

BACK TO FIRST PRINCIPLES: CLEARLY DEFINED BOUNDARIES

by

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INTRODUCTION

Now twenty years old, the seminal paper by Ciriacy-Wantrup and Bishop (1975) contributed enormously to stimulating research on common property resources (CPRs). However, it also conveyed the unfortunate impression that common property resources as compared with those under open access were characterized solely by the presence of social boundaries that define persons or groups having access rights.

As observed by Ostrom (1990) boundary closure is a necessary attribute, but alone is insufficient to distinguish or even manage CPRs. She added six more main "Design Principles" to the list. Nevertheless, there is no denying that the definition of social, physical and biological boundaries around CPRs is a fundamental attribute and a first step in organizing for collective action. Indeed, Ostrom (1990, 1992) lists "clearly defined boundaries" as the first design principle.

however, unlike for some other resource systems, clear definition of physical and particularly social group boundaries seems to be especially difficult in fisheries. This is particularly the case in non-Western societies, often characterized by complex rights and rules systems that have several or more inter-related boundary expressions, and with the added dimension of rapid and multi-faceted social and economic change.

Under such conditions it must be asked:-

- (1) is clear boundary definition possible? and
- (2) if it is, is it desirable?

Here I discuss these issues from the Asia-Pacific Region, based on two types of boundaries that require definition:-

- (1) Spatial boundaries, and
- (2) Social boundaries.

Time constraints preclude an examination of a third main type, resource boundaries.

(1) SPATIAL BOUNDARIES

(1) The Definition of Fishing Territories

In the Asia-Pacific Region the sea territory of a social group is usually within the reef and commonly, but not always (see below), defined by proximity or adjacency to its settlement(s), and by lateral and seawards boundaries. Communities or smaller social units maintain exclusive rights to all known adjacent submerged reefs. Seawards of the reefs the degree of exclusiveness of rights gradually declines.

But this varies considerably according to both the local history of fissioning of human settlements and related migration, and the more recent processes of national modernization, particularly the geographical dispersion of kin groups. In Solomon Islands, as in other parts of Melanesia, for example the inshore marine waters over which a social group has control are not necessarily those adjacent to its landholdings. The situation is far more complex than that. In the Lau and Langalanga lagoons of Malaita Province, for example, whereas the coastal or "saltwater" people hold rights to reefs and marine waters, the interior-dwelling "bush" people also hold extensive sea rights as well as large tracts of land in the interior of the island (Akimichi 1978, and pers. comm.). In some places reefs belong to inhabitants of the interior, and not to those owning the adjacent coastal land, as in parts of Rennell Island, (Collenson n.d.) and Marovo Lagoon (Hviding 1990).

In Marovo some groups have large sea territories but only small land holdings, whereas others control large land areas in the interior of the island, but have no sea territory. As everywhere, this is a consequence of historical processes of migration and settlement. In that area, to escape the endemic warfare of pre-Christian times, the ancestors of the present-day "bush" groups hid in the interior, to escape the powerful coastal peoples. Thus the coastal groups could establish the primary rights over sea and reefs still held by their descendants, most of whom continue living in the traditional villages of "coastal" or "salt water" people.

Further, inter-marriage between "bush" and "saltwater" people has led to some influential marine rights-holders living among the interior "bush" groups. However, they still retain their primary rights in marine areas (Hviding 1990).

Thus it is erroneous to assume that a "community" on which traditional management is based always refers

to a physically identifiable community, such as a village or the like, that can be delimited by precise social and geographical boundaries. The social boundaries of a "community" in which traditional management rights are vested in a decent-based kinship group, will, as a consequence of personal factors, like inter-marriage, or of the alternative economic opportunities brought about by national development, almost inevitably these days be geographically widespread.

But this is far from being the entire sea territory story. In addition to such "secular space", the physical and social boundaries of sea territories are often complicated, as in parts of Melanesia, Northern Australia and elsewhere, by claims to "sacred space"

(2) Sacred Sea Space

Such sea areas are closely related to the ancestors of the present inhabitants of an area. "Ancestors" is defined broadly, to include mythological "ancestral beings", as among the Yolngu Aboriginal People of North Australia. Among the Yolngu boundaries indicating ownership are generally regarded as manifesting acts performed by ancestral beings while travelling over/under an area. For example, during a submarine journey, an ancestral being may have surfaced and re-submerged several times. Such points are marked by physical features like sandbars, which have a sacred significance to the Yolngu. In this way seemingly isolated sites claimed by a clan are united by reference to acts performed by their ancestral being(s). The boundaries marked by the acts of mythical ancestors are today regarded by the Yolngu as clear ownership boundaries of resource territories (Davis 1984).

Schug (1995a, 1995b) recently demonstrated from Papuan New Guinean communities along the northern coast of Torres Strait that their relationship to the marine environment extends spatially far beyond their exclusive fishing rights areas. The much broader spatial attachment of the individual communities to the Torres Strait is based on:-

- (1) the sacred quality and the "spiritual essence" of ancestral figures embedded in the larger area which has indefinite boundaries;
- (2) a geographically and socially very widespread mesh of interpersonal relationships through centuries of trade, inter-marriage, shared land and seas territories, and other social

interactions yields an identity claim over the entire Torres Strait region;

(3) a history of long-distance trading and resource use that extended all over the Strait; and

(4) the claim of the inhabitants to be spiritually related to dugong and turtles, that range throughout the entire Torres Strait.

In this sense, to rigidly define a boundary limited to just the exclusive fishing areas of individual communities is clearly not an accurate representation of local reality; it does not include all stakeholders. As such, it would likely be seriously dysfunctional were it used as a basis for fisheries management.

(2) SOCIAL BOUNDARIES

Far more difficult than defining spatial boundaries is the issue of social boundary definition, which can be based on either the individuals or social groups included. Such boundaries are established and maintained by a combination of rights and rules.

(a) Rights

Almost universal throughout the Asia-Pacific Region is that members of fishing communities derive primary resource rights as members of a defined social group. Most commonly, traditional fisheries rights apply to defined areas, but superimposed on these may be the nested or countervailing rights of individuals or groups to species or technologies.

The social boundaries expressed by the two main types of right, primary and secondary, are important and complex, because overlapping and detailed regulations on the use of technologies and species are widespread.

Most commonly primary rights are those to which a group or an individual is entitled via inheritance (i.e., a birthright), by direct descent from the core of a socially-bounded, descent-based corporate group. Primary rights are generally comprehensive, since only they confer access to all resources within a defined territory. Inheritance, ancestral interests, social obligations, and cooperative relationships within a defined social group provide continuity of ownership and rights.

In contrast, secondary rights are more finely

bounded, often being restricted to specific fishing methods. They are acquired through affiliation with a corporate group, by marriage, traditional purchase, exchange, as a gift, or as reciprocity for services. Sometimes they may be inherited. Secondary rights are often given to residents of inland villages lacking direct access to the coast, particularly when such villages have historical and kinship ties with a coastal village.

In some societies rights to fisheries, which are usually to areas, are overlain by other rights, generally those to species and those to gear types. Most such "nested rights" are quite simple, like those to stone fish trap sites.

But in some cases nested rights are complex. Such complexity is particularly well-exemplified by Ponam Island, Manus Province, Papua New Guinea, where owners of sea and reef areas do not have exclusive ownership of their tenured waters, owing to limits set by countervailing, nested rights. That rights system is composed of three main independent, overlapping and bounded elements (Carrier 1981; Carrier and Carrier 1989):

- (1) ownership of reef and inshore marine waters;
- (2) ownership of species; and
- (3) ownership of fishing techniques.

(b) Rules

Basic rules related to social boundary issues are those that define:-

- (1) those persons eligible to fish within a community's sea space;
- (2) access of outsiders; and
- (3) the distribution of the catch within the community.

(i) Eligibility Rules: Bounding the In-Group

In addition to holding rights, in many societies fisher groups are further bounded by community-based, national or cultural rules. Whereas in many societies inheritance from a defined corporate descent group and/or residence are the only eligibility rules, in others further preconditions must be met. The sub-groups defined by such rules include caste membership, gender, and skill level, among many others.

(ii) Inter-Community Access Rules: Boundary Permeability

Access controls are applied to outsiders; people from other social groups. There is often boundary permeability between neighboring groups, a consequence of long friendship, kinship or other close association. Boundaries are less permeable the more distant the "outsider" group is either socially or geographically. But increased commercial resource use often leads to the imposition of strong access controls, even on close neighbors.

Throughout the Asia-Pacific Region, the rights of outsider fishers are usually closely specified by rules defining access conditions. However, there is considerable variation in local detail.

(a) The Social Boundaries of Individual Outsiders

Example 1: Marovo Lagoon, Solomon Islands (Based on Hviding 1990). Fishing rights are inherited as an integral part of all other rights and obligations entailed in kinship in a particular decent group. Descent and inheritance is cognatic. An individual inherits group membership and associated primary rights from both parents. Thus a person's rights boundaries could embrace four group areas, if all grandparents were from different groups.

But other factors intervene. An individual's rights are normally strongest and most complete in a core area near his principal residence, but weaken progressively toward the boundaries of his rights area. They also tend to weaken through time if not actively used.

When perceiving the exclusiveness of marine boundaries and handling questions of access in daily fishing, fishers tend to interpret kinship connections so as to operate as widely as possible. Often, their interpretation accords with that of the area's managers. Disagreement occurs where managers feel that someone has interpreted his kinship ties too liberally, and should really be defined as an "outsider", and so confined within a closer operational boundary.

Example 2. Acquisition of Secondary Rights by Outsiders in Kiribati: Expanding of Individual Social Boundaries (Based Teiwaki 1988)

In Kiribati an individual can enlarge his fishing rights boundary by acquiring secondary rights in the area of another clan through marriage or as a gift.

Persons away from their home island could expand their fishing rights boundary by a recitation and verification of their genealogy. Acceptance of such an account by the clan elders enabled the claimant to take his rightful place in the meeting house, and so to identify his relationship with others using the same place. The logic is that those who shared the same place probably belonged to the same clan, and so would have shared land and sea rights.

(b) The Permeable Social Boundaries of Groups

Inter-community access is more likely to be granted to neighboring groups than to those more distant, as neighbors are regarded as closer in kinship terms. Among the Baining people of New Britain Province, Papua New Guinea, for example, men and women who have married out of a village, and now reside elsewhere, as well as their children, are still included socially within the corporate descent group, and so retain their rights to exploit natal village resources (Turner 1989).

The rights of outsiders often relate not only to the general significance of a marine area to a host community but also to the value of the resources therein. In Lau Lagoon, Solomon Islands, for example, outsiders had the weakest claims to areas for net or trap fishing. The strength of their claims progressively increased from areas for collection of commercial shells, those for collection of shells for making shell money, areas for line-fishing or spear-fishing, and were greatest in food shell-gathering areas (Allen 1957).

(iii) Distribution of Catch Rules: Expanding the In-Group Boundary

Rules that define which persons have access rights to harvested fish ascribe a social boundary of a fishery that is always wider than that of just the fishing group. These are an extremely important set of rules in many societies, since in terms of equity within a community re-allocation of harvested fish can be as or more important than access to fishing grounds (Collier *et al* 1979; Kendrick 1993). Distribution of the harvest is fundamental in ensuring intra-group harmony and the stability of the traditional management system, especially if distribution is from higher status persons, with species or other special access rights, to the community at large.

Such rules include those to provision the family and community, those required as subsequent and

continual repayment for the acquisition of fishing rights, and those enmeshed in general community sharing and reciprocity and related norms concerning equity and fairness (Ruddle 1994).

Re-allocation rules assume particular importance under conditions of *de jure* open access, as in Java, Indonesia, where access to fishing is dominated by outside economic elites, but where Javanese behavioral norms that insist on equity, fairness, and "luck-sharing" ensure that people who need fish have access to some after it has been landed (Collier *et al.* 1979; Kendrick 1993).

Catch distribution systems can be complex in terms of the categories of persons involved, as well as geographically extensive, as on Ulithi Atoll, Federated States of Micronesia. There, such valuable species as turtles are presented as tribute to the paramount chief, who slaughters and distributes them in a closely specified way. Some parts are given to the women in the menstrual house on Mogmog Island. They distribute what they do not need to women on other islands and to the heads of the two highest ranked lineages on Mogmog Island. In turn, they distribute some to the heads of the lesser lineages (Ushijima, 1982).

Women on Ulithi also have distribution rights because canoes, although owned by a lineage as a whole, are overseen by the women of a lineage. This is because canoe hulls are made from mahogany logs obtained from Yap Island, in exchange for cloth made by the women of Ulithi. Further, because post-marital residence is patrilocal, women are scattered throughout the various matrilineages on an island. As a consequence, the food-distribution system reaches all parts of all islands in Ulithi Atoll (Ushijima, 1982).

Fish distribution in the form of reciprocal exchange of goods also occurs among the islands of Ulithi Atoll. For example, ecologically-favoured Falalap Island provisions the rest of Ulithi with taro, breadfruit, sweet potato, and banana. However, Falalap lacks fishing grounds, and so must receive its fish from the other islands. In contrast, fishing rights areas are expansive on islands in Mangejang District, where, however, vegetable cultivation is precluded by the absence of a freshwater lens. Thus there is an exchange of vegetables for fish between Falalap and Mangejang (Ushijima, 1982), thereby enlarging the social boundary of the fishery.

THE IMPORTANCE OF UNDERSTANDING PROCESS

An understanding of fishery CPR boundaries in the Asia-Pacific Region is further complicated by rapid change. Traditional rights were asserted in inshore waters, to known resources in areas customarily fished. Deep water fishing was a rare occurrence. But when non-traditional resources of value are found in deeper waters, these then become claimed also, and rights area boundaries extended seawards. This has resulted from commercialization and commoditization.

Essentially, traditional rights have been defined by the role of aquatic resources in the local subsistence economy. Where fish was not important to the local subsistence base, rights and boundaries may not have existed. But where it was a staple complex systems of ownership and close defense of boundaries was the norm. Further, and problematical for documentation and registration, is that traditional rights boundaries often do not exist until they are inquired about; also, previously unclaimed areas may suddenly become the center of a dispute as a result of increased fishing pressure (Freilink 1983a).

This process is often manifested in change in boundary permeability with respect to outsiders' rights. Among Papua New Guinea mixed agricultural and fishing societies, for example, the rights given to outsiders vary. In pre-Contact times fishing was limited to reefs and shallow water close to a village, partly because of warfare and partly because gear was limited to shallow water types only. But with the advent of colonialism the situation changed drastically. With the introduction of deeper water gears and the end of tribal warfare, fishers ventured into the areas traditionally belonging to other villages, claiming access rights through kinship ties and marriage. This has occurred among the Tigak people of New Ireland province (Otto n.d.).

Thus there has arisen a discrepancy between the boundaries of areas claimed as sea territories of the ancestors and those actually claimed at present. Sometimes ancestral areas are adapted to present-day demand, and village sea territories have been extended (Otto n.d.).

With increasing commercialization of marine resources have come increased demands for closure and protection of marine territory boundaries. It is commonly claimed that villagers have exclusive rights to such sedentary species as trochus and bêche-de-mer, and that outsiders must seek permission to harvest such species. Fishing for subsistence is regarded as available for all, but commercial fishing is the

exclusive right of the owners of a sea area, and outsiders are always required to seek permission to enter. However, the ease with which permission will be granted is perceived of as varying by geographical proximity: neighbors have no problem in obtaining it. However, the principle of reciprocity is always applied (Otto and).

CONCLUDING REMARKS

Codification of traditional systems of fisheries CPR management is now a widely discussed issue, particularly in Pacific Island nations. Inevitably that implies boundary fixing.

But given the complexity of the various factors and examples described in the preceding, and particularly in an era of vast and accelerating social and economic change, it is probably not desirable to attempt to fix rigidly the social and physical boundaries of traditional rights areas in the Asia-Pacific Region, at least in terms of Western-style legal systems. As is well appreciated in parts of the Asia-Pacific Region, customary law may well provide a more flexible resolution, that allows for the expansion and contraction of physical, social and resource boundaries (Ruddle 1994).

Regardless of what legal framework is used as a basis for codification, there are at least three basic sets of questions that need to be answered specifically about boundaries before any are established. These are:-

(a) Boundary Function

- What is (are) the purpose(s) of the boundaries (e.g., resource protection, resource allocation, resource distribution, dispute management disputes, demonstrate group identity [bound the in-group])?

(b) Boundary Adaptation

- Have (did) boundaries changed according to changed needs, altered perceptions of the resources contained, geomorphological changes, usurpation, commercial and/or cultural intrusion etc. and to what extent are provisions made for adjustments to access owing to physical (e.g., geomorphological, infrastructural) change?

(c) Boundary Permeability

Do outsiders have access rights? If so, under what conditions (e.g., compensation, fee, reciprocity) and with what limitations (e.g., gear type, species, seasonality, kinship, etc.)?

To what extent can access be adjusted to accommodate to physical (e.g., geomorphological), legal, social, economic, or other kind of change in the bounded resources?