

Successful Experiment?

Chile's experience with territorial use rights in fisheries shows their potential for the management of coastal resources, provided some simple safeguards are put in place

The partition of coastal fishing grounds into territories has been common practice among communities of fishers and gatherers as an instrument to assign access privileges, rotate harvests or protect areas significant for the conservation of valuable resources. Rules granting individuals or communities exclusive access to fishing grounds have been in place since pre-historic times in the form of traditional marine tenure systems, revealed to scientists during the 1970s through the works of the late Bob Johannes and others. The notion was crystallized in 1982 in the acronym TURF (territorial use rights in fisheries) by F. T. Christy Jr., a consultant to the Food and Agriculture Organization of the United Nations (FAO).

stocks of bottom-dwelling (benthic) shellfish stocks.

Paradoxically, while many traditional tenure systems have been eroded by the application of policies shaped after the industrial fishing experience, managers from Western countries are showing appreciation for the possible merits of TURFs. Contrary to the gradual, bottom-up, long-term evolution of TURFs within traditional tenure systems, however, some TURF systems have been introduced in recent years top-down, through innovative legislation or policies crafted by agency managers. Prominent examples include the abalone fishery of South Africa and the benthic fisheries of Chile. In these and other cases, innovative management was prompted by the failure of conventional quota-based management leading to notorious fishery collapses, and the subsequent urgencies imposed by economic crises and social unrest. We had the opportunity to be outside observers of the Chilean TURF system since the beginnings of its implementation, through collaboration with fishermen's organizations, managers and scientists.

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TURFs have attracted widespread attention in recent years in the context of 'rights-based' fisheries management. The latter is often predicated as the most natural solution to the tragedy of the commons which has been singled out as the main culprit of overfishing and fishery collapses. Besides territories, user rights or privileges can involve a portion of the catch (the case of individual transferable quotas) or a fraction of effort units (for example, lobster traps). Within this broad family, TURFs are most suited to the case of sedentary resources, for example, most

Urban areas

Chilean benthic fisheries involve commercial diving, traps and gathering of algae and molluscs in the intertidal zone. Artisanal fishers are integrated in communities known as *caletas*. In rural areas *caletas* resemble the fishing villages of other parts of the world, while they tend to be less well defined in urban areas. *Caletas* conform to the social, ecological and economic template of Chilean artisanal fisheries.

This article is by **J.M. (Lobo) Orensanz** (lobo@cenpat.edu.ar) and **Ana M. Parma** (parma@cenpat.edu.ar) of Centro Nacional Patagónico (CENPAT), Argentina

Most fishers from a *caleta* are members of one or more local organizations, generically known as 'syndicates', which, incidentally, are by no means equivalent to the homonymous labour movement organizations of industrial countries. Syndicates are grouped into regional federations, and federations into two major national confederations. The resources targeted by commercial divers are generally valuable; some of them fuel major export-oriented fisheries. For instance, Chilean divers account for around 80 per cent of the world's supply of sea-urchin roe.

The most significant among benthic resources is *loco* (*Concholepas concholepas*), a pricey snail vaguely and superficially resembling abalone. Before the mid-1970s, *loco* was consumed only domestically; annual landings were in the order of 5,000 tonnes. Exports boomed after the product was introduced to Japan in 1976, and landings climbed to around 25,000 tonnes while the fishery was regulated with a legal size and fishing seasons under an open-access regime. In 1989, sensing symptoms of overfishing, managers closed the fishery for three-and-a-half years. This draconian measure did not stop fishing: effective enforcement is illusory in a fishery operated by small boats spread along a coastline that spans 38 degrees of latitude. The main result of the closure was the marginalization of the fishers because of the development of a flourishing black market.

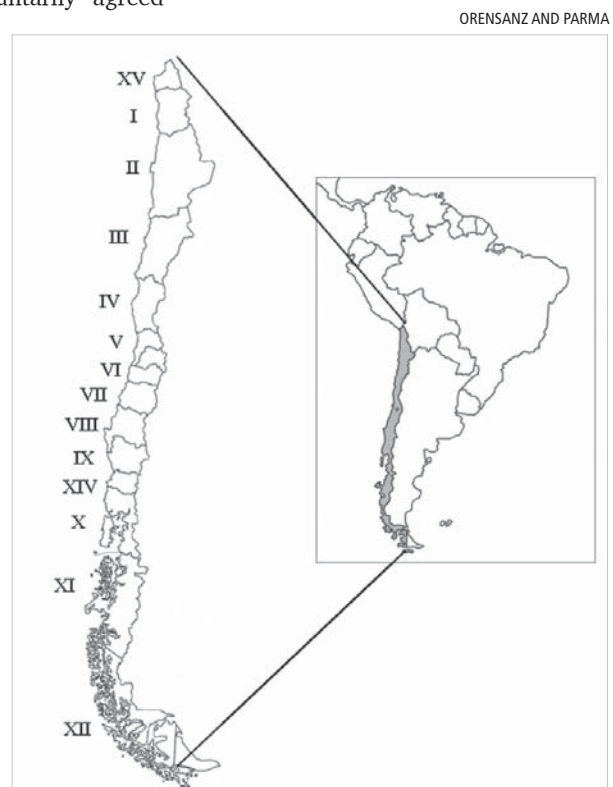
Meanwhile, political tensions and social unrest grew. In 1991 the then president of the country, Patricio Aylwin, and members of his cabinet visited the region of Los Vilos (Region V, see map), the cradle and hub of commercial diving. Artisanal fishermen were cutting roads and burning tyres. In an audacious move, Oscar Avilez, leader of the regional federation of artisanal fishers, interrupted into a meeting that the president was having with regional authorities. People waiting outside expected Oscar to be detained by the presidential authorities. Instead, he was embraced by President Aylwin, who immediately instructed the

Undersecretary of Fisheries to consider evidence of recovery assembled by fishermen with assistance from some biologists. In the end, the ban was lifted and the fisheries authority introduced a new management regime: individual non-transferable quotas assigned to registered commercial divers. Five

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years later, the catch per unit effort (CPUE) had returned to the very low level that preceded the closure due to ineffective enforcement and illegal trading of *locos* and tickets.

Years earlier, before and during the closure, some fishermen had been experimenting with innovative practices, in some cases in collaboration with academics, most notably Professor Juan C. Castilla and his co-workers at the Catholic University of Santiago. *Loco* recovered rapidly within areas where fishermen voluntarily agreed to stop fishing. These experiences paved the way for the inclusion in a new fisheries act, passed by Congress in 1992, of a particular form of TURF, locally known by the acronym of AMERBs (after the Spanish for 'areas for the management and exploitation of benthic resources'). Elaboration of the interpretive document of the law (the *Reglamento*) was a protracted process that involved a lengthy debate among fishermen, managers, scientists and politicians. The implementation process started in 1997, and by 2000, *loco* could be legally



Map of Chile showing the country's 15 administrative regions with coastline. Regions IV and V are the cradle of the TURF system

Excerpts from an interview with Oscar Avilez, leader of the regional federation of artisanal fishers

On why he was forced to gatecrash a meeting of President Patricio Aylwin:

For a simple reason: the scientific community and the fisheries authorities did not trust the fishermen. But we had results to show, which were backed by data, statistics and planning. Though the authorities knew that, the president was not informed. When he heard us out and listened to our proposal, he believed us, and ordered the lifting of the closure of the loco fishery.

On whether the artisanal fishers' grievances were met after the introduction of territorial use rights in fisheries:

This has been a test. Many organizations were strengthened and stayed within the system. Others have not been able to solve their problems: they were born weak, and did not survive the crisis. You need strong organizations.

On the relevance of such regimes now:

In my opinion, the (AMERB) system has not yet got institutionalized. It is a good management measure, but you need leadership.

On outstanding issues:

First, it is necessary to acknowledge that it is important to take care of the resources, and exploit them rationally. Second, the authorities must follow technical advice rather than populist policies.

On the pros and cons of implementing a territorial rights regime through fishers' organizations:

On the plus side are the plentiful natural resources, and the solid organization of fishers' groups. The latter are needed to implement models that serve both resources and communities. On the downside is the indolence of organizations which have a culture of subsidy dependence. This is damaging because it curtails the independence of the organizations, limiting their capacity to solve problems through their own ideas. Organizations must be self-sufficient.

On the future of small-scale fishing for both sedentary and mobile species:

It must be shown that we have an established capacity to reverse the undesired effects in fisheries, and to overcome systems that are imposed top-down and are often wrong. This is needed if our activities are to survive and improve in the future. We must develop capacities related to our activities.

There is another issue that I would like to address: environmental quality. Specifically, we oppose the installation of thermoelectric plants in the neighbourhood of our fishing grounds and management areas. This is particularly problematic in the case of La Higuera, our commune. A marine reserve, unique for the diversity of its marine life, is under threat. So too is the subsistence of several fishing communities in the region.

harvested only within AMERBs. By 2007, 732 tracts had been designated for AMERBs, of which 237 had an approved management plan that included *loco* as a target resource. Functioning AMERBs involved 14,324 registered fishers.

AMERBs are granted to fishers' organizations, not to fishing communities. Each AMERB consists of a tract of seabed where members of the organization have exclusive fishing privileges over resources declared as target. In order to get and keep those privileges, they must conduct a detailed baseline study, as well as annual surveys of the target resources (for example, *loco*). Studies are contracted with consultants that report to the administration; fishermen do not have a protagonist role in assessment, management and setting of objectives. The implementation process, particularly the protocol for requesting

an AMERB, was largely conceived by scientists with an ecological background, which transpires into the nature of the information required. The cost of the studies is high, but until recently was paid mostly with subsidies of various forms. Once an AMERB is granted, the fisheries administration does not keep track of the membership of the organization, or of the way in which costs and profits are split among members. AMERB-holding organizations pay a tax per unit area, which is the same irrespective of the resource targeted, the region of the country, or the productivity of the grounds. Privileges are granted for periods of four years, can be cancelled by the authority if the organization does not comply with the regulations, and are indefinitely renewable. Management plans are negotiated individually for each AMERB by the

organization and the centralized fisheries authority. There is no regional co-ordination, and no formal mechanism for the periodical review and adjustment of the system.

The inception of the AMERBs was a desperate move to address the most pressing problems that had led to recurrent crises in the *loco* fishery: unenforceability of regulations and lack of control of harvest rates. Having been granted secure and exclusive access to tracts of seabed, territorial use privileges gave fishers the incentives to protect their resources, at least in principle. *Loco* abundance recovered within the AMERBs. An important side effect of the AMERBs was the strengthening of the syndicates, because activities related with the AMERBs require significant collective action. Organized fishermen self-impose strict regulations and severe penalties for transgressors, contribute to the sustenance of widows and elderly or ill fishermen, and co-ordinate among themselves for vigilance. Sales of *loco* from AMERBs are arranged before the harvest, which, in principle, gives fishermen the opportunity for better deals. True, prices vary, but markets, not AMERBs, are to be blamed for the downs. Besides, fishermen get access to credit, as banks take as collateral the *loco* stocked in the AMERBs, as appraised by the consultants. Politicians, managers, most scientists, many leaders of fishermen's organizations, the press and the public have, on balance, a positive perception of the system. Managers can show an orderly fishery which yields a product of comparatively good quality. Leaders of fishermen's organizations have been in a good position to attract subsidies from government and non-governmental organizations (NGOs), and fishing has gained a secure place in a coast increasingly subject to alternative uses. Consultants do business, and scientists see the opportunity to test paradigms of fisheries management, like the merits (or lack of them) of rights-based options.

So, is the Chilean AMERB system a success story? The answer is: it depends on whom you talk to. Success is a relative notion: it can be gauged only if the objectives are specified. Objectives reflect societal

values, which are multiple and often conflicting: biological sustainability, economic efficiency, social equity, cultural identity, ecological integrity, and so on. The design and regulatory framework of AMERBs emphasized ecological sustainability over other societal goals, for understandable

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reasons. In retrospect, it is clear, however, that some potential problems went unforeseen. Some pertain to the management system itself. Due to the fixed territorial tax, organized fishers quickly claimed relatively small areas holding the most productive patches of seabed. The result was a *de facto* dual management system: a legal system inside and an illegal one outside the TURFs. Stocks outside the AMERBs are severely depleted. In some cases, the introduction of AMERBs has jeopardized pre-existent traditional tenure systems, successful even if informal. This was the case of some communities that harvest bull kelp in Region VI using a lottery to regulate access.

Other problems neglected by design pertain to the economics of the AMERBs.

JAVIER RODRIGUES AND REVISTA PUERTO




Landing *locos* harvested from an AMERB. Fishermen get access to credit from banks which take as collateral the *loco* stocked in the AMERBs

At least initially, the membership of the many AMERB-holding organizations (which is not effectively regulated) grew to the point where the rent dissipated, weakening the incentives that are the conceptual core of the system. Fishermen's organizations are now aware of the problem, worsened by low international prices, and have introduced strict entry rules. In some cases, this has happened too late. To complicate things, access to credit—in principle a plus—left many fishermen badly indebted; they often choose to overharvest their fishing grounds rather than default on loan repayments to the bank.

Equity is also an issue. When the AMERBs were implemented some fishers managed to be part of the system, while others did not, for various reasons—from lack of information to the feeling that fishers have the right to fish wherever they wish. The issue of exclusion and inclusion has resulted in a number of local conflicts. In Ancud Bay (Region X), for example, hundreds of fishers revolted against the introduction of AMERBs, illustrating the difficulties inherent to the partition of fishing territories when a large number of fishers have historically harvested the same grounds. The conflict was mediated by the Catholic dioceses, and was accompanied by the creation of a local independent confederation ('Confederation of Fishers for Equity'). In the end, an agreement was reached to return some of the designated tracts and to stop allocating new TURFs within the bay.

The initial fascination with the success of the AMERBs, at least as perceived by scientists and managers, led to their widespread application to resources other than *loco*, and in contexts different from the *caletas* of central Chile (Regions IV-VIII). Clearly, AMERBs are not a 'one-size-fits-all' solution for the management of Chilean benthic fisheries. Elinor Ostrom, who won the 2009 Nobel Prize in Economics, closed her keynote address at a meeting in 2004 of the International Association for the Study of Common Property (IASCP) at Oaxaca, asking a large and diverse audience

to repeat with her thrice: "There are no recipes."

Perhaps this, too, is the main lesson to be extracted from the Chilean experience with the implementation of TURFs. Systems of this nature have much potential for the management of coastal resources, but when implemented by design (as opposed to established by tradition), there are some simple safeguards to be considered. First, there has to be a careful analysis of the stakeholders before access privileges are granted. In the Chilean case, there was a 'first-come first-served' policy, which was reasonable in the case of the *caletas* from central Chile but not in other contexts (like Ancud Bay) where there were multiple users of the same fishing grounds, and some user groups were poorly organized and not well informed. Second, it is important to create regular and participatory feedback mechanisms to evaluate and correct the system as it evolves, attending to multiple societal values, learning from experience, and adapting to changing realities. 

For more

fao.org/DOCREP/003/T0507E/T0507E01.htm

Territorial Use Rights in Marine Fisheries: Definitions and Conditions

[icsf.net/icsf2006/jspFiles/cedepesca/Sustainable Fisheries and Livelihoods in Latin America: Consolidating and Securing Artisanal Fishing Access and User Rights](http://icsf.net/icsf2006/jspFiles/cedepesca/Sustainable_Fisheries_and_Livelihoods_in_Latin_America_Consolidating_and_Securing_Artisanal_Fishing_Access_and_User_Rights)

fao.org/fi/oldsite/FCP/en/CHL/profile.htm
FAO Country Profile: Chile

www.subpesca.cl

Chile Subsecretariat of Fisheries