canadian approaches could be transplanted directly and was soon removed, the subprojects got rapidly underway. The real turbulence in CFRAMP arose in 1992, barely a year into the project when a newly elected conservative federal government in Canada terminated ICOD. The project passed back to CIDA who appointed an interim director. Fortunately, Howard Powles at CIDA, who had a lot of Caribbean experience, was given technical oversight and struggled to keep CFRAMP on track. Meanwhile CIDA decided to use the private sector to implement the project and engaged CFCL—Roche Ltd., a consortium of Roche International of Quebec, Canada and Quebec and Canadian Fisheries Consultants Ltd. from Nova Scotia.

Needless to say, they wanted their own people in the senior positions. The inception mission in mid-1993 for the takeover recommended that the post of Canadian Chief Scientist be discontinued and replaced by a Caribbean Scientific Director, a post that Milton Haughton filled in 1994. The CIDA administrators agreed to this staffing, partly incentivized no doubt by my complaints to them about their persistent hiring of Canadian consultants when there were qualified Caribbean people, and perhaps also by their recollection of my role in scuttling the first proposal. I moved on, but CFRAMP would continue turbulent to its end with several changes of Canadian directors and persistent tension between Caribbean staff and CFCL—Roche.

The CFRAMP's main legacy, the Caribbean Regional Fisheries Mechanism (CRFM) was designed to be a permanent and sustainable successor to CFRAMP, and the CARICOM Fisheries Unit that was set up during CFRAMP was transformed into the CRFM Secretariat. Work on the CRFM started in 1996, the establishing agreement was signed in 2002, and it opened in 2003 in Belize (Mahon et al. 1996, Haughton et al. 2004). The purpose of the CRFM was, *inter alia*, to enhance regional cooperation in the sustainable management of the shared resources, to act in an advisory capacity to national governments in matters relating to sustainable fisheries development and management, and to build related scientific, technical and institutional capacity in participating countries. Milton Haughton became its Deputy Executive Director in 2002, under an administrative Director who was a senior CARICOM bureaucrat appointed to steady the ship, and ultimately, in 2009, its Executive Director, a post he still holds.

THE CONSULTING YEARS

After leaving CRFAMP in late 1993, despite John Caddy's encouragement to take up a position with FAO in Rome, I decided for family reasons and probably a measure of cussedness to stay in the Caribbean. Jobs were few. With CFRAMP ongoing, fisheries donors had all backed off. Therefore, in 1994 I hung out my 'shingle' as Fisheries and Environmental

FIGURE 5. The CFRAMP Technical Team meeting in Trinidad in 1992 – [L-R Back]: John Carter (ICOD), Peter Espeut (UWI, Jamaica), Milton Haughton (CFRAMP, Belize), Chris Milley (CFRAMP, Belize), Ivan Goodbody (UWI, Jamaica), Ronald M. Gordon (CARICOM); [Middle]: Reuben Charles (Guyana), Bissessar Chakalall (whom we all miss greatly; FAO, Trinidad), Steven Willoughby (Barbados), Raymond Ryan (St. Vincent and the Grenadines), Christine Chan a Shing (Trinidad and Tobago), Krishna Gooriesingh (Trinidad and Tobago), Sherry Heileman (Institute of Marine Affairs, Trinidad and Tobago), Gloria Augustus (Dominica), Vincent Gillett (Belize), Karl Aiken (CFRAMP, St. Vincent), Robin Mahon (CFRAMP, St. Vincent); [Front]: Peter Murray (OECS Fisheries Unit, St. Vincent), Howard Powles (CIDA, Canada). See Table 1 for abbreviations of organizations.

Consulting. There was no shortage of work, either in the Caribbean or beyond (e.g., Mahon 1996², Mahon et al. 1998). Before long even CFRAMP engaged me for a variety of their activities. I developed national data collection systems, assessed pelagic fisheries potential, prepared the submission for the CFRAMP extension, worked on the development of the concept paper and, as indicated above, helped develop proposals for the CRFM (Mahon 1995, Mahon et al. 1996, Mahon 1998³).

The preoccupation of eastern Caribbean countries with large pelagics continued and CFRAMP invested considerable effort in engaging with the International Commission for the Conservation of Atlantic Tunas (ICCAT). The main aim was to understand and influence the assessment and management process, especially the way that catch quotas were to be allocated among countries. In light of the size of their EEZs it was thought that Caribbean countries should be entitled to a share of the tunas and tuna-like species managed by ICCAT. In this regard, the newly concluded UN Fish Stocks Agreement was seen as supportive. However, the debate centered around the rights of developing countries

² Mahon, R. 1996. Republic of Maldives Southern Atolls Development Project fish stock assessment review. International Fund for Agricultural Development (IFAD), Rome, Italy. 96 p.

³ Mahon, R. 1998. Review of catch, effort and biological data collection systems of the inshore and offshore industrial fisheries of Guyana. CARICOM Fishery Resources Assessment and Management Program, Belize City, Belize. 31 p.

versus the rights of countries that had a history of exploiting these species, i.e. the very countries that had overexploited them in the first place (Singh–Renton et al. 2003).

All the while, I was following the activities of CFRAMP, still hopeful that it could reform the way that fisheries were managed at the national level in CARICOM countries. I noted that while progress was being made with enhancing fisheries development, there was not the buy–in to management, especially planning and process, that had been expected and hoped for when CFRAMP began. There were exceptions. Barbados' established a FAC and prepared a fisheries management plan as required by its 1993 Fisheries Act and as promoted by CFRAMP (Government of Barbados 1997⁴, McConney and Mahon 1998). However, there was limited high level support for the plan which was developed with extensive consultation, and it was never approved by the Minister. Also the FAC, on which I served as Deputy Chair (1995–1998) and Chair (1999–2001), had a difficult time gaining recognition and receiving feedback from various ministers responsible for fisheries (McConney et al. 2003). Its main function was in getting stakeholder feedback to the Fisheries Division which could follow up on its advice as the FAC Secretariat.

It became evident to me in those years that the anticipated progress with fisheries management was not likely to materialize very rapidly. Political will for fishery management was weak, but fisheries development without attention to sustainability or regard for marine science was rampant. Some obvious regulations such as seine net mesh size and seasons for lobster and conch were put in place. But there were very few regulations for reef fishes and other small–scale fisheries (McManus and Lacambra 2005⁵). Restricting access was almost unheard of, unthinkable even in Barbados particularly where there was little sense of fishery community and informal tenure over adjacent areas. Coastal fisheries were apparently seen as an occupation of last resort, a safety net for the unemployed, and regulating access was seen as being too much of a political risk. Besides, donors had funds to upgrade or build new landing sites and improve other aspects of fisheries, especially those for large pelagics, so fisheries officers had their hands too full with development matters to push their bosses for management measures. There seemed to be implicit agreement by many that managing small–scale fisheries that were carried out from multiple widely scattered

small landing sites with gear for which materials could easily be obtained was just too difficult, if not impossible. Fisheries divisions just did not have the resources to go down that road, one heard. Indeed at that time, some countries were reducing their fisheries extension services. Most focused their attention on large pelagics and the high value resources of lobster, conch, and shrimp.

Well Maybe the Solution is at the Community Level

Not everyone in the region gave up on managing coastal fisheries. Emerging thinking globally, based primarily on experiences in Southeast Asia, was pointing to the community level as being key to managing small–scale fisheries and aquaculture. This involved mobilizing, organizing and building capacity of community stakeholders. This was aimed at getting them to take responsibility for stewardship of resources and ecosystems upon which their livelihoods depended, and on giving them a collective voice with which to speak to the 'powers that be' so that they would be more inclined to take small–scale coastal fisher folk's needs seriously. After all, had not Pacific Islanders managed their own marine resources for centuries? Bob Johannes' work was having a big influence on fisheries management thinking at the time. The International Centre for Living Resource Management (now WorldFish) was leading in taking up these ideas and testing them in Southeast Asia (Pomeroy et al. 2001).

Peter Espeut (Figure 5) was a pioneer of these ideas in the Caribbean on the south coast of Jamaica, where he established what is now the Caribbean Coastal Area Management Foundation for the Portland Bight area. The Caribbean Natural Resources Institute in St. Lucia was also pioneering these approaches with mangrove forestry and sea urchins. Various aspects of co–management ranging from FACs to comanaged marine protected areas were emerging throughout the Caribbean. It seemed like the way forward for reefs and reef–related resources. By now CFRAMP had also realized that engaging fisher folk in management and development was likely to be an important component of the way forward. An early look at readiness for co–management in CARICOM countries found that capacity was very low and that there was a great deal to be done before co–management could become a reality (Brown and Pomeroy 1999). Having become somewhat frustrated with progress in managing fisheries at the national level I too decided to engage with co–management and community–based management to see whether these might hold greater promise.

In 2002 Patrick McConney, who had recently resigned from the Barbados Fisheries Division and was embarking on his second career, and Bob Pomeroy from WorldFish invited me to join them in the Caribbean Coastal Resources Co–management Project (CORECOMP) under the auspices of the now defunct Caribbean Conservation Association to explore whether the approaches that were being pursued in

⁴ Government of Barbados. 1997. *Barbados fisheries management plan: Schemes for the management and development of fisheries in the waters of Barbados, 1997–2001*. Fisheries Division, Ministry of Agriculture and Rural Development, Bridgetown, Barbados.

⁵ McManus, E. and C. Lacambra. 2005. *Fishery Regulations in the Wider Caribbean Region*. Project summary. United Nations Environment Program and World Conservation Monitoring Centre, Cambridge, UK. 150 p.

Asia might be applicable in the Caribbean (Figure 6). The project purpose was to support the engagement of Caribbean

FIGURE 6. Patrick McConney (left) and Bob Pomeroy (third from left) with fishing householders in Monkey Bay, Belize, 2002.

people in successful partnerships with government for sustainable livelihoods from well-managed coastal resources. Six case studies in Barbados, Belize and Grenada were used to explore the conditions that favored, or did not favor, co-management of coastal and marine resources and from the findings, to derive guidelines for co-management in the Caribbean (Pomeroy et al. 2004).

The experience of the CORECOMP Project and its findings were to lead to my involvement in several other projects aimed at enhancing stakeholder participation in coastal and marine resource management. My consciousness of the importance of engaging stakeholders and the potential benefits of doing so was significantly increased by these initiatives. So was my awareness of how much work there was to do to achieve the conditions for successful co-management that the Project had developed. Leading a suite of 5 demonstration projects on participatory coastal zone management in Barbados for the Barbados Coastal Conservation Program in 1997–1999 further confirmed for me that effective engagement of stakeholders was a long-term process (Almerigi et al. 1999⁶). Capacity for sustainable stewardship comes slowly and must be coupled with clear and tangible benefits. A lot of seeds were sown that may have influenced downstream thinking, but none of the 5 demonstration projects led to a

⁶ Almerigi, S., R. Mahon, Y. Alleyne, K. Atherley, J. Cumberbatch, and S. Mahon. 1999. *Barbados Coastal Conservation Programme (Phase 1), Demonstration Projects. Participatory coastal zone management in Barbados. Coastal Zone Management Unit, Bridgetown, Barbados.* 30 p.

sustainable outcome.

Fortunately, an individual who understood that long-term support was needed if there were to be sustainable outcomes supported my next major foray into stakeholder engagement. A chance meeting with Jens Ambstdorf, CEO of The Lighthouse Foundation, Germany, at a UNESCO meeting in Paris, 2001, led to funding for organizing civil society in the Grenadine Islands of St. Vincent and the Grenadines and Grenada. The Sustainable Grenadines (SusGren) Project began in 2002 with a yearlong stakeholder engagement (Figure 7) and planning exercise (Almerigi et al. 2003), followed by a 5 year (2003–2008) implementation period that sought to

FIGURE 7. Robin Mahon (left) and Patrick McConney (fourth from left) on 2002 stakeholder engagement mission meeting with Annie Adams (third from left), Principal and a teacher of the Mayreau Primary School (Grenadine Islands) while Kurt Cordice (Tobago Cays Marine Park, right) looks on.

strengthen civil society capacity in the Grenadines for coastal and marine conservation. The length of support that The Lighthouse Foundation provided reflected Jens' appreciation of the fact that community strengthening is a long slow process. He also put much more into this project than funding.

Much of the credit for the success of the SusGren initiative goes to my ongoing exposure to group facilitation as a tool and to the broad array of methods that it can bring to working with people. I owe this exposure to my wife, Sharon Almerigi, an International Association of Facilitators certified facilitator and trainer who worked extensively on these and other projects that needed facilitation skills. Ultimately, in 2008, the SusGren Project would transition into an independent NGO, SusGren Inc., based in Union Island, and under the leadership of Martin Barriteau, go on to implement a wide variety of livelihoods and conservation-oriented activities (Figure 8). The SusGren story is another one that needs to be told. It is still evolving, I still serve on its Board, and it is showing every indication of continuing to be self-supporting and impactful. But, as with many such enterprises, its de-

FIGURE 8. Meeting with Grenadines fishers in Union Island for strategic planning of fisher livelihoods enhancement (CERMES 2006).

pendence on a small number of hardworking and dedicated individuals makes it fragile.

These and other smaller excursions into community-based management, for example promoting the expansion of the C-CAM model around the entire coast of Jamaica (Baldwin and Mahon 2017), have made me acutely aware of how far we have to go if we are to establish a critical mass of effective civil society engagement in coastal and marine resource management. But, go we must, as few national governments have the capacity to do much more than guide the processes that need to be in place. Throughout this period, I also became increasingly aware that tensions between national and regional levels were contributing to our capacity problems. These tensions based on (sometimes misguided) perceptions of sovereignty and competition for funding have resulted in a lack of clarity and consensus over what functions are most efficiently taken up at the regional or sub regional level and which are better left to the national level. At one time, I naively envisioned that most technical capacity could be shared at the regional level and that most international relations pertaining to marine ecosystems could be handled at the national level. Power imbalances and hidden agendas ensured that this would not be the case. However, groupings of countries of similar size and development, such as the OECS for the Eastern Caribbean and the Central American Integration System, have been the most successful in this regard.

A Side Event that Became the Main Event?

Towards the end of my consulting years (1994–2003), I was fortunate to become involved in a European Commission funded project on ‘Fisheries Governance and Food Security’ based at Centre for Maritime Research, University of Amsterdam. Its aim was to elaborate Jan Kooiman’s interactive governance approach (Kooiman 2003) for fisheries and aqua-

culture. In 2001, the project assembled a network of about 20 persons from diverse disciplines, work backgrounds, and parts of the world to discuss, determine, and report on what fisheries governance was all about. It was my first serious attempt to collaborate with social and political scientists and economists, and it took about 2 years for the various disciplines to be able to talk to each other with any certainty that each understood what the other was saying (or maybe it was just me). Then it took another 2 years of collaboration to produce 2 books. The first was an academic explanation of interactive governance for fisheries; the second was a guidebook on applying the perspective (Kooiman et al. 2005, Bavinck et al. 2005). This experience provided me a much more comprehensive lens through which to view fisheries and ecosystems management that would influence my thinking on governance for the rest of my career. It also left me with a collegial professional family whose ideas and activities continue to inform and inspire me to this day.

During this period as a natural complement to interactive governance, I also became aware of network thinking and analysis, once again influenced by Patrick McConney. This seemed like a powerful way of thinking about governing interactions among actors that fit well with the ideas of interactive governance. Given our small countries separated by sea and a region with widely dispersed capacity, understanding and building networks of public sector, civil society and private sector stakeholders at regional, national and local levels seemed like a useful way to strengthen our capacity for sustainable use of marine ecosystems. SusGren was built around the idea of networking these actors across the 7 inhabited Grenadine Islands, which included both the national levels in the 2 countries and across the boundary between them (Blackman and Mahon 2013). Network thinking was to significantly influence how my colleagues and I approached future work in the region.

INTO ACADEMIA

While working as a self-employed consultant between 1994 and 2003 I kept a toe in academia, as I had hopes for a post at the Centre for Resource Management and Environmental Studies (CERMES) at UWI, which I had helped establish, and where I had been on faculty briefly in 1989. In the decade of consulting I was able to publish over 20 journal articles, 36 technical reports and coauthor a book on small-scale fisheries (Berkes et al. 2001). Luckily, in 2002, a position became available at CERMES and my efforts at publishing paid off. I joined the staff there in March 2003. This gave me much greater freedom to explore and work on governance issues which were now my primary interest, having lured me quite far away from my beginnings as a marine biologist. I was able to continue activities in local and national level governance while beginning to explore once again the opportunities for building regional level governance.

Back up to the Regional Level

Earlier in the consulting decade another major global initiative came to my attention and appealed greatly to the ecologist in me. It was the Large Marine Ecosystem (LME) approach developed by Ken Sherman and colleagues in 1982 (Sherman 1991). Brad Brown, Director of the US NMFS Southeast Fisheries Science Center, who was then President of the UNESCO Intergovernmental Oceanographic Commission Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE) brought the idea of a Caribbean LME Project to the Commission meeting in 1995 to determine if there was interest among countries. The newly established Global Environment Facility (GEF) had adopted the LME approach and was already funding LME projects in the South China Sea, Gulf of Guinea and the Benguela Current. I volunteered to help develop the PDF-A⁷ proposal for funding to further develop a LME Project for the Wider Caribbean (CLME). IOCARIBE welcomed the offer and gave me the grand title of Regional Project Coordinator in 1998 and I continued in this role, reporting to the IOCARIBE Commission every 2 years on progress with the CLME Initiative (Figure 9). Little did I

FIGURE 9. Milton Haughton, Brad Brown and Robin Mahon at the IOCARIBE meeting in Vera Cruz, Mexico in 2002 where the CLME Project was on the agenda.

realize that this direction would take me into a decade-long tussle with the conceivers of the LME concept and in due course up to work on the global level of ocean governance.

The first attempt at PDF-A funding came back from the GEF with a suggestion from Al Duda, their International Waters Specialist, that we try to focus less on science and research and more on governance. The GEF's early experience with LME projects had apparently been that a lot of good science had been done but that little of it had had an impact on governance. We put our heads together, and the second concept note resulted in a PDF-A grant to IOCARIBE where newly appointed IOCARIBE Executive Secretary, Cesar Toro, had

just taken up office. Cesar, other colleagues and I met in Miami the week after 9/11 and laid the groundwork for a PDF-B grant proposal that yielded US\$1.4M from the GEF over 18 months to carry out preliminary work, get all countries on board, and develop a full project for the CLME and adjacent regions. However, in those days the GEF was notoriously slow and it took until 2006 for the funds to become available, administrative arrangements, including a host, to be put in place and for project staff to be hired.

The CLME Initiative, Multilevel Thinking and Politics

IOCARIBE recognized the importance of putting the CLME Project on a firm technical footing and decided to base the PDF-B phase at CERMES. In 2006, the CLME Project office opened there with Lucia Fanning, on leave from Environment Canada, as Project Manager. This started a long and productive collaboration on our journey up to the level of the Wider Caribbean Region (WCR). Our first challenge was coming up with a perspective that encompassed the reality of the WCR while remaining connected with the LME initiative. By this time, I had been to several LME Consultative meetings in Paris where the LME clan gathered to compare notes on implementation. There, while the meetings were structured around the 5 LME modules, in the corridors we spoke of complexity and the need for governance to embrace subsidiarity and non-hierarchical approaches. Like us, many LME practitioners were also saying that one of their major challenges was that LMEs are not homogeneous spaces and required a textured approach to governance. It was becoming clear that governance was not a separate module, as the LME 5 module approach suggested, and that it needed to be integrated with the natural and social sciences to address the fisheries and ecosystem health issues (Mahon et al. 2009). The conceivers of the LME approach resisted these changes in the belief that their approach was sufficiently general that it could encompass the diversity of LMEs. Lucia Fanning, Patrick McConney and I were equally sure that it did not provide an off-the-shelf approach to the CLME, or indeed any of the geopolitically complex regions where small-scale fisheries and tourism were prominent (e.g., Western Indian Ocean, Bay of Bengal, Mediterranean, Gulf of Guinea). We were able to demonstrate this by comparing the governance characteristics of all LMEs and showing that there was a wide range of biophysical and geopolitical heterogeneity among LMEs with the Caribbean and Mediterranean LMEs being the most heterogeneous and complex (Mahon et al. 2010a). Even so, I recall being taken aside at an LME Consultative Meeting and told that if the CLME did not toe the LME line, and structure the project around the 5 modules, we probably would not get funding from the GEF.

Conceptualizing Regional Governance

At the kick-off technical meeting for the CLME PDF-B Project in Barbados in 2006, participants (Figure 10) emphasized that even though the project was about transboundary

FIGURE 10. The CLME PDF-B Kick-off meeting, Barbados 2006. [L-R Back]: Jorge Angulo (Cuba), Derrick Theophile (Dominica), Terrence Phillips (Guyana), L'Ouverture Ostine (Haiti), Adrian Oviedo (Honduras), Diego Gil (Colombia), Sherry Heileman (Trinidad and Tobago), Bertha Simmons (CLME Project), Felicity Burroughs (Bahamas), Lucia Fanning (CLME Project); [Front]: Claudia Santizo (Guatemala), Robin Mahon (CERMES, UWI), Cesar Toro (IOCARIBE), Tim Turner (UK), Bissessar Chakalall (FAO), Sergio Martinez (Nicaragua). [Missing]: Joyce Leslie, Patrick McConney, and Lorna Inniss (Barbados). See Table 1 for abbreviations.

resources, all levels from local through national, subregional, regional and up to global were important. As the discussion evolved, it became clear, even though not in explicit terms, that they perceived the WCR as being a multilevel, nested set of ecosystems and governance arrangements. A particular project or initiative might focus more on one level or another, but in the end, successful governance would require the effective functioning of, and interactions among, all levels. Also, given the political realities of the region, application of the subsidiarity principle was thought to be essential. There was no need for Central American countries to be involved in decision-making for Eastern Caribbean flyingfish, or for eastern Caribbean countries to be involved in decision making for Central American lobster. But, all countries had to be involved in some aspects, such as large pelagics or in establishing a regional network of truly representative marine protected areas for coral reef ecosystems.

We struggled as a group with how to reflect the above perspectives in designing the CLME project and concluded that we needed a conceptual model to communicate the ideas that we thought were critical for our region. In the course of that meeting the LME Governance Framework emerged (Fanning et al. 2007; Figure 11). The framework

emphasized the importance of governance architecture and process at multiple levels and the need for lateral and vertical linkages among processes. It provided a structured way to look at living marine resource governance in the WCR and to design joined-up interventions to improve it. The LME Governance Framework became the basis for the CLME Project. In a nutshell, the technical group concluded that the thrust of the first phase of the project was to be about establishing or strengthening governance architecture, processes and linkages wherever needed. This would be done in concert with the Transboundary Diagnostic Analysis and Strategic Action Planning (TDA/SAP) that was the hallmark of all GEF International Waters (IW) projects. On-the-ground strengthening activities, associated with governance of specific resource types, would be undertaken as proof-of-concept through learning-by-doing, pilot projects.

A key feature of the proposed CLME Project was that it fully engaged all the major regional organizations as implementing partners. Representatives from most organizations (IOCARIBE, UNDP, CRFM, Central American Fisheries and Aquaculture Organization, United Nations Environment Program—Caribbean Environment Program, Latin American Organization for Fisheries Development, WECAFC) met in Panama in April 2006 to discuss this unique approach. There they committed to playing their part in the PDF-B and ultimately in implementing the first full CLME Project phase. Other agencies such as CARICOM, OECS and the ACS were engaged not long after. The intention was to fully embed the project in the ongoing activities of the major agencies in the region, rather than have the CLME Project operate independently. The tendency for this to happen in GEF IW Projects and to lead to low post-project sustainability was subsequently flagged by Soderbaum and Granit (2014), who proposed that IW projects should engage with regional organizations; especially those focused on regional economic integration, so as to mainstream sustainable use of water and living aquatic resources into regional discourses. In the CLME Project we were ahead of that curve.

FIGURE 11. The multilevel LME governance framework (left) based on complete and functional policy cycles (right) and the vertical and lateral linkages among them (modified from Fanning et al. 2007).

THE CLME FULL PROJECT

The PDF-B Project produced a Project Document for the first Full CLME Project phase early in 2008. The GEF endorsed it in April 2008 and project mobilization began. This phase of the CLME Project was based in Cartagena, Colombia and hosted by IOCARIBE, a co-executing agency (with UNDP), and the project was underway by mid-2009. This was somewhat of a record turnaround for the GEF, although for those of us waiting in the wings, the 18 month hiatus seemed long. The direct role of CERMES (Lucia Fanning, Patrick McConney and myself) in this phase of the project was primarily to support the development of a regional governance framework for the WCR based on the generic LME Governance Framework (Fanning et al. 2007). This included a governance TDA (Mahon et al. 2015) which guided governance assessments in the pilot projects, work on National Intersectoral Coordination mechanisms, and research on science policy interfaces, both key components of the framework (McConney et al. 2016). Ph.D. candidate Alexcia Cooke contributed significantly to this work through her thesis which focused on gaps and overlaps in mandates and activities of regional organizations as well as the types of governing interactions among them (Cooke 2017).

In addition to the direct work on the CLME Project there were several indirect supporting activities. One of these was exploring the existence of national coordinating mechanisms for ocean affairs in the WCR, funded by the Arsenault Family Foundation (Mahon et al. 2010b). Another was a regional conference developing an approach to Ecosystem Based Management (EBM) that was supported by the Nippon Foundation (Fanning et al. 2011). There was also an expert consultation on the role that the Caribbean Sea Commission might play in the emerging regional ocean governance structure (ACS/CERMES 2010). At the level of stakeholder engagement, there was the development of the multilevel Caribbean Network of Fisher Folk Organizations, partially aimed at getting fisher folk adequately represented in regional ocean governance (McConney and Phillips 2011).

We encountered some turbulent times in this phase of the CLME Project. New staff were not familiar with the conceptual basis that had been developed in the PDF-B, as this had been distorted somewhat in translation into the documentation format required by the GEF. These staff were also under pressure from 'LME headquarters' in Narragansett, RI USA to reshape the project to be consistent with the '5 module approach' and with how other LME Projects were being done around the world. We were told there was too much focus on governance, and even referred to as the 'renegade LME'. However, with encouragement from Al Duda at the GEF and with full support of the partner regional organizations we rallied around the original plan and got it back on track. Unfortunately, the first Regional Project Coordinator (RPC) resigned within 6 months, for personal reasons, and the process had

to be repeated with the second one, who also resigned after 9 months. Finally, the process was repeated a third time with a new RPC. Fortunately, we got better at it with practice and the CLME Project stayed true to its plan.

The first full phase of the CLME Project concluded in 2013 with several key outcomes upon which to continue what had been started. These included comprehensive TDAs for continental shelf and reef ecosystems, done by 2 regional consultants with extensive experience and insight, Sherry Heileman and Terrence Philips (Figure 10), and a TDA for governance (Phillips 2011, Heileman 2011, Mahon et al. 2011). Also significant was the Causal Chain Analysis done in a workshop led by Peter Whalley, which to no one's surprise, pointed to weak governance as a root cause of unsustainable use of marine ecosystems. At the same workshop it was decided to reframe the project as Ecosystem-Based Management/Ecosystem Approach to Fisheries. Finally, the project produced the Strategic Action Program (SAP) for 2015–2025 which was endorsed by more than 23 countries. The SAP was a team effort led by the now well-rooted third RPC, Patrick Debels, and technical advisor Laverne Walker. Fuller details of challenges met, outcomes achieved, and lessons learned can be found in Mahon et al. (2014) and Debels et al. (2017). Two key learnings were that, firstly, a regional project such as this one was as much political as it was scientific, and our region carries its full share of political baggage. Secondly, progress is slow, no doubt due the geopolitics, but also to the frequent changes within the CLME Project and within countries as personnel and even governments and come and go.

As Lucia, Patrick and I participated in the CLME Project as CERMES representatives, we also shared its findings with other LMEs, especially at the series of annual LME Consultative Meetings hosted by IOC in Paris. To our great satisfaction, we found that people working in other LMEs were now paying close attention to what was happening in the CLME Project. They were experiencing similar problems to ours; inadequate regional governance mechanisms for ocean governance especially for coordination among regional mechanisms, weak interfaces between national and regional governance, and absent or dysfunctional policy processes for delivery and uptake of science into policy making. They too were finding that governance was woven throughout all that was needed for sustainable use of coastal and marine resources and could not easily be treated as a stand-alone module (Mahon et al. 2009). Over many years of participation in these meetings (2005–2017), it was encouraging to see the topics of interactive governance, regional governance assessments and architecture, and coordinating mechanisms become more prominent in the discussions. We were particularly gratified when we were asked to lead a governance assessment workshop in the Bay of Bengal LME (BOBLME 2014; Figure 12).

The Current CLME+ Project

Preparation for the second Full Project phase of the CLME

FIGURE 12. Workshop on analyzing governance arrangements in the Bay of Bengal region with Lucia Fanning (left).

Project started well before the end of the first Full Project phase and continued past it with a GEF Project Planning Grant. Everyone involved was determined that the transition between phases should not be a complete shutdown and restart, as had often happened with other GEF IW initiatives. Having the SAP as a guide made it much easier to know exactly what should be done in the next phase. A smooth and quick transition was achieved, and the second full phase began in 2014, at least in theory. This phase was not to be without its challenges as well; many of them internal to the interactions among the various UN agencies involved. These challenges led to significant delays, such that, what was designed as a 5 year project, ended up with only 3 years for implementation. However, while all that was getting sorted, I was to embark on another side trip that would further influence my perspective on ocean governance and our work on it in the WCR.

THE CARIBBEAN SEA INITIATIVE, TRYING FOR CONNECTIVITY

In parallel with the CLME initiative, I also got involved in the Caribbean Sea Initiative (CSI) of the Association of Caribbean States (ACS). The ACS was formed in 1994 “... with the aim of promoting consultation, cooperation and concerted action among all the countries of the Caribbean.” Once again I naively thought that the CSI and CLME Initiative, having much the same objectives, would be natural partners. In 1999, ACS Member States had submitted a proposal for a resolution at the United Nations General Assembly (UNGA) calling for designation of the Caribbean Sea, as a ‘special area,’ under UNCLOS (Parris 2016). This was in large part a response to the shipment of nuclear waste by France through the Caribbean Sea to Japan. The UNGA did not endorse the proposal. Instead it adopted a variation as Resolution A/RES/54/225, ‘Promoting an integrated management approach to the Caribbean Sea within the context of sustainable development,’ which emphasized the need for an

integrated approach to ocean governance in the WCR (Parris 2016). This resolution has been revised and renewed every 2 years, most recently in 2016 (UNGA 2017).

In 2006, urged by the UNGA to demonstrate capacity and willingness to manage the Caribbean Sea, the ACS established the Caribbean Sea Commission (CSC) to promote and oversee the sustainable use of the Caribbean Sea as per the UNGA Resolution. This was right as the CLME PDF-B was getting started. I was asked by Sheldon MacDonald, then ACS Legal Counsel, to help develop the structure for the CSC and its sub commissions. I was also encouraged to do so by the Ministry of Foreign Affairs of Barbados which was CSC Chair. Seeing the opportunity to draw the CSI and CLME threads together I readily agreed. Thus began a series of meetings at the ACS headquarters in Trinidad and missions to the United Nations in New York with Barbados Foreign Affairs officials and ACS Secretary General Luis Andrade Falla, a strong champion of the CSC (Figure 13). Our primary aim was to gain the support of national delegations to the UN for the CSC and to find funding. We met with many country delegations and received much support for the idea of improved ocean governance in the WCR, but also quite a bit of skepticism about the feasibility of making the WCR an UNCLOS Special Area. Focus on getting the governance right was the primary feedback.

FIGURE 13. Promoting the Caribbean Sea Commission at the UN in New York in 2009. From left, Prof John Agard, UWI; Watson Denis, ACS; Joanna Benn-Griffith, Foreign Affairs Barbados; Barbados Minister of Foreign Affairs, Donville Inniss; UN Secretary General Ban Ki Moon; ACS Secretary General Ambassador Luis Andrade Falla; Chris Hackett, Barbados Ambassador to the UN; Minister Dennis Kellman, Barbados; Robin Mahon.

During the first full phase of the CLME Project (2009–2013), the CLME Governance TDA identified the lack of regional level policy coordination for oceans as a major governance gap in the region. The CSC was identified as the most appropriate regional organization to undertake this coordination role. In 2010 the ACS and CERMES held a regional consultation funded by Finland to develop the role and get the buy-in of regional organizations (ACS/CERMES–UWI,

2010). The role was agreed upon and endorsed by the majority of regional organizations that it would coordinate. This proposal was incorporated in the CLME SAP (CLME Project 2011), but was vetoed by the USA at the final CLME Project Steering Committee meeting in 2013 (Mahon et al. 2014).

Instead, the USA demanded that identification of the most appropriate coordinating mechanism should be an activity in the 2015–2020 phase of the CLME Project (now ongoing). Luis Andrade Falla completed his term as ACS Secretary General in 2012 and returned to Guatemala. Subsequent Secretaries General have not had similar ambitions for the CSC. Since 2015 the CSC has not indicated any interest in pursuing the coordination role for which it was deemed best suited and which was considered to be its mandate. It continues updating and resubmitting the UNGA Resolution every 2 years. Its current focus is on pursuing the concept of making the Caribbean Sea a ‘special area’ and project activities such as measuring beach erosion and mitigating the impacts of *Sargassum* and the invasive lionfish.

UP ONCE MORE, TO THE GLOBAL LEVEL

Transboundary Waters Assessment

While pursuing our own home-grown Caribbean approach to LME-level ocean governance, we were all learning and realizing that the experiences of other LME Projects and ocean regions provided a rich basis for comparative analysis and lessons learned. As if on cue, the GEF initiated its Transboundary Waters Assessment Program (TWAP). The objective of TWAP was ‘to provide the first global-scale assessment [of international waters] and improve knowledge for informed decision-making, raise awareness and foster cooperation among all stakeholders.’⁸ Lucia Fanning and I were invited to contribute to the governance assessments for the 2 GEF International Waters ocean categories, LMEs and ocean Areas Beyond National Jurisdiction (ABNJ). This gave us the time and resources to explore the status of governance in LMEs and the many global and regional intergovernmental and nongovernmental organizations with responsibility for fisheries, biodiversity and pollution around the world. We got drawn into the academic aspects of ocean governance, an excursion into political science that when I started as a marine biologist, I never dreamed I would ever make. Fortunately, Lucia was much more comfortable there than I was and we were fortunate in being able to engage the interest of 2 globally recognized experts on governance, Oran Young and Kristina Gjerde, for the ABNJ assessment.

The challenge was enormous; there are 66 LMEs globally and over 130 global and regional organizations with a mandate to address issues in ABNJ. However, our remit was to look only at governance architecture and its capacity to carry out appropriate governance process. We were not expected, with the limited time and resources, to look at the effectiveness of the governance architecture. We struggled with where

to draw this line as it is not as clear as one might expect. The rationale was that appropriate architecture and process that were established according to international standards and norms were what was needed to be able to say that ‘good governance’ was in place. We also argued that this was an appropriate starting point because good governance is a necessary context for ‘effective governance’, which occurs when a governance arrangement achieves what it was established to do. We were well aware, and Oran Young frequently reminded us, that this argument was largely intuitive, as the linkage between good governance and effective governance has not been well demonstrated.

Our assessments identified a wide range of fundamental governance architecture problems for LMEs, including widespread spatial mismatch between regional governance arrangements and LMEs, gaps in coverage of issues, incomplete arrangements, especially where decision-making mechanisms were concerned, and few mechanisms for coordination among arrangements at the LME level (Fanning et al. 2015). Similarly, for ABNJ there were problems with the structure of governance arrangements, for which decision-making mechanisms were often lacking and there were significant gaps in the coverage of biodiversity, both spatially and thematically (Mahon et al. 2015). This biodiversity problem for ABNJ is currently being addressed through a new global agreement on Biodiversity in Areas Beyond Jurisdiction that was in the making long before our analysis.

Ocean Governance Fragmentation

In contrast, it did not appear that the ocean governance problem of institutional fragmentation, the term used to describe the proliferation of the seemingly unconnected and uncoordinated array of global and regional governance arrangements throughout the world’s oceans, was being addressed at the global level. Numerous authors bemoan fragmentation as a major fundamental problem with global ocean governance (e.g., Bennet et al. 2019), but few have sought to address it constructively. To begin with, fragmentation is not all bad; there are pros and cons (Zelli and van Asselt 2013). There are advantages to not having all your eggs in one basket, despite inefficiency. Furthermore, there is macro level structure in the array of arrangements that should be recognized and worked with. However, that will require global level coordination for oceans, which is currently lacking. We noted this for ABNJ but could not explore it fully (Mahon et al. 2015). Subsequently, Lucia Fanning and I were able to build on that work to develop a global perspective on ocean governance arrangements that, not surprisingly, builds on the multilevel LME Governance Framework (Figure 11) that was developed during the CLME PDF-B (Mahon and Fanning 2019a, 2019b) and on the TWAP assessments. This perspective explores what is going on at the regional level in the 20 ocean regions of the world and what is needed at the global level to move this forward in a coordinated and comprehensive way.

⁸ <http://www.geftwap.org/>

It remains to be seen if there will be uptake of these ideas.

The TWAP also had a Governance Working Group, which Lucia Fanning and I cochaired, and which built on work on governance assessment that was being developed in the CLME+ Project (Mahon et al 2015). The Governance Effectiveness Assessment Framework (GEAF) was first conceived in the CLME Project to ensure that the full range of indicators needed to assess both 'good' and 'effective' governance would be used (Mahon et al. 2017). The TWAP Governance Working Group adopted and refined the GEAF. Subsequently, it was reapplied in the second full phase of the CLME Initiative as the basis for monitoring the SAP (Debels et al. 2017). The key point here being the benefit of the transfer of specific experience and learning from one level to another where it was improved then transferred back down for application. I left the TWAP once again with a refreshed perspective and an extended family of friends and colleagues too numerous to mention by name.

And Now, Multilevel Thinking and Action

My brief excursion to the global level further cemented in my thinking the essential role that each level plays in what must be an overall multilevel approach to ocean governance. I reentered the CLME+ fray in 2015 fully on board with the work to be done to make the shift to an ecosystem approach in the WCR, but with a much better appreciation of the importance of having global mechanisms and programs that support regional ones, and how that could be achieved. The WCR cannot make the necessary progress in isolation. Programs like the GEF IWLearn Project provide an institutional basis for sharing with and learning from other regions and projects, but IWLearn is largely limited to GEF Projects. A more encompassing mechanism or approach is needed for oceans globally. The UN is an obvious candidate for such a role but seems unwilling to step into those shoes beyond hosting an Oceans Conference to review Sustainable Development Goal 14 every 2–3 years (Fanning and Mahon 2019a). Before a role can be taken up its need and potential must be recognized as an opportunity and called for by constituents. Globally, perceptions of the importance of multilevel ocean governance architecture and process as a basis for effective governance are steadily increasing, but the critical mass has not yet been reached.

Back at the Caribbean level, I also jumped into a large EU funded project 'The Future of Reefs in a Changing Environment' (FORCE) (2010–2014). This involved a lot of natural science, some social science, and a governance component that was coordinated by Selina Stead and Clare Fitzsimmons from Newcastle University and myself from CERMES. The governance field research component based at CERMES was led by Rachel Turner who joined us as a Postdoctoral Fellow. The governance research focused on processes at the local and national level, including perceptions of drivers of unsustainable use, relationships between civil society and govern-

ment, and the roles of the many actors that make up coral reef governance (Mumby et al. 2014). Hazel Oxenford's role was to link the social and ecological research, mine was to link the outputs into the regional science policy interfaces. The research produced many excellent social and economic research publications (e.g., Turner et al 2014) and a guidebook for reef management in the Caribbean (Mumby et al. 2014). However, regarding science policy interfaces, the timing was off. We had anticipated being much further ahead with the establishment of regional governance processes that would have taken up these outputs.

The duration of CLME+, now just months from conclusion, has been spent helping build ocean governance capacity in the WCR as part of the CERMES team and with colleagues for the establishment of a Permanent Coordination Mechanism (PCM) for oceans in the WCR. This has involved working at the multiple levels that I explored over the years, while still keeping a foot in global ocean governance through research and participation in initiatives that seek to promote ocean governance globally. In the WCR working on the PCM at the regional level, or on flyingfish and shrimp and groundfish at the subregional level, or with National Intersectoral Coordination mechanisms at the national level, or with EBM Projects or SusGren at the local level seems entirely appropriate, if not essential; each level provides insights for, and supports, the other. I highly recommend to anyone who plans to spend a career in ocean governance that they try working at different levels, even if their main focus is on one.

LOOKING BACK

Looking back, it feels that I was constantly on the move from one level to the next and back again, with several side excursions (only the most influential are covered above). More often than not, the next step was more opportunistic than planned – going to Nova Scotia, returning to Barbados, becoming a consultant, and most opportunities for side trips like FishGovFood and TWAP presented themselves with little notice. Other things that seemed straightforward or obvious directions turned out to be much more difficult or even impossible, like letting go of technical stock assessments (Berkes et al. 2001), uptake of fishery management planning, and linking the CSC and CLME (still a work in progress). I often wonder how it would have felt to stay with one level, one problem area, and give it full attention. Might it have resulted in a fuller feeling of accomplishment? That is unknowable. Still, perhaps, along the way I have connected bits that needed connecting or at least helped paint a bigger picture of what needs fixing and some ideas for how to fix it. I like to think so.

More importantly, notwithstanding those possible alternative pathways, I have had the good fortune to work with so many bright, dedicated and hardworking people in the Caribbean and beyond over the years that I cannot really imagine having missed out on any of it. Many of these people are included in this article but incorporating them all and what I

gained from my interactions with them would surely have taken it way over the word limit. They have either taught me, or inspired me to learn, most of what I have managed to accumulate. Any progress reflected in these pages is

theirs as much as mine. Thanks to all, for their contributions to my advancement through time, and to making it such a pleasure along the way.

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