論文の内容の要旨

Inland Fisheries Management in Argentina: An Institutional Approach toward Sustainable Development

（アルゼンチンにおける内水面漁業管理：
持続可能な開発のための新制度論的アプローチ）

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Abstract

Fisheries and aquaculture have played a key role in providing global food security and income to people relying on this sector. Thus, their contribution has been crucial to socio-economic development and the livelihoods of fishing communities in developed and developing countries. However, recent statistics indicate that the world's capture of marine wild fish species is declining and inland water catches are also threatened. The Food and Agriculture Organization predicts that fish harvests will continue stagnating unless effective management and conservation measures are formulated to restore overfished stocks.

Fishing involves users and common-pool resources (CPRs). Hence, the human factor is a crucial component for the conservation of resources in the long term. There is a need to establish institutions to avoid overuse of resources, although they must be consistent with local needs and environmental settings. This research reviews the theory of economist Douglas North on new institutionalism, and it particularly emphasizes the posture of political scientist Elinor Ostrom on institutions and the governance of CPRs. Ostrom refers to institutions as rules that constrain human behavior in certain situations, and points out that they can be crafted by a group of individuals sharing the commons. This research supports her argument about the mechanisms of collective action and cooperation to organize the use of resources, as well as the roles of the government and local stakeholders in the context of fisheries management.

The present study aims to determine how management and conservation of inland fisheries can be sustained over time. It adopts an institutional approach in examining the governance of resource systems and its effects on local fisheries. The inland fisheries management in Argentina and the institutions governing CPRs are used as case studies in this research while focusing on recreational fishing activities. We analyze how the central government and local fisheries stakeholders interact and coordinate in conserving resources, thus identifying factors that affect the sustainable development of inland fisheries.

Even though commercial and recreational fishers are the most common users of inland waters, the impact of the latter on the resource system has been largely unnoticed or not reflected in global catches. Therefore, Cooke and Cowx (2006) suggest that the effect of recreational fishing on fish stocks should not be overlooked. However, Pitcher (2002) states that although recreational fishing is an extractive activity, it has the potential to reconcile the use of living aquatic resources with conservation. He argues that catch-and-release and participation in habitat restoration may help conserve the fish population. Furthermore, Granek *et al.* (2008) attest that recreational fishers may contribute to the conservation of fish resources when involved in the development of fishing regulations. Cooke *et al*. (2013) state that formal institutions or regulations imposed by centralized governments can be complemented by informal institutions (or voluntary rules and habits) with the aim of conserving common resources. Therefore, informal institutions and the involvement or participation of local anglers in the design of fishing regulations can help achieve the management goals.

Empirically, this research compared the fisheries of two regions in Argentina to present an approach on the functioning of management and conservation systems for future planning of development programs. The two regions are Patagonia and Pampas; the first is located in the southern area, and the second covers the central eastern part of the country. For the Patagonia region, the research examined the case of the Río Negro Province to assess how central and local governments, as well as social groups of different backgrounds, have managed inland recreational fisheries to conserve the salmonid exotic species. The case study involved a non-profit recreational fishery organization, located in the Bariloche Department, for applying the theory of Ostrom with respect to the role of the government. Then, inland artisanal commercial fishing at Pellegrini Lake, located in General Roca Department, was scrutinized as a comparative case.

For the Pampas region, the case of inland recreational and artisanal commercial fishing of the native pejerrey species, which predominates in the shallow lakes of Buenos Aires Province, was studied. Furthermore, the unique history of inland artisanal commercial fisheries of the Las Tunas Shallow Lake complex, located in the Trenque Lauquen Department, was examined. Inland recreational angling of Laguna Gómez Shallow Lake, located in Junín Department, was also analyzed as an area recovering from depletion.

The author conducted a survey at Laguna Gómez Shallow Lake during the pejerrey fishing season to collect information on the characteristics of local anglers, informal and voluntary conservation measures, and prospects for recreational fishing in the future. Moreover, it identified the current concerns of local anglers with respect to recreational fishing. A survey of users of Patagonian inland waters was also conducted to complete a comparative analysis on the characteristics of anglers and their voluntary conservation practices.

The studies showed that even though the centrally managed regime is largely used to govern the fisheries, co-management is also practiced in some regions of Argentina. It appears that the management of inland recreational fishing in the Patagonia region has functioned well since member provinces established common standardized regulations through mutual agreement. Collective action and cooperation may have enabled the establishment of such an institutional scheme, but also consultation, based on the participation of direct users in decision making, probably facilitated the use of common rules over time. Collaboration management is practiced in the Río Negro Province, and the government grants some autonomy to local stakeholders to organize recreational fishing activities. Even though management of inland recreational fisheries has been sustained in the region, certain shortcomings of the centralized governance of inland artisanal commercial fisheries have been found, such as rivalry among the local fishers at Pellegrini Lake.

In the Pampas region, particularly in the Buenos Aires Province, central authorities have managed inland recreational and commercial fisheries, but illegal practices persist due to the weak monitoring and enforcement systems. However, most local recreational anglers, who do not hold proper fishing licenses, are adopting several types of informal voluntary conservation measures, and some unauthorized artisanal commercial fishers have self-organized to sustain fishing activity in Las Tunas Shallow Lake.

The survey conducted in the surrounding area of Laguna Gomez, Junín, demonstrated that recreational fishing, generally regarded as a leisure activity of the wealthy upper or middle classes, represents an important social pastime and a source of food for local non-affluent anglers. Despite the economic conditions and basic education levels, most anglers showed their willingness to pay a minimum fee to improve the fish stock and quality of fishing activities. This segment of the population, which mostly includes active working class anglers categorized as non-license holders, is likely to engage in conservation programs. They use certain informal measures based on personal habits to conserve the native pejerrey species, which showed that some of them have environmental ethics or long-term rationality over the resources.

With respect to restocking programs, a method to conserve resources has been implemented under the government's control and supervision, but operations differ between the two regions. While production and distribution of pejerrey resources for restocking increased in Buenos Aires, releasing programs decreased in Patagonia, which can be attributed to environmental factors, such as the species to stock and water conditions in both regions. The government of Buenos Aires generally assists in restocking programs, and the interaction between technical officials and some local users such as fishing clubs seems to be active since advisory services have been offered and cooperation organized jointly.

The case of Patagonia showed that collective action and cooperation can generate effective results in terms of devising fishing regulations. In Buenos Aires, the cooperation between governmental agencies and communities at the local level as well as the inclusion of local stakeholders on consultations could be a way to enhance fishing activities. The initial phase of the consultation process to organize the inland fisheries of Patagonia was critical to develop a long-enduring institution. The institutional approach utilized to examine fishing activities in Argentina can be applied not only in the area of fisheries but also to other development and resource management fields.

On the other hand, both regions can complement each other in innovating management approaches. An example could be the democratization of fisheries management in Pellegrini Lake, similar to the case in Las Tunas Shallow Lake, with the advent of the new government administration. In turn, cooperation between local governments and angling organizations (similar to the case in the Patagonia region) can create a collaborative mechanism for the fishing licensing system, such as distribution of licenses to fishing clubs or associations and the use of collected funds to develop statistical data or formulate pilot projects.

The government's role is fundamental in defining rules to avoid overuse, depletion, and conflicts among users of resource systems. However, the rules must be congruent with local needs. Thus, it is considered that the involvement and participation of local stakeholders in the development of fishing regulations are crucial for developing enduring institutions. This study found that in top-down regimes, collective action and cooperation as well as the consultation process can be the conditions required for sustaining fisheries in the long term. Moreover, collaboration management based on cooperation and coordination among parties can be a way to conserve resources sustainably. As Ostrom argued, grant of some rights to local users to organize and make decisions to use CPRs could also be necessary, since local groups sharing the commons can self-organize to sustain long-term institutions through cooperation. Although appropriate control and coordination of central authorities in resource use are important factors, they can act as facilitators in arbitrating internal agreements and helping solve CPR dilemmas.