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Neoliberalism, Environmentalism, and Scientific Knowledge: Redefining Use Rights in the Gulf of California Fisheries

Marcela Vásquez-León

Within the past decade, Mexico's traditional ruling party, the PRI (Party of Institutionalized Revolution), has been steadily losing its internal legitimacy *vis-à-vis* the social or 'reform' sector.¹ This is evidenced by such events as the recent Zapatista uprising and the civic rebellion in Chiapas (Harvey 1996) and by the unprecedented number of municipal elections won by the opposition in 1988 and 1994 (Regalado 1996). This crisis of legitimacy on the domestic front is partly a consequence of Mexico's current economic crisis, which extends back to 1982. On the one hand, the economic downturn has been slowly eroding the material capacity of the system required to co-opt different sectors of its population, weakening the party's basis for social control. On the other hand, the economic collapse has driven the state to embrace a neoliberal ideology and to reject many of the postrevolutionary tenets that gave legitimacy to the party since the 1917 Constitution (Powell 1996).

As a prerequisite for gaining acceptance as a fully integrated partner in the global economic order, Mexico has privatized vital sectors of the economy and signed the North American Free Trade Agreement (NAFTA) with the US and Canada (Weintraub 1990). It has also addressed the global environmental crisis by establishing important natural areas as biosphere reserves and furthering the cause of 'conservation and development' through the closure of common property resources such as forests and marine regions (Wexler and Bray 1996). While the state simultaneously appeals to its internal private constituents, the free market, and environmentalism in today's 'rural modernization' strategies, the traditional reform sector is facing a global economy in which it has been, for the first time, left on its own to defend its economic and political interests (Stanford 1994; Harvey 1996).

In this chapter I examine how current global processes of market liberalization, privatization, and environmentalism are impacting state law and how these processes are translated by the state to impact local arenas (Merry 1992). I look at the particular case of the shrimp fishery in the Gulf of California and argue that, through the creation of *bad* laws,² the state is manipulating these global themes to renew its forms of social control at the local level. More specifically, by issuing bad laws the state is fomenting the growth of the informal economy, thereby rendering an increasingly large proportion of the population illegal actors, vulnerable to the selective enforcement of regulations and dependent on the benevolence of local bureaucrats.

I further argue that the state is able to justify its adoption of bad laws through the apparently objective knowledge of scientific discourse. By doing this, the state is able to create images of impartiality and disassociate itself from the current problems. What the state is in fact doing is orchestrating a situation of increased inequality in which a small but influential group of private entrepreneurs have acquired the legal right to secure the left-over benefits of a rapidly diminishing resource.

The Mexican fisheries example offers a particularly interesting case where illegality is not the result of state absence, as has been documented for other cases (i.e. Smart 1988; Thoumi 1995; Leeds 1996), but of the state's undue regulatory intervention. Historically, the state has not only designed, implemented, and enforced regulations, but through the illegal use of state power (i.e. corruption through bribery and extortion) state personnel have been able to benefit from the existence of illegal networks. It is also an example of how laws promoted by a power above the state – i.e. international lending institutions and the global forces of environmentalism – that attempt to redefine access to common property resources may actually promote illegal behavior and, at the same time, lead to a vast increase in state and class power.

I begin the chapter by briefly reviewing the literature on the Mexican political system and its links to corruption. I then apply this framework of analysis to the Gulf of California fisheries in an attempt, first to decipher the historical role of the state in fomenting the development of predatory activities; second, to look at the impact of current global processes on the design of laws at the state level; and third, to examine how local bureaucracies interact with rule-breakers and how current global processes affect and change their participation in illegal networks.

The Structure of the Mexican State and its Links to Corruption

The history of development of the shrimp industry in the Gulf of California is a reflection of larger national processes that have occurred within Mexico since the drafting of the Constitution of 1917. From that time on, the state adopted a strong and protectionist role, directing the course of events towards progress and development. It became the owner and ultimate protector of the nation's rich natural resource base, and attempted to control the assignment of rights to natural resources by imposing administrative and territorial hierarchies. Through the creation of state-owned enterprises the state secured control over a large proportion of gains stemming from the exploitation, processing and marketing of commercially valuable resources (L. Lomnitz 1988). It also established a network of public research institutes throughout the country in order to obtain the scientific backing to regulate resource use directly. Not surprisingly, the way natural resources have been administered in Mexico reflects to a substantial degree the changing national interests as well as the general organizational characteristics of the state. A brief analysis of the latter is useful in attempting to understand the role of the state in first fomenting the emergence and persistence of complex illegal networks in the Gulf of California shrimp fishery, and second, in encouraging local enforcement agents and fishery officials, as representatives of the state, to benefit from those networks through the illegal, but informally sanctioned, use of state power.

The first organizational characteristic of the Mexican state is its extreme centralization of political power. Virtually all government and party decisions 'from the most mundane to the most important come out of the executive in Mexico City' (Morris 1991: 25); even local and regional party organizations are practically powerless. Access to state resources at local and regional levels is restricted to a limited number of public institutions that control segments of strategic resources. This has prompted the emergence of informal hierarchical networks consisting of brokers in the effort to capture public and private resources (De La Peña 1989; Greenberg 1990).

A second characteristic of the Mexican state is the corporatist structuring of interest representation. The ruling party has traditionally been formed by sectors that depend on formally sanctioned organizations – until recently, for example, the peasant sector had to be organized in *ejidos* (agrarian reform cooperative and collective farms) in order to acquire

collective use rights to the land. By incorporating many of the lower sectors into the formal structure of the revolutionary party through such dependent organizations, the state has been able to control their internal activities. These lower organizations must maintain good relations with state bureaucracies in order to receive support from the corporate structure. Groups external to the official party, such as the private sector, are required to organize in functionally specific organizations sanctioned by the state. Even though the private sector has had more autonomy, it must also conform to the dominant corporatist framework of the system (see L. Lomnitz and Pérez-Lizaur 1987). Given governmental intervention in regulating and providing subsidies to the private sector, maintaining good relations with state bureaucracies has been critical to the success of their business enterprises. Outside this formal structure of control is the informal sector, which includes all those who do not have any political, economic, or legal guarantees within the system. They must rely on social relations based on scarcity and inequality in order to obtain resources. This has allowed both state and private capital to benefit from the informal sector by manipulating the 'marginality' of the latter (L. Lomnitz 1988; Vélez-Ibáñez 1988).

A third characteristic of the Mexican state is the electoral dominance of the PRI, which has controlled national, regional, and local level politics since its formation in 1929. The president of the republic basically appoints and removes public officials at will (Morris 1991: 28). One of the reasons this system has existed successfully for so long is that, as Lomnitz and Adler point out,

The party encompasses a great diversity of groups and organizations which circle around leaders of different ideologies and interests. The only way to guarantee even the mere hope that each of the groups represented by the PRI finds a place in the government has been through the principle of no re-election in conjunction with an extremely presidentialist system: Mexican presidentialism guarantees that a large number of posts change hands every six-year presidential term (C. Lomnitz and Adler 1990: 47 my translation).

While the PRI has representatives at all levels of government, employees of the government are dependent on their good standing in the party or among upper-level officials for any opportunities of mobility.

The circulation of resources within this very centralized, hierarchical and corporatist structure is largely controlled by vertical patron-client relationships through which corruption and illegality have become an institutionalized component (Morris 1991). Several scholars have used

the metaphor of a pyramid to describe Mexican society.³ Within this pyramid, access to resources is dependent upon brokers and the power of a broker increases as his/her ability to control resources expands. Patron-client relations are a critical linkage of populations to the larger national structure, and representation within the system is the product of negotiation between diverse social groups (Vélez-Ibáñez 1983; Greenberg 1990). In fact, as C. Lomnitz and Adler (1990) note, *negotiations are so critical that they take precedence over both individual sovereignty and the law*. In this system, loyalty is exchanged for access to resources and protection. Needless to say, the exchange is based on relations of dominance and subservience (De La Peña 1989). The system works because, as Carlos and Anderson point out: 'it allows the state to trade off its resources for political obedience' (1981: 185).

Flexibility is introduced into this rigid organization through horizontal class relations. These are symmetrical relationships not based on power, but on mutual trust (Vélez-Ibáñez 1983). Brokers in one sector have friends or relatives who are brokers in another sector (L. Lomnitz 1987: 528), and networks of horizontal elite relationships ensure the maintenance and expansion of elite control. For populations in the informal sector, horizontal networks of exchange offer protection against economic and political uncertainty through, in many cases, the creation of illegal networks.

Integrating Coastal Communities to the National Structure: The Shrimp Industry

Shrimp from the Gulf of California have been one of Mexico's most important foreign exchange earners. In fact, in the 1970s shrimp constituted the third most important export product, after oil and coffee (Hernández Fujigaki 1988). At that time, the Gulf of California was producing more than 50 per cent of Mexico's total exports and was exporting the highest-quality shrimp (*Penaeus stylirostris* or blue shrimp) to the United States. Central government authority played a key role in the development of this valuable industry. The state controlled not only the export market, but also the organization of labor and all matters concerning legislation and the management of the fishery.

Shrimping in the region has traditionally been performed by two sectors. The offshore industrialized sector specializes in the harvesting of shrimp from October to May/June. This sector uses highly mechanized and energy-dependent trawlers that range from sixty-five to eighty feet and

use 360 to 649 hp engines. The small-scale sector is characterized by multi-species fishing and by the use of 24-foot fiberglass vessels (*pangas*) with outboard motors of 45 to 75 hp. The shrimp season for this sector lasts from September to December. Some fishermen, however, switch to other fisheries after the peak of the season; others shrimp illegally throughout the year (see Vásquez-León and McGuire 1993).

Because penaeid shrimp can be exploited sequentially at various stages of their life cycle, the fishery lends itself to a great deal of competition between different types of users. Shrimp spawn at sea; once the post-larval stage is reached they migrate inshore to nursery grounds found in estuaries. As shrimp grow and become sub-adults they migrate massively towards the spawning grounds offshore. During this process of migration the resource can be intercepted by the small-scale sector. Once the schools of shrimp reach areas deeper than 10–12 fathoms they can only be captured by offshore trawlers. It is thus assumed that catches for the offshore sector are directly affected by the small-scale sector's fishing capacity. Even though the competition between the two sectors has always been part of the fishery, only recently, with shrimp scarcity and privatization of the industry, has the conflict escalated to the point where the state has resorted to a variety of legislative tactics and even violence to get rid of small-scale fishermen.

There has also been a great deal of competition between private and social interests, fostered largely by contradictory government policies. One of the key contradictions and sources of corruption is a reflection of the state's dominant role and its long-standing dilemma of equity vs. efficiency.⁴ In the case of the fisheries the fundamental predicament has been one of commitment to equity under a cooperative structure versus commitment to aggregate national economic growth under a system of private investment. These apparently irreconcilable goals take the form of a central opposition in fisheries policy, which has led to uncertainty as to who actually has rights to the resource. This, as is discussed below, has been another contributing factor to the development of illegal activity as the only way to assert rights and access to the resource.

At some periods, from the 1930s through the 1950s, the state fostered and emphasized the collective use of shrimp resources. It first set up cooperatives and gave them exclusive exploitation rights over the resource. Cooperatives, in turn, were legally required to affiliate to regional federations and were incorporated at a national level through the *Confederación Nacional de Cooperativas* (National Cooperative Federation, or CNC) which belonged to the *Confederación Nacional de Organizaciones Populares* (National Confederation of Popular Organizations, or CNOP).

Through these different organizations the state integrated coastal fishing populations within its corporate structure of interest representation. At the local level this meant that cooperatives would never become autonomous organizations. In addition, since cooperatives provided the only legal avenue to exploit commercially valuable species, the legislation created the first form of illegality in the fishing industry: unaffiliated fishermen, known as *pescadores libres*, became the informal sector.

Up to the 1950s cooperative organization flourished under the tutelage of the state. The industry expanded (Magallón Barajas 1987), public credit institutions were established, and regional federations were allowed to manage state-owned packing and freezing plants. Even though the private sector was excluded from capturing the resource, the state provided major incentives for private capital participation. Through 'contracts of association' *armadores* (individual owners of trawlers and fishing equipment) rented boats, equipment, and processing facilities to cooperatives (Hernández Fujigaki 1988). The state also invested in the development of communication and transportation networks, ports, and fishing infrastructure, which directly benefited private investors.

Through the 1960s, as shrimp became an economically important commodity, the state underscored its commitment to aggregate national economic growth by allowing private investors to increase their share of the profits. At this time the *Cámara Nacional de la Industria Pesquera* (National Chamber of Commerce of the Fishing Industry, or CANAINPES) was formed to represent the interests of *industriales* (industrial investors in the shrimp, sardine and tuna enterprises) at the state level and expand their lobbying power. The desire for export earnings in the international shrimp market prompted continuous support for the private sector (Miller 1990: 87). The 'contracts of association' became increasingly beneficial to private investors (Mexican and foreign), who were obtaining a share of the catch of up to 60 per cent and owned all packaging and freezing operations (Mendoza Martínez 1985). Conflict between *armadores* and cooperative leaders led to the beginning of *guaterismo*, the sale of shrimp in the black market, where cooperatives would surreptitiously sell part of their catch through unofficial channels, thus reducing total official catch and illegally increasing their share of the profits.

By the beginning of the 1970s Mexico's economy started to slow down. The state began to borrow massively in world capital markets as government policies shifted away from the private sector to state intervention and the expansion of public spending.⁵ In the shrimp industry government involvement expanded through the consolidation of all state-owned enterprises and participation in marketing through the parastatal Ocean

Garden. The company acquired monopsony control over export shrimp, buying from cooperatives at below market figures. During the 1970s the shrimp industry in the Gulf of California is described by a local analyst as follows: 'This is the period of the official history of the fishery when mismanagement and waste really began; they announced grandiose, extravagant and unrealistic programs that would supposedly turn our country into the world's leading [first] producer of marine resources' (Mendoza Martínez 1985: 43).

Despite a balance-of-payments crisis in 1976 (Lustig 1992), the post-1976 administrations continued the expansion of state intervention in the industry. The *Banco Nacional Pesquero y Portuario* (National Fishing and Harbor Bank, or BANPESCA) was created to provide credit to the private, public, and cooperative sectors; private sector involvement was encouraged through the subsidization of inputs and the relaxation of entry restrictions;⁶ and cooperatives increasingly became a source of organized labor: according to a local journalist 'limited to charging 4 to 8 pesos per kilo of shrimp in order to issue the legal papers required for its transportation and marketing . . . the cooperative societies are only providing the legal trademark, while private investors are simply paying production costs and salaries to fishermen' (Cortés Campo 1977).

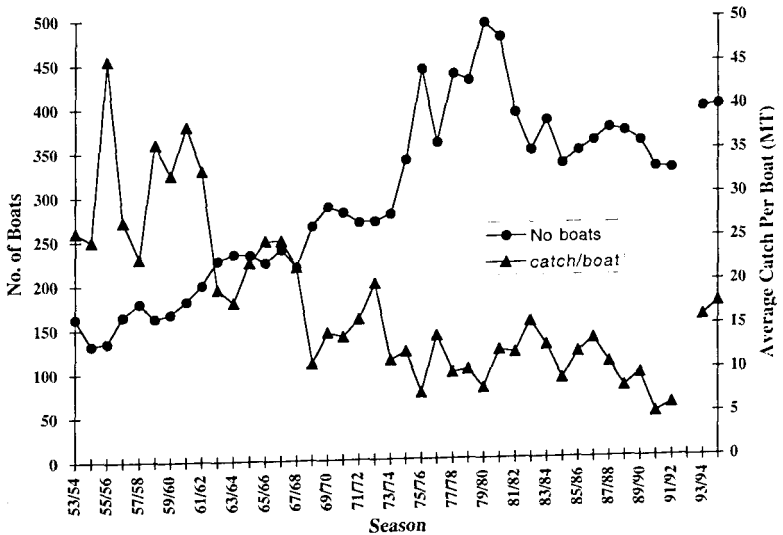
Shrimp trawler fleets throughout the Gulf and Pacific littoral grew substantially in the 1970s (Fig. 8.1 depicts the sharp growth of the offshore sector in the Gulf's largest port) and the number of small-scale fishermen in the formal and informal sectors more than doubled. The latter brought with them new technologies and the use of outboard motors that allowed them to venture into deeper waters and substantially increase their catches.

Corruption within the cooperative structure became widespread. An elite group of cooperative leaders had already formed. Through *caciquismo*⁷ (political-economic bossism) individual politicians, representatives of the PRI, started running cooperatives for personal profit and political gain. The most masterful *caciques* (bosses),⁸ who by this time had established themselves firmly in power, were able to maintain control as cooperative leaders by appointing *amigos de confianza* (trusted friends) and relatives as head of cooperatives. They received support not only from the official structure and the PRI, but also from the communities. In exchange for electoral votes, *caciques* used a large proportion of the funds collected from the cooperatives to assist in community development programs. Local *caciques* also received support from high officials from the *Confederacion Nacional de Cooperativas*, who, in exchange for some of the benefits obtained from cooperatives, refused to recognize the legitimacy of democratically elected cooperative leaders.

Guaterismo became more of a problem when fishermen started to use it as a way to protest against corruption within the cooperative structure (Breton and López Estrada 1989). The practice became common. In the words of a local analyst, it was ‘almost a law which threatens to ruin the industry . . . the first 500 kilos caught are sold immediately, and the benefits are distributed among the crew . . . the captain that does not participate will have difficulties finding a crew for the following trip’ (Mendoza Martínez 1985).

By this time problems stemming from government policies that encouraged the seemingly unrestricted growth of the industry began to surface. The overcapitalization of the fleet led to overexploitation of shrimp stocks and a sharp decline in profits. This prompted the nationalization of the industry in 1981. Through credit from BANPESCA, cooperatives were ‘required to purchase virtually everything offered for sale, including trawlers and equipment that were obsolete or in need of expensive maintenance and repair’ (Miller 1990: 88).

In an attempt to redistribute benefits from shrimping, shrimp cooperatives were divided. Those having access to interior waters (rivers, estuaries and bays) would not be permitted to fish in the open sea, and those with trawlers were not allowed in interior waters (Miller 1990).



Sources: Magallon-Barajas 1987; CRIP Sonora

Figure 8.1 Number of shrimp trawlers and average catch per boat: Guaymas, 1953–1995

What is significant about this legislation is that it increased the fragmentation of the institutions, protecting offshore cooperatives from competition with their small-scale counterparts. It also increased the possibility of illegal activity. These issues were to become of crucial importance as shrimp resources became scarce.

In 1982 Mexico's economy went into a deep recession and, like most of Latin America, into a debt crisis. Under pressure from international lending institutions, the state started to cut public investment. The fishing industry was particularly hard hit. By the mid-1980s shrimp processing and freezing plants were closed or relocated (Hernández Fujigaki 1988). Cooperatives were forced to turn over their catch to Ocean Garden and future credit became conditional on selling to the parastatal (Miller 1990). In addition, the sale of Mexican shrimp on the international market stagnated, resulting in a significant decline of the industry's relative importance to the economy.⁹ This resulted in further economic pressures on cooperatives and, as cooperatives became less and less responsive to fishermen, the volume of shrimp sold in the black market increased. In the small-scale sector the number of fishermen in the informal sector also increased as many preferred to shrimp on their own or under a *guatero* (black market intermediary). The effect of economic decline on local economies also led to the proliferation of illegal estuarine shrimping among non-fisherfolk.

Caciquismo continued to define cooperative organization, and high officials issued credit not on the basis of a cooperative's ability to pay, but depending on the willingness of a cooperative to accept a leader chosen by local *caciques*. Corruption at every level could be sustained while production was good; but when the bad seasons came, the system began to collapse.

By the end of the 1980s cooperatives were on the verge of bankruptcy, BANPESCA ceased operations, and shrimp catches were rapidly declining. The state disassociated itself from the structure of corruption that it had created by allowing formal accusations of mismanagement of funds, extortion, and corruption against regional federations to surface. This provided the opportunity for the re-emergence of the discourse of privatization. Private banks started to confiscate boats and auction them to private investors. By 1992 all the federations of cooperatives throughout the Pacific had been disenfranchised and both the small-scale and offshore fishermen lost political representation and negotiating power *vis-à-vis* financial institutions, the private sector, and the state.

To encourage the privatization of an almost bankrupt industry, the state has had to intervene in significant ways. Private investors have received

substantial benefits in the form of subsidies (i.e. a 40 per cent discount in diesel prices), they were able to purchase boats and equipment at below market prices, and, perhaps most importantly, they have been allowed to exert considerable influence in the management of the fishery.¹⁰

As is discussed below, after 1991 new laws were enacted and enforcement of existing regulations was enhanced with the objectives of allowing the private sector to gain access to enough product to make shrimping an economically viable enterprise, and of limiting the legal access of small-scale fishermen to the fishery. Let us recall that the two sectors operate sequentially at various phases of the life cycle of shrimp. The regulations have affected the small-scale sector, where cooperative organization continues to provide the only legal means of exploiting and marketing shrimp, to such an extent that privatization has meant an open threat to their status as shrimpers. Virtually everything that they do now is considered illegal.

As the process of privatization unfolded in the shrimp industry, and elsewhere in the Mexican economy, NAFTA was being negotiated. Dependent upon the signing of NAFTA was Mexico's need to show that it was a nation concerned about environmental protection. This commitment to environmentalism was demonstrated through the establishment of a series of biosphere reserves around the country. The Gulf of California became a prominent target for conservation, where six protected areas have been established since 1992.¹¹ The proposal to close several areas to fishing has added an extra source of conflict in coastal communities, as the scope of regulations and of what is defined as illegal have expanded.

Environmentalism has not had much effect on the newly privatized offshore sector. In fact, it may have helped private investors, as it facilitated the passing of NAFTA. As will be discussed below, despite stated concerns with conservation, the Mexican state has failed to respond to environmental degradation in other than a token fashion. The measures to deal with the problems are not only far removed from the local realities of economic uncertainty and need, but are insufficient and arbitrary. As with privatization, small-scale fishermen are also suffering the brunt of conservation efforts.

In the 1990s, illegal activity continues to be an integral part of the shrimp industry, although there are new variants. While the power of local *caciques* has certainly diminished, apparently discontented and unemployed fishermen and perhaps the *caciques* themselves have now turned to a new form of illegal activity, piracy. Every season since 1992 there are accounts of trawlers being raided by *barcos piratas* (pirate ships), which take the shrimp, leaving the crew tied up or, in a few occasions,

inside the cold room. In the small-scale sector fishermen have not remained passive. Instead, they have developed and strengthened already existing illegal networks – made up of fishermen, cooperatives, *guateros*, and fishery officials – through which a wide range of illegal activity takes place: a black market, the use of illegal gear, entry violations, infringements of areal and seasonal closures, and open political defiance. Although the nature of these networks has been discussed elsewhere (Vásquez-León 1994), a brief description of one of the activities will illustrate the point. A large number of small-scale fishermen shrimp offshore during the closed season. Since they use an illegal trawling net called *chango*, they are called *changueros*. *Changueros* can be organized around a specific *guatero*, receiving protection in exchange for their catch. *Guateros*, in turn, have already developed strong ties with enforcement agents. Thus for a certain monthly ‘fee’, fishery inspectors at various levels will ignore any illegal activity from explicitly organized *changueros*. *Guateros* also cooperate with enforcers to catch independent *changueros*, ironically contributing to the effort to diminish illegal activity.

The Role of Science in the Creation of Bad Laws

Shrimp monitoring and management are an integral component of the fisheries bureaucracy and fall within the state’s highly centralized and hierarchical structural organization. Since the shrimp industry started, state policies and regulations have been carefully framed under the endorsement of shrimp scientists. These, as part of the formal fisheries bureaucracy, are involved in a system that requires a certain degree of compliance and agreement with larger government agendas. Thus the basic assumptions under which biologists have issued management recommendations and the recommendations themselves are transformed and translated as they go up what could be called the fisheries pyramid to reflect larger state objectives. These objectives are, in turn, legitimized by scientific discourse.

Shrimp in Mexico, as in most other countries in the world, have been managed under the guidelines of FAO shrimp scientists (McGuire 1991). They have four basic assumptions that frame management recommendations: first, the biotic potential of shrimp is so great that the possibility of overexploitation can be discounted (Chávez and Lluch 1971); second, population recruitment is not affected by changes in adult stock size due to fishing; third, the change in the size of shrimp stocks from year to year is a direct function of environmental conditions and the progressive deterioration of estuarine areas as a result of human activities; and fourth,

while fishing effort offshore does not affect the reproductive capacity of a population (spawning adults), fishing effort in the estuarine phase¹² is assumed to have an effect on population recruitment (García and Le Reste 1981).

Based on the above assumptions, which have not gone unchallenged by shrimp scientists (see McGuire 1991; Penn and Caputti 1986), the following basic policies have characterized the management of the fishery. First, there has been no visible attempt to limit fishing effort on adult stocks; instead, shrimp scientists actually endorsed the policy of over-expansion that led to the near-collapse of stocks. Second, nursing grounds have been designated as protected areas where no shrimping is allowed. And third, two *vedas* (closed seasons) have been implemented for each sector. The *veda* for the inshore sector has been designed to regulate age at first capture and protect the growth of juveniles (Rodríguez de la Cruz 1981). The objectives of the *veda* for the offshore sector have changed over the years. At one point, it was designed to protect the resource after it had spawned; now it also aims at protecting spawning adults. In practice, 'the political pressures on managers from an industry as valuable as shrimp have been decisive in the determination of the dates for the *vedas*' (Chapa Saldaña *et al.* 1968: 360). Basically, when shrimp catches decline the *vedas* are manipulated to favor the offshore sector.

These not-so-clear assumptions and management objectives have been used to attribute 'scientifically' the decline in yields for the offshore sector to small-scale shrimpers, who are accused of reducing the reproductive potential of the stock by fishing sub-adults. Science, then, has been instrumental in providing a degree of legitimacy to the privatization process and the resulting proliferation of bad laws that have been issued since the process began. These laws, issued by the Fisheries Ministry in 1991 (Secretaría de Pesca 1991), directly limit the small-scale sector's capacity while allowing the private sector to gain access to enough product to make shrimping an economically viable enterprise.

For example, in the small-scale sector motors with horsepowers (hp) of above 55 can be used only if they have been bought and registered with the *Delegación Federal de Pesca* (Federal Fishing Agency) before 1991; most fishermen use 75 hp motors. The most widely used shrimping net has been banned, and the only nets authorized for shrimping lack selectivity, capture juveniles, and decrease catches considerably. Small-scale fishermen can only shrimp between zero and five fathoms, although they have the capability of fishing at twelve fathoms. If these regulations were to be followed they would increase costs of production, significantly reduce the mobility of fishermen, make travel to distant bays an extremely

risky undertaking, increase the capture of sub-adults, and substantially decrease catches and profits. None of these regulations protect the fishery, and their violation is seen as socially legitimate by fishermen and even local bureaucrats and scientists (see Vásquez-León and McGuire 1993).

The offshore sector was also subjected to new regulations. Shrimping is prohibited between zero and five fathoms – apparently revising a previous restriction to over ten fathoms and, thus, actually extending their fishing territory. There were no other regulations that in any way modified trawling practices; instead, it is stated that ‘the capacity of shrimp trawlers will not be in any way reduced or modified’ (Secretaria de Pesca 1991).

In the areas that have been established as biosphere reserves regulations to limit effort have been ambiguous and the process is still under negotiation. For example, in the apparently final management plan for the Upper Gulf of California and Colorado River Delta Biosphere Reserve (established in 1993), the only restrictions have been placed on the small-scale sector. They cannot fish in what are called nuclear zones. These are zones near the delta that have been defined as fragile, but that have always been important fishing grounds for small-scale fishermen. It is suggested that small-scale fishermen stop fishing commercially and join in the development of eco-tourism as an alternative source of income. The process in the biosphere reserve indicates a pattern similar to that in the shrimp fishery as a whole (see McGuire and Greenberg 1993).

The Fisheries Bureaucracy and the Offenders: On Bad Laws and Good Laws that Turn Bad

To understand how scientific assumptions and recommendations become distorted to serve specific interests as they flow through the system, it is important to look briefly at the fisheries bureaucracy and the role of local-level bureaucrats as sometimes legal and sometimes illegal predators. Fisheries management is characterized by a highly centralized and rigid structure controlled from the top. Prior to 1994 the Fisheries Ministry (SEPESCA) was at the top of what can be considered the pyramid of the government’s fisheries bureaucracy.¹³ Under SEPESCA is the *Instituto Nacional de la Pesca* (National Fisheries Institute, or INP). The INP, from its central offices in Mexico City, controls all matters concerning research, law, and regulatory enforcement. This is done through regional delegations that implement and enforce national regulations at the local level, and *Centros Regionales de Investigación Pesquera* (Regional Fisheries Research Centers, or CRIPs) located in coastal states. CRIPs are in charge of monitoring particular species, advising central offices as to the need

for areal or seasonal closures, and providing the scientific backing for the establishment of legislation. Their main objective, which may differ from larger state objectives, is to determine the equilibrium level of effort that can sustain commercially valuable stocks within the region that they monitor.

Despite its 'democratic' façade, this process leaves little margin for local-level intervention. Legislation and general management of the fishery, regardless of advice provided by local scientists, is done either at the national level or for the entire Pacific coast. At the local level, this has led to a perception of the illegitimacy of the larger system of rule-making and a questioning of the legitimacy of scientific assumptions, the intent of regulations, and the impartiality with which these regulations are implemented. These perceptions, shared by local resource users, and, up to a certain extent, local scientists and enforcement agents, have resulted in open avoidance of regulations, as discussed above, and selective enforcement by local bureaucrats.

The Local Scientists

Fishery biologists are often blamed by their counterparts in the regional fisheries agency and by resource users for the creation of bad laws or the unfair implementation of good laws. For example, fishermen blame local scientists for the manipulation of the closed season:

scientists have purposely ignored the effect of tides on catchability. The best two ebb tides when all the shrimp come out of the bay going offshore are occurring before the season opens, or just as inspectors from Mexico City happen to visit. We end up having to stay in the bay. And this is no coincidence, they know well what they are doing, they are just being bought by the Fisheries Ministry and the *armadores* (equipment owners) (interview with a fisherman 1992).

Scientists take the blame because it is an implicit component of their jobs – loyalty is exchanged with *armadores* and higher fisheries officials for a sense of security. They have managed to get a job and they know that if they behave they will be able to keep it. Maybe, if they play their cards right, they will even get a promotion, a better salary to keep up with inflation and perhaps they may even one day save enough money to buy a car. But more important than a salary, their job comes with significant benefits. They can become homeowners in one of the government housing complexes, with no down payment and very low mortgage rates. They

also get health insurance and the possibility of applying for government grants in order to further their education. In addition, especially among the younger researchers, there is always the belief that their advice, although not always taken, provides the potential for good management. Once in a while they are able to intervene in favor of the resources and the ecosystem that they are monitoring.

Nevertheless they remain in a bind. They do not agree with government policies, yet they have to support them. As one of the shrimp researchers told me, 'I cannot be neutral, nor present real results; I have to support the system.' They are concerned about resources, but they have to yield to the *armadores* and *industriales* (industrial trawler owners) who, after all, provide generous economic contributions that allow investigators to do research.¹⁴

With privatization CRIP directors are confronted with difficult dilemmas. They have to defend decisions taken in Mexico City that often contradict recommendations made by their group of scientists. When decisions are too controversial at the local level, they must, through the media, provide the necessary scientific justifications. While in the field, I was able to witness one such occasion. At one point, accusations against the private sector were mounting. It was argued that they were endangering sardine stocks by illegally capturing juveniles. Private owners denied the accusations, arguing that what they were doing was capturing a new species of sardine, the *sardina enana* or midget sardine. Thus, the *industriales* claimed, the traditional sardine could now be considered as the *sardina gigante* or giant sardine. The public wanted to know if there were any scientific basis for such allegations, so cameras from Telemundo (a Mexican television network) went to interview the regional CRIP director. He ended up backing the private investors, although he knew that their excuse was preposterous. Through his giving scientific backing to their allegations, the conduct of the private investors was converted from illegal behavior – catching juveniles – to legal behavior – catching a 'new' species of sardine. This particular director resigned soon after. Even though he had an assured future at the fisheries ministry – by the age of 22 he was already regional director of the CRIP – he did not allow himself to be co-opted by the system.

The Enforcement Agents

Local-level administrators and enforcement agents at the delegation of the INP also play an important role within the pyramid. Unlike CRIP researchers, enforcement agents can be looked at as local brokers. They

deal directly with resource users, acting in the name of the state, and at the same time are well acquainted with the local socio-economic context in which regulations are to be enforced. Even though one of their main functions is to enforce regulations, they benefit substantially from bending the law and providing the mechanisms *para enderezar lo chueco*, to legalize what is illegal (literally 'to straighten out that which is twisted'). They also promote the interests of the state; it would appear as if one of their mandates was to keep the system of corruption functional under state supervision. In addition, they lend flexibility to an otherwise strict hierarchical structure, allowing communities to make a living from shrimp resources. Unlike CRIP researchers, enforcement agents are also freer to complain about unfair regulations, to recognize the social legitimacy granted to some of the violations, and to dissociate themselves from policy decisions.

Local administrators bend the law partly because of the direct benefits obtained in the form of *mordidas* (literally 'bites', a payment in exchange for overlooking violations), and, in the past, partly as a result of pressure from small-scale cooperatives, which, through the regional federation, had a degree of bargaining power. A salary insufficient to support a family (US \$300 per month in 1992) certainly induces inspectors to accept or demand *mordidas* from individual violators. In fact, *mordidas* have been so common that they are simply part of the transaction costs calculated by fishermen, the cooperatives, or the *guateros*. Access to shrimp for small-scale fishermen is largely controlled by vertical networks of exchange where informal arrangements, *arreglos*, among *guateros* and local enforcement agents are always possible.

When the federations of cooperatives were still in operation, *mordidas* in the form of cash or shrimp were often exchanged for 'favors' such as lax enforcement of the law that prohibits small-scale fishermen from shrimping off-shore, informal permits given to cooperatives to start the season early, or the legalization of large quantities of black market shrimp for offshore cooperatives. In exchange, higher officials obtained bribes in the form of gifts, donations, or cash. There is no question that *arreglos* prevailed over any attempt to enforce regulations. *Arreglos* were overlooked by higher levels of authority in Mexico City, and served to placate the cooperatives, the fishermen, and the low-paid officials. In addition, payoffs to authorities outside the fisheries bureaucracy were not uncommon. For example, if a cooperative did not want to pay taxes, it only had to give money to the federation, and the federation would in turn give a *mordida* to state officials so that the taxes would be disregarded.

An additional incentive for inspectors to accept bribes is that they know that they are on the job only temporarily. They openly admit that being an inspector is an opportunity not to be wasted, probably one of the few times in their lives when they will be able to make money. They know that when the regional fisheries delegation changes its executive, at the end of every six-year presidential term, all the inspectors also change. From being legal predators in the eyes of the state, they become private citizens with no more power than that of any fisherman. Being a conscientious and efficient inspector has nothing to do with keeping the job.

The state has basically followed a policy of toleration that allows illegal activity to persist. Black market activity, for example, is widespread, yet there is selective enforcement. Even if the state only made figurative efforts to achieve control, maintaining the illegality of the activities has provided considerable benefits. Strict regulatory enforcement, for instance, would have amounted to substantial costs.¹⁵ The Fisheries Ministry does not have enough financial resources to sustain the high level of enforcement required, nor does it provide enough incentives to officials in charge to avoid instances of corruption. There are only eleven inspection offices throughout the state, which assign from one to four inspectors per community along the entire coast. Inspectors require the cooperation of the local navy, military, and *capitanía de puerto* (harbor master), and of the federal police, none of whom are specifically trained to do the enforcement job. By allowing involvement of local agents in illegal activity the state does not have to increase the budget assigned to regional delegations; instead, salaries can be supplemented through *mordidas*, reducing the need for sophisticated enforcement equipment.

In addition, illegality has allowed the state to manipulate the vulnerability of local actors. A policy of toleration and flexibility gives a sense of control to local actors, yet keeps them under control. In addition, by tolerating illegality the state has also been able to respond to particular interest groups; toleration declines as catches for the private sector drop. Toleration generates a very uncertain situation, with major ramifications for the fishermen.

With the adoption of a neoliberal ideology and the general economic crisis, the state no longer needs, or is able, to appeal to the cooperative sector. Now, more than ever, the usefulness of the status of illegality placed upon small-scale fishermen becomes evident. For example, local arrangements between rule-breakers and bureaucrats started to become increasingly problematic during the 1992–3 season. The private sector,

through the CANAINPES, issued a formal complaint to fishery officials calling attention to the illegality of small-scale fishermen shrimping offshore. Since then, visits from Mexico City officials have become frequent and occur during the best tides at the beginning of the season. During these visits, fishermen must remain inshore so as not to jeopardize the 'favor' done by local authorities.

The cost to small-scale fishermen has been high: not only do their catches decline, but they lose access to optimal marketable shrimp sizes. In addition, the private sector has directly brought marines from Mexico City to enforce regulations selectively. These are rotated every year so that they do not become familiar with the system. They are encouraged to resort to violence; several small-scale fishermen have been killed by soldiers, something that had never happened before. For local enforcement agents, especially those at the lower end of the pyramid, privatization has also been costly. But while they have lost many of the opportunities to obtain *mordidas* in the shrimp business, they have gained new opportunities with the creation of biosphere reserves.

At the top of the pyramid the stakes are higher. There are loyalties to be guarded, family assets to be protected, positions of status to be defended, and important horizontal networks of exchange that need to be continuously cultivated. The elites who make the actual decisions regarding fisheries policy must strengthen their alliance with elites in the private sector. This in turn gives support to the system and perpetuates it, since everyone at the top obtains benefits from it. For the director of the *Instituto Nacional de la Pesca* (National Fisheries Institute) at the time privatization was starting, for example, it was important to listen to and execute the requests of the *armadores*; after all, her brother was the president of the CANAINPES for the Sonora chapter.

Even if their position regarding the shrimp industry is indefensible from a biological and economic point of view, people at the top always have a ready argument that justifies their deliberate attempt to eliminate competition from the small-scale sector. Higher officials informally argue, for example, that offshore trawling cannot be banned inside the biosphere reserves. This would, on the one hand, lead to an excess of fishing effort in a smaller area, meaning the rest of the gulf, where the whole fleet would be forced to concentrate. On the other hand, boats are too expensive and the private sector has already invested too much money. 'The easiest thing to do is to get rid of small-scale fishers by making them illegal' (interview with a high-level fisheries official 1993).

The Offenders

From the point of view of offenders, their values, motivations and attitudes toward regulations must be considered in order to assess the effectiveness of the restrictions imposed. Some of these have been examined elsewhere (Vásquez-León 1994). Here, I will briefly note that there are three main problems that preclude fishermen from following regulations: (a) fishermen living at a subsistence level and with little chance of alternative employment on land will remain in the fishery even at the cost of getting punished and even when they perceive a regulation as legitimate; (b) fishermen who do not have the knowledge or equipment to switch fisheries will continue to shrimp even after the season has closed (even though closures are seen as legitimate from the point of view of resource protection, their implementations are perceived as illegitimate); and (c) fishermen, *guateros*, and even whole communities feel that they have as much right to the fishery as the *armadores* and the state. Regulations that favor the latter at the cost of small-scale shrimping are considered illegitimate and are consequently broken by everyone, all of the time.

In the case of the biosphere reserves, while fishermen acknowledge that there is an ecological crisis and an imminent need to reduce effort, they feel that conservation efforts have not directly addressed the major environmental concerns of local communities. For the latter, the problems have to do with the open-access character of management, overcapitalized and ecologically inefficient industrial fleets, and a lack of marketing opportunities for alternative species, issues not directly addressed by the conservationist agenda.

But what happens when a fisherman decides to follow legal procedures? This is the case of El Neto, a small-scale fisherman who during the process of privatization decided that he would be the first one to take advantage of free trade. He decided to become a legal shrimp dealer. With an export permit he could offer certain guarantees to his clients, 'so that they trust me and don't have to hide when they come to sell here'. He could also pay a higher price than the *guateros* because his costs were going to be lower; he did not have to pay *mordidas*.

For a fee of \$100 (US) he was promised a legal export permit for the beginning of the season. While other fishermen were busy repairing nets, he was busy selling fishing equipment. He traded his nets for a couple of scales, hooked up a phone line, bought a car on credit, and started paying cash for shrimp to establish himself as a buyer. The season started; but the permit was delayed. Pretty soon kilos of shrimp started flooding his house. A lack of storage facilities forced him to leave the shrimp at the

processing plant, which charged for storage on a daily basis. Three weeks into the season, the shrimp was accumulating along with the charges. He started to delay payments to the fishermen; and the fishermen stopped selling to him.

An export permit good for one season finally arrived three months after the season had started. It was too late: he was in debt, bankrupt, and without fishing equipment. Without direct connections in the regional delegation he was unable to sell his shrimp on the black market for a profit. He was forced to end his career as a shrimp exporter in the same season that he had decided to start.

Conclusions

The case of corruption and illegal networks in the Gulf of California fisheries is a reflection of larger processes occurring within and beyond the Mexican state. Historically, as in the larger system, the structure of the fishing industry in Mexico has been shaped like a pyramid formally organized by sectors differing in power and informally manipulated through vertical and horizontal relationships. In its attempt to control valuable shrimp resources, the state created a complex network of official organizations and private interests. At the same time, it created a structure plagued with contradictions in which corruption and illegal activity became customary.

Everyone benefited from abundant shrimp stocks. The resource bought political power and loyalty from local communities, gave substantial economic benefits to elites in the public, private, and cooperative sectors, and was a significant source of foreign exchange to a modernizing nation. It also created a large informal sector and fomented the emergence and persistence of illegal networks made out of individual fishermen, cooperatives, and even entire communities whose access to shrimp resources was mediated by local brokers, or legal predators representing the state.

Scientific discourse, also under state patronage, promoted the rapid expansion of the industry by justifying the management policies that would eventually lead to the near-collapse of stocks. The system could be maintained as long as catches were high, but when catches dropped the system began to collapse. Corruption within the cooperative structure served as a scapegoating device to explain industry bankruptcy and the problems of overexploitation. It also expedited the elimination of the cooperative sector in the 1990s.

Mexico's transference of the fishery to the private sector was unprecedented. It was, however, one of several efforts to gain legitimacy in the

international arena. Along with privatization came a change in the definition of the region, from one of being highly productive to one containing several 'fragile ecosystems' in need of conservation. Since 1991 privatization and environmentalism have led to the proliferation of bad laws that specifically limit legal access of small-scale fishermen to marine resources. Even though, as is rhetorically claimed by the state, the objectives of these laws are to conserve resources for long-term use and increase industry efficiency, the relations of power set in motion point in a different direction. Concealed behind scientific discourse and consistent with the neoliberal worldview, the primary concerns are a perceived need to meet the demands of the influential private sector for exclusive control and rights to increasingly scarce resources, and to conserve resources for a potentially profitable tourist industry. In other words, as resources become scarce, the law is employed directly and instrumentally to define not fishery use, but *who* uses the available stocks. The law defines and defends the dominant class claims upon resources and labor power.

Privatization has also meant that fishermen have lost political representation, and that the state has lost the legitimacy that allowed it to manipulate local actors. New legislation and the use of violence as a new enforcement mechanism are attempts on the part of the state to renew its forms of social control at the local level. Thus the status of illegality imposed on fishermen provides the pretext for the state's forcible intrusion into fishing communities, making them highly vulnerable to structures of power that are external to their immediate realities and even beyond the Mexican state.

There is no question that the global forces of neoliberalism and environmentalism have intruded into the lives of local actors, transforming the relationship between local state bureaucracies and illegal networks. In the past, a policy of toleration, rather than strict regulatory enforcement, characterized the relationship between fishery officials and resource users. Through this policy, the state allowed illegal activity to persist, yet left open the possibility of asserting control or imposing enforcement selectively when it perceived it to be necessary – or when catches dropped too much. Today, local managers are now losing their ability to respond to local circumstances, and resource users have lost the brokers who gave them some power of negotiation with higher officials. There is an increasing impersonality in the mediation of class relations and, as government policies change, even enforcers run the risk of getting punished; as petty predators, they have become an inconvenience to the greater predators, the private sector and higher officials.

Remnants of the old system remain, and even though it is now more costly to break the law, illegal activity has increased. This is a function of an expansion of what is being defined as illegal, of the economic crisis that has left most coastal communities with few employment opportunities, and of the belief among the fishing communities that, regardless of ideological changes at the state level, they have the right to make a living.

Notes

1. In the political literature of Mexico the social or 'reform' sector stands in contrast to the private or the 'modern' sector. The former refers to the collective organization of labor started under the 1917 Constitution and sanctioned by the revolutionary party; the latter refers to private economic interests.
2. De Soto (1986), in his study of the informal economy in Peru, argues that there are good and bad laws that control and regulate economic activities. He defines the informal economy as that part of the illegal economy that results in legitimate economic activities that have to be undertaken illegally because of bad state laws and regulations, which make them too costly if undertaken legally or make legal activity non-viable for many low-income entrepreneurs. An example of a bad law is one that imposes a set of unnecessarily difficult prerequisites on the business of obtaining a permit. A good law would be one that requires the payment of state income taxes. Those who violate bad laws, De Soto argues, generate good illegal benefits, while those who violate good laws generate bad benefits. There is no doubt that when defined in this way the informal economy is very important in Latin America (see Guissarri 1989; Thoumi 1995).
3. The contemporary Mexican political system has been described metaphorically as a pyramid by several scholars (Padgett 1966; Carlos and Anderson 1981; L. Lomnitz 1987). As described by Lomnitz, the Mexican society is a 'set of parallel pyramids inside of which ever smaller multiple pyramids are generated which duplicate themselves hierarchically in a way comparable to the patriarchal family structure' (L. Lomnitz 1987: 522, my translation).
4. For a discussion of contradictory policies in the agricultural sector, see Sanderson 1981.
5. Lustig's observations of the Echeverría administration (1970–1976) reveal the underlying scheme directing further developments in the shrimp industry: 'The belief at the time was that a country in which the state controlled a larger share of investment, owned more "strategic"

sectors . . . , and regulated more of the price-setting mechanism would be more prosperous, more equitable, and less vulnerable to the political pressures of the business sector at home and abroad' (Lustig 1992: 18).

6. Policies in the shrimp industry were only a reflection of what was going on at the national level: 'In the late 1970s, on the mistaken assumption that the rise in world oil prices and the availability of cheap external credit would continue, the Mexican government engaged in a spending spree. The resulting fiscal deficit increased inflation rates and the trade deficit. The fiscal and external gaps were filled with external borrowing' (Lustig 1992: 3).
7. *Caciquismo*, as described by Friedrich (1965), emerged in rural Mexico as a direct result of the struggle for land between different factions. The *cacique* became the leader of a particular faction and maintained power through his skill at being able to organize followers.
8. One of the longest examples of *cacicazgo* (rule by a *cacique*) in the industry was that of Florentino López Tapia. He was the sole officially-recognized leader of all fishing cooperatives in the south of Sonora for over three decades. As part of the administrative council of the federation Sur de Sonora and as intermittent mayor of the city of Guaymas representing the PRI, he would remain the mediator between the cooperative sector and higher levels of authority in the public and private sectors until the beginning of the 1990s.
9. While in 1977 shrimp represented 6.9 per cent of Mexican total exports, this figure declined to less than 2.3 per cent in 1987. Its share in the rapidly expanding US market also dropped from 40 per cent in 1977, to 18 per cent in 1987 and 12 per cent by 1989 (Miller 1990).
10. Top members of the CANAINPES have considerable power within the government structure. They tend to be very diversified businessmen with large investments in the Sonoran economy. For example, one of the largest owners has a chain of supermarkets throughout the state; he is also a producer of beef cattle for export and comes from one of the traditional elite families in Sonora. Several top investors in the shrimp industry also controlled the administrative councils of the private banks that embargoed the cooperatives and have close kinship relations in different sectors or in the government.
11. The Upper Gulf of California and Lower Colorado River Delta Biosphere Reserve, the Islas del Golfo Biosphere Reserve and the Loreto Marine National Park, the Vizcaino Biosphere Reserve, the Cabo Pulmo Marine National Park, and the Cabo San Lucas Submarine Region.

12. García and Le Reste write: 'penaeid shrimps are nearly always heavily exploited, and the size at first capture is below, and often much below, the size at first sexual maturity. This is particularly the case if there is an artisanal or semi-industrial fishery for juveniles. In such cases, the reproduction potential of the stock is greatly reduced and . . . it is possible that the stock declines to a level where great prudence is required' (1981: 137).
13. Recently SEPESCA became part, as a subsecretariat, of the newly created *Secretaría del Medio Ambiente, Recursos Naturales y Pesca* (Ministry of the Environment, Natural Resources, and Fisheries, or SEMARNAP), with the objective of lessening sectoral conflict in the area of natural resource use and protection.
14. The 1993 report on pelagic fisheries issued by the Secretaría de Pesca acknowledges the assistance provided by the CANAINPES: '[with thanks to] the *Cámara Nacional de la Industria Pesquera*, Sonoran Section, especially to the Sector Industrial y *Armadores Sardineros*, for the constant interest in the research agendas developed, and for their valuable economic and equipment related contributions to make the research possible' (Secretaría de Pesca 1993: ii).
15. For a discussion of high enforcement costs in marine environments see Anderson 1986.

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