

Sanctioned but unpunished: impunity and recidivism in shellfish poaching in Galicia (North West Spain)

Hugo M. Ballesteros (ORCID: 0000-0001-7644-3746)

Assistant Professor

Research Group: EcoPesca – Fisheries Economics and Natural Resources Lab

Department of Applied Economics

Institute of Studies and Development of Galicia (IDEGA)

University of Santiago de Compostela

Coruña

SPAIN

Gonzalo Rodríguez-Rodríguez (ORCID:0000-0002-8312-5698)

Senior University Lecturer

Research Group: EcoPesca – Fisheries Economics and Natural Resources Lab

Department of Applied Economics

Institute of Studies and Development of Galicia (IDEGA)

University of Santiago de Compostela

Coruña

SPAIN

Correspondence: Hugo M. Ballesteros; victorhugo.martinez@usc.es

Acknowledgments

This article is part of the research activities developed within the framework of the RECMAR Project (PID2023-150405OB-I00)



Abstract

This article examines the persistence of impunity in shellfish poaching in Galicia (northwest Spain), focusing on the limitations of the formal sanctioning system. Based on an analysis of official infraction records from 2012 to 2020, the study identifies a recurrent group of offenders who manage to avoid punishment through the strategic use of economic insolvency, thereby achieving legal impunity. Despite receiving multiple sanctions, these individuals remain largely unaffected by the deterrent effects of monetary fines, which weakens the coercive capacity of the current enforcement model. The findings highlight the inadequacy of purely punitive approaches to addressing repeat offenses, as well as systemic failures that enable the continued reproduction of illegal practices without real consequences. From a theoretical standpoint, the study advocates for a dual strategy: combining effective coercive measures, such as the introduction of criminal penalties for repeat offenders, with public policies aimed at reducing social exclusion and creating viable economic alternatives. By exposing governance failures linked to the formal sanctioning system, this research contributes to broader debates on compliance and institutional legitimacy in small-scale fisheries (SSF), and underscores the need for integrated strategies that take into account the social and economic realities of local coastal communities.

Keywords: shellfish poaching; impunity; recidivism; fisheries enforcement; small-scale fisheries governance

Introduction

Illegal, unreported and unregulated (IUU) fishing constitutes one of the main threats to the sustainability of marine ecosystems and to the coastal communities that depend on them (Bartlett et al., 2025; Cisneros-Montemayor et al., 2013; Rivera et al., 2025; Song et al., 2020). Within this framework, poaching – understood as the deliberate infringement of fishing regulations – emerges as one of the most visible and harmful expressions of IUU practices in small-scale fisheries (SSF) (Ballesteros et al., 2024; Diogo et al., 2016; Isaacs & Witbooi, 2019; Oyanedel et al., 2020; Rivera et al., 2017; Romero et al., 2021; Thiault et al., 2020; Weekers et al., 2021).

In Galicia (northwest Spain) in particular, shellfish poaching takes on an amplified dimension, representing not only a challenge of ecological overexploitation, but also a phenomenon with far-reaching social implications and complex economic consequences (Ballesteros & Rodríguez-Rodríguez, 2018a). It has even been asserted that poaching constitutes the main threat to Galician small-scale fishing communities (Ballesteros et al., 2017; González Arias et al., 2011; Sequeiros, 1995). From an ecological standpoint, poaching, as an uncontrolled extraction of shellfish, seriously undermines the recovery of fishery stocks and transgresses the principles of sustainability that underpin the regulation of the exploitation of species with high ecological and commercial value (Ballesteros et al., 2024; Geiger et al., 2022). From a social and institutional perspective, the persistence of these practices may erode the internal cohesion of fishing communities, which are highly dependent on fishing activities and govern local fishing and shellfishing resources through a co-management system involving local fishers' organizations ("Cofradías") and the regional government, Xunta de Galicia (García-Lorenzo et al., 2019). Economically, the impact of poaching operates on a dual front: on the one hand, it undermines fishing as a legitimate source of income by reducing the economic returns of fishers and shellfish gatherers who operate within legal frameworks; on the other, it distorts market dynamics by introducing unregulated trade of products without traceability or sanitary controls, which generates unfair competition and endangers food safety (Ballesteros et al., 2019).

Notably, the absence of sanitary controls in the commercialization of illegal shellfish constitutes an additional risk factor associated with poaching. The consumption of certain sedentary bivalve mollusk species – such as cockles, oysters, clams, or scallops – can pose a serious threat to public health if they are harvested and marketed without undergoing the proper purification processes, or if they are collected during red tide events or other biological or contaminating phenomena that render them unfit for human consumption (Blanco et al., 2025; Rodríguez et al., 2023).

The aforementioned factors help to frame the issue of illegal shellfish extraction, but they are not sufficient to explain why it arises and persists over time. In this regard, various studies have shown that poaching does not respond to a single causal logic, but is conditioned by a complex repertoire of drivers that facilitate and enable it in certain contexts (Ballesteros & Rodríguez-Rodríguez, 2018b; Muth & Bowe, 1998; Rivera et al., 2025). In the Galician case, key drivers include: economic hardship resulting from social exclusion or prolonged

crises; margins of institutional impunity due to either a lack of resources or shortcomings in enforcement of anti-poaching regulations; a culture of social tolerance towards certain forms of rule-breaking; a low perceived risk of sanctions; and an economic logic oriented toward immediate financial gain (Ballesteros & Rodríguez-Rodríguez, 2019). These drivers are commonly identified in the literature on this subject (Adams et al., 2004; Ballesteros et al., 2021; Duffy et al., 2013; Hampshire et al., 2004; Muth & Bowe, 1998; Potgieter & Schofield, 2010; Von Essen et al., 2014).

Within this framework, particular relevance is given to the existence of structural incentives that catalyze and reinforce these drivers. These incentives have been conceptualized as the set of institutional, regulatory, economic, and sociocultural conditions that, persistently and systemically, favor illegal fishing practices, reducing the effectiveness of enforcement mechanisms, eroding regulatory legitimacy, and consolidating unregulated extractive practices within coastal communities (Ballesteros et al., 2017). These structural incentives not only allow the continuity of poaching, but act as a matrix that normalizes its reproduction and integrates it as a stable practice.

The above allows us to outline the complexity of shellfish poaching in Galicia, a phenomenon that has been addressed from various analytical perspectives. This study aims to address a still underexplored dimension of the phenomenon: recidivism as a consolidated and repetitive form of poaching activity. Recidivism is defined as the systematic persistence in illegal fishing activities by individuals who have already been sanctioned but nevertheless continue to break fishing laws (Ballesteros et al., 2024). The relevance of addressing recidivism lies in its aggravating effects: not only does it reproduce the ecological, economic, and social consequences of poaching in general, but it also further limits enforcement capacities, undermines regulatory legitimacy, and weakens the deterrent power of the sanctioning system. Moreover, recidivism introduces a dimension of institutionalized crime, whereby certain individuals establish a way of life based on illegal fishing, benefitting from regulatory loopholes and the low effectiveness of the sanctioning system. The existence of this type of repeat poacher calls for a debate on the current enforcement model, as well as a reassessment of surveillance and sanction systems addressing poaching.

This article is structured as follows: first, it presents the institutional and socioeconomic context of shellfish poaching in Galicia. Then, it describes the methodology employed, which focuses on the analysis of an official database of sanctions for illegal fishing activities between 2012 and 2020. Subsequently, it analyzes both the quantitative and qualitative results related to recidivism. Finally, the implications of the findings are discussed.

Galicia: The Economic Dimension of Shellfish Gathering in the Coastal Productive System

This section addresses the economic relevance of shellfish gathering in Galicia, with the aim of assessing the socioeconomic importance of fishing and shellfishing activities in the region. This reflection responds to a fundamental question: why is it important to study shellfish poaching? The answer lies in the fact that it constitutes the main threat to one of the most significant socioeconomic activities in the Galician territory. In this sense, fishing in general, and shellfish gathering in particular, play a crucial role in the socioeconomic fabric of local coastal communities (Rodríguez-Rodríguez et al., 2022). Fishing takes place along more than 1,490 kilometers of Galician coastline, forming a highly specialized productive system that generates direct, indirect, and induced economic impacts throughout the regional socioeconomic structure (García-Negro et al., 2016; Rodríguez-Rodríguez et al., 2022).

In terms of direct employment, data from 2022 show that on-foot shellfish gathering provides work for 3,614 licensed professionals, while there are 2,479 vessels authorized for shellfishing from the sea (Xunta de Galicia, 2025). Considering that these vessels typically operate with crews of 2 to 3 members, the total volume of employment linked to shellfish gathering far exceeds 9,000 jobs, making it one of the main drivers of employment in fishing communities (Rodríguez-Rodríguez et al., 2022).

From the perspective of production volume, the cumulative legal extraction between 2012 and 2020 amounted to 79,759 tons of shellfish products—including bivalves, crustaceans, echinoderms, and other invertebrates—with a first-sale economic value exceeding 780.6 million euros. This corresponds to an annual average of 86.7 million euros generated at auction, i.e., at the point of first sale after landing, without incorporating the added value along the processing and commercialization chain (Rodríguez-Rodríguez et al., 2022).

The economic significance of shellfish gathering is not limited to its production and direct billing figures. In fact, its importance is reflected in the indirect synergies it establishes with other sectors and branches of the local economy. Thus, shellfish gathering acts as a strategic supplier for other larger-scale industries such as canning, food service, or retail food distribution. It therefore serves as a source of fishery supply that is revalued and transformed for both domestic and export markets (García-Negro et al., 2018; García-Negro et al., 2016; García-Negro, 2010; Rodríguez-Rodríguez et al., 2022). This transversal integration across multiple value chains positions shellfish gathering as a key node in Galicia's fishing-industrial system.

Consequently, an economic reading of Galician shellfish gathering reveals a highly structured activity that goes far beyond its traditional or symbolic dimension. Its impact in terms of employment, income generation, territorial cohesion, and productive interdependencies positions it as a first-order strategic sector in the contemporary Galician economy.

Theoretical Framework

Poaching in small-scale fisheries (SSF) cannot be understood merely as an anomaly within the regulatory system, but rather as the outcome of a complex configuration of structural, cultural, economic, social, and psychological factors that persistently incentivize and reproduce its practice within certain coastal communities (Ballesteros & Rodríguez-Rodríguez, 2019; Oyanedel et al., 2020). Far from being a merely opportunistic act—though it can be that too—shellfish poaching must be analyzed as a rational strategy which, in many cases, is socially tolerated or legitimized. This compels us to question traditional assumptions regarding compliance in fisheries governance systems.

Various studies have shown that the drivers of poaching are not solely rooted in a pattern of economic profit maximization, but rather in a network of interrelated drivers that act upon the material and symbolic conditions of those operating outside legal frameworks (Duffy et al., 2016; Gelcich et al., 2017; Mancini et al., 2011; Muth, 1998; Muth & Bowe, 1998; Nunan, Cepić, Mbilingi, et al., 2018; Nunan, Cepić, Yongo, et al., 2018). Among the most relevant are, first and foremost, necessity-driven factors (Ballesteros & Rodríguez-Rodríguez, 2018a; Gezelius, 2004). In contexts marked by precarious employment, exclusion from access to extractive rights, and the absence of economic alternatives, poaching emerges as a subsistence strategy (Braden, 2015; Hauck & Sweijd, 1999; Knapp, 2007; Moreto & Lemieux, 2015). This rationale has been widely documented in Galicia, particularly following the 2008 economic crisis, during which significant increases in illegal activity were observed in shellfishing areas (Ballesteros & Rodríguez-Rodríguez, 2019).

Alongside this economic dimension, social factors also play a role, especially those linked to community belonging and the reproduction of local norms of justice and legitimacy. In many Galician communities, the poacher is not viewed as a criminal, but rather as a community member who, for various reasons, family history, territorial ties, institutional exclusion, does not have access to the formal system, but maintains a continuous relationship with extractive activities (Ballesteros & Rodríguez-Rodríguez, 2018a). Indeed, studies have shown that informal norms in fishing communities can sometimes conflict with legal frameworks (Bell et al., 2007; Curcione, 1992; Eliason, 2008; Forsyth et al., 1998; Forsyth & Marckese, 1993a, 1993b; Gezelius, 2002, 2003, 2004, 2007; Hampshire et al., 2004; Ostrom, 2015). In this context, the distinction between what is legal and what is legitimate becomes blurred, and regulatory compliance becomes conditioned more by social perceptions of justice than by the threat of punishment.

Culturally, poaching is also linked to identity narratives that claim customary rights over marine or terrestrial resources, grounded in traditional use (Ballesteros & Rodríguez-Rodríguez, 2018a; Bell et al., 2007; Hampshire et al., 2004; Rizzolo et al., 2017; Vallejos et al., 2024). A sense of community belonging, the intergenerational transmission of extractive techniques, the perception of acquired property rights over local resources, and the defense of traditional livelihoods are all elements that shape an alternative reading of legality (Ballesteros & Rodríguez-Rodríguez, 2018b; Brymer, 1991; Curcione, 1992; Von Essen et al., 2014). For many illegal shellfish gatherers, the act of poaching does not stem from a

desire to transgress, but rather from a historical continuity interrupted by a regulation perceived as alien, technocratic, or unjust. On this point, Sykes & Matza (1957), in presenting one of their principal techniques of neutralization in criminal behavior (denial of injury), observed how criminal law has historically distinguished between *mala in se* and *mala prohibita*: that is, between acts that are inherently wrong and those that are illegal but not necessarily immoral. This concept of *mala prohibita*, whereby something is deemed unlawful not because it is morally wrong, but because it has been prohibited, has also been analyzed by other authors such as Ross (1960), who explored traffic violations as examples of *folk crime*. Building on this notion, some researchers have interpreted poaching, particularly in the context of hunting and fishing, as a practice embedded in a logic of tolerance, neutralization, and a flexible interpretation of legality (Eliason, 2003; Eliason, 2021; Forsyth & Marckese, 1993a, 1993b). More recently, some authors have revived the concept of *mala prohibita*, suggesting that violations of conservation laws in hunting and fishing may be perceived by offenders as minor infractions, closer to administrative breaches than to morally or socially consolidated crimes (Filteau, 2012; Von Essen et al., 2015).

Taken together, the concepts of *mala prohibita* and *folk crime* open the door to an ambivalent interpretation of poaching, where the social legitimacy of norms and their enforcement are deeply conditioned by cultural perception, historical practices, and the material conditions of the groups involved.

In parallel with these structural factors, research in sociology, criminology, and psychology has also incorporated an analysis of individual motivations related to risk perception, personal experience, and opportunity. These aspects underpin deterrence approaches to poaching, with two main deterrent models standing out: the instrumental and the normative approaches. The former is grounded in the theoretical foundations of the economics of crime, developed by Becker (1968) and Stigler (1974), and understands poaching as a rational behavior through which individuals seek to maximize utility. From this perspective, offenders weigh the expected benefits of illegal activity against its potential costs and act accordingly. To counter this rational calculus, deterrent mechanisms propose raising the cost of noncompliance through two strategies: increasing surveillance and control over economic activities, and tightening sanctions. This coercive approach has been widely adopted by governments, including the Galician government, particularly as a response to endemic criminality (González Arias et al., 2011; Hatcher et al., 2000; Tyler, 2006).

However, this model has several limitations. First, enhancing control over extensive areas, such as the Galician coastline, entails high transaction costs that can render surveillance systems unfeasible (Ballesteros et al., 2017; Sutinen & Kuperan, 1999). Second, not all offenders respond to deterrent incentives: there are persistent offenders who continue to violate regulations despite the risk of sanctions (Kuperan et al., 1997; Kuperan & Sutinen, 1998; Muth & Bowe, 1998). Finally, it has been shown that addressing poaching solely through a coercive lens is insufficient. A paradigmatic case is that of abalone in South Africa, where intensive surveillance and sanctions failed to prevent the collapse of the fishery (de Coning & Witbooi, 2015; Plagányi et al., 2011; Schultz, 2015).

In contrast, the normative approach emphasizes the perception of the legitimacy of regulations as a key factor in compliance (Tyler, 2006). Within this framework, individuals obey laws not out of fear of punishment, but because they perceive them as fair, understandable, and impartially enforced (Hatcher & Pascoe, 2006; Hauck, 2008; Jagers et al., 2012; Nielsen, 2003). Its main strength lies in fostering obedience through internalized morality, without the need for constant surveillance. However, it falls short in cases involving individuals who systematically break the rules and are detached from the moral or communal values underpinning regulation (Sutinen & Kuperan, 1999). The normative approach also highlights the importance of active user participation in resource management, which applies to the co-management schemes governing Galician small-scale fisheries, thereby strengthening the legitimacy of the system and generating incentives for compliance (Hilborn et al., 2005; Jentoft, 2000a, 2000b, 2004; Österblom et al., 2011).

In summary, the instrumental and normative approaches represent two distinct but complementary models for understanding and addressing poaching. While the former focuses on the offender's rational calculus, the latter addresses the social and moral foundations of compliance. Combining both approaches appears essential to comprehensively tackle the complexity of regulatory noncompliance in the Galician fisheries context.

Methodology

The analysis of recidivism in poaching presented in this study has been made possible through the examination of sanctions imposed for this practice in Galicia. These sanctions represent the final outcome of the activation of legal instruments and the control mechanisms deployed by the regional administration in its fight against illegal fishing and shellfish poaching. When an individual is caught and properly identified while engaging in poaching, the competent security forces issue an administrative sanction, typically in the form of a fine. This procedure is framed within the legal deterrence model currently in force in Galicia, which is oriented toward the containment and penalization of illicit marine resource extraction practices.

The administrative records of these sanctions reflect only a portion of the poaching phenomenon – namely, the cases that have been detected and neutralized by public security forces. The management and custody of these data fall under the jurisdiction of the Xunta de Galicia, specifically the Consellería do Mar, the body responsible for coordinating and governing maritime activities in the autonomous community.

Shellfish Poaching Database

As part of this study, the Consellería do Mar provided a database compiling all sanctions imposed for shellfish poaching in Galicia between 2012 and 2020. This information enabled the characterization of illegal poaching activity through the analysis of various variables, such as the number of identified offenders, the frequency of sanctions, patterns of recidivism, and the shellfish species seized.

The database used for the 2012–2020 period contains 7,595 individual case files. Each file refers to the activity of a single individual and records all sanctions that person may have accumulated over time. Accordingly, the number of reported sanctions in the database amounts to 23,908 – significantly higher than the number of individual files. This discrepancy reveals the presence of recidivism in poaching practices and provides the basis for the development of this study.

Structure and Limitations of the Database

The analyzed database is organized into four main sections, each focusing on a specific aspect of poaching activity along the Galician coastline. The first section constitutes the core of the database and includes qualitative descriptions of the actions associated with poaching, in other words, it documents what occurred during each detected episode. However, one of its defining features – and a relevant methodological limitation – is the absence of a standardized data recording pattern.

It should be noted that the database is fed by the inspection activity of three different public security bodies: the Guardia Civil, the Autonomous Police, and the Galician Coast Guard Service. In addition to these institutions, private security agents contracted by local fishers' organizations (Cofradías) are also authorized to issue sanctions and, therefore, contribute to the data compiled by the regional government.

Each database entry is recorded in a free-text format; that is, each agent issues the report according to their own criteria, resulting in a high degree of heterogeneity and descriptive informality. Some entries detail the reason for the infraction, others mention the number of times the same individual has been identified, or specify the exact location of the incident. Notably, this section also includes behavior patterns associated with illegal activity. Some records describe whether the offender fled the scene, resisted arrest, used technology for counter-surveillance (mobile phones, night-vision goggles, GPS), or fast boats, and even whether verbal or physical assaults were committed against the security personnel. This narrative richness provides a valuable qualitative insight into the strategies and behaviors deployed by poachers in the field, offering a significant behavioral dimension.

As noted, this descriptive breadth contrasts with the lack of standardization, as the data are not recorded following a common protocol nor do they include mandatory fields. This affects critical aspects of the analysis, such as the systematic recording of the volume of shellfish seized or the clear identification of the species involved. Knowing the extracted species is essential for understanding poaching practices, as it directly influences the methods of collection, the degree of required technical sophistication, and the use of vessels or specialized equipment. It also helps define the type of poaching and the potential commercialization channels, depending on the volume and economic value of the catches. Therefore, species identification is key to understanding how poaching is structured and carried out.

The database allowed for the identification of 17 different species (see Table 1), including five varieties of clams, as well as razor clams, goose barnacles, sea urchins, mussels, oysters, and king crab. However, one of the main limitations of the database is the incompleteness of the information: of the 7,595 records available, only 3,240 contain detailed data on species and quantities seized, while the remaining 4,355 are either partial or lacking this information. As a result, all 7,595 records had to be analyzed individually.

For the 4,355 cases in which a sanction was imposed – that is, poaching activity was confirmed – but the target species could not be identified, a specific analytical category was created: EA (Extractive Activity). The purpose of this category is to register and account for poaching activity as a whole, assuming that although it does not allow for a precise characterization of the species involved, it still provides relevant information regarding the overall incidence of the phenomenon.

The second section of the database records whether, during the inspection, tangible goods or illegally harvested species were seized. Among the confiscated items are shellfishing tools, vessels, diving equipment, and other tools used in the activity.

The final two sections record the exact date of the operation and the geographic location of the incident, allowing the events to be linked to spatio-temporal variables.

Recidivism

The recidivism coefficient measures the average number of administrative sanctions per case file (individual case) recorded for a specific species.

$$\text{Recidivism Rate} = \frac{\text{Total Number of Sanctions}}{\text{Total Number of case files}}$$

The analysis of recidivist behavior in shellfish poaching was estimated using the Recidivism Ratio (*RR*), defined as the ratio between the total number of administrative sanctions and the total number of case files recorded per species. This coefficient provides a general approximation of the average criminal intensity of offenders associated with each illegally exploited resource. However, as an average measure, this indicator presents analytical limitations: it does not differentiate between individual offenders, nor does it capture the actual distribution of sanctions among individuals. Its utility therefore lies in offering a preliminary and straightforward comparative insight into the existence of recidivism across species, which may be explored further in future studies through individualized or distributional analyses.

Our analysis includes global measures of central tendency – median and mode – as well as the standard deviation for the set of species analyzed. The inclusion of these measures facilitates the contextualization of the specific results for each species within the overall dataset (Field, 2024). The median helps identify a central value unaffected by outliers, while the mode reflects the most frequent recidivism patterns. Standard deviation, for its part, offers an estimate of the dispersion of the data around the mean, revealing the degree of heterogeneity among species. Together, these indicators provide a more robust comparative

framework that aids in interpreting the relative position of each species within the overall distribution.

Results

The results for the period 2012–2020 are presented in the following table, which also includes the global measures of central tendency (median and mode), as well as the standard deviation for the set of species analyzed. The aim is to provide a more robust comparative framework that allows for a clearer interpretation of the relative position of each species within the general distribution.

Table 1

Recidivism Coefficient by Species in Galicia (2012–2020)

Common Name	Scientific Name	Files	Sanctions	Rate of Recidivism**
EA (Multispecies)	–	2,570	11,720	4.56
Clams	<i>Ruditapes philippinarum</i> , <i>Venerupis romboides</i> , <i>Ruditapes decussatus</i> , <i>Venerupis aurea</i> & <i>Venerupis corrugata</i> .	2,261	7,210	3.19
Cockles	<i>Cerastoderma edule</i>	295	886	3.00
Sea urchins	<i>Paracentrotus lividus</i>	227	427	1.88
Goose barnacles	<i>Pollicipes pollicipes</i>	1,644	2,871	1.75
Razor clams	<i>Ensis siliqua</i> , <i>Solen marginatus</i>	63	116	1.84
Velvet crab	<i>Necora puber</i>	196	230	1.17
Razor shell	<i>Ensis magnus</i>	51	57	1.12
Spider crab	<i>Maja brachydactyla</i>	73	80	1.09
Other species*	–	215	311	1.45

* The category “Other Species” includes: Sword Razor Shell (*Ensis magnus*), European Razor (*Ensis siliqua*, *Solen marginatus*), Shrimps (*Palaemon serratus*), Common Periwinkle (*Littorina littorea*), Mussel Seeds (*Mytilus galloprovincialis*), Oysters (*Ostrea edulis*), and Polychaetes (*Lumbrineris impatiens*, *Arenicola marina*, *Diopatra neapolitana*).

**Value > 1 indicates average recidivism per case file.

Source: Own elaboration based on the Xunta de Galicia Administrative Sanctions Database (2024).

The overall average of the Rate of Recidivism was 2.11, which implies that, on average, each infringement file was associated with more than two administrative sanctions. This figure already suggests a pattern of structural recidivism. However, the standard deviation ($\sigma = 1.13$) indicates a high dispersion relative to the mean, reinforcing the idea that recidivist behavior is not homogeneous across species. The global median of 1.79 and the mode of 1.10 place the central and most frequent *RR* values below the average, suggesting that the mean is being skewed upward by extreme values, as observed in: EA: *RR* = 4.56, Clams: *RR* = 3.19, Cockles: *RR* = 3.00.

As expected, the EA (Multispecies) category has a considerable influence on the aggregate results, as it accumulates the highest number of cases and sanctions. Nevertheless, it is also important to highlight that the most recidivist species in absolute terms are clams and cockles. These sedentary species are collected on beaches, which are generally easily accessible. Operationally, poachers can reach these shellfish beds simply by walking, without the need for boats or specialized equipment. Moreover, although beaches are open spaces, they are also expansive areas that offer multiple escape routes, making surveillance and control operations more difficult for authorities.

From a technical standpoint and, in contrast to legal shellfishing activities, the illegal extraction of clams and cockles does not require specialized knowledge or the application of selectivity criteria in terms of species or size. Similarly, the capital investment required to engage in poaching is minimal, as the activity can be carried out with rudimentary tools such as farming implements, a rake, or bags.

The recidivism observed in the illegal exploitation of cockles and clams contrasts with the low values recorded for species such as spider crab (1.09), razor clam (1.12), or velvet crab (1.17), which suggest more occasional or less organized poaching practices. This may be due to the need for equipment such as boats, fishing gear, and traps (nasas) to harvest these species, as well as greater technical knowledge of fishing and the marine environment.

The combination of a high mean, moderate median, and low mode may indicate a skewed distribution in which a few individuals account for a large share of the recidivism. This pattern is consistent with the existence of a small group of highly recidivist poachers who operate systematically, intensively, and repeatedly over time. In this regard, Table 2 offers an additional level of analysis by identifying patterns in the distribution of sanctions among offenders, especially when the data are disaggregated by target species. The results show that a small number of poachers account for a very high percentage of total sanctions, suggesting the presence of systematic and highly active offenders.

Table 2*Concentration of Sanctions Among a Small Number of Repeat Offenders (2012–2020)*

Species	No. of Poachers	Sanctions	% of Total Sanctions
Clams*	164	4,202	57.59%
Cockles	19	565	59.86%
Sea urchins	4	72	15.91%
Goose barnacles	26	453	14.76%
AE (Multispecies)	267	6,479	59.62%

Source: Own elaboration based on the Xunta de Galicia administrative sanctions database (2024).

In the case of clams (*Ruditapes* spp., *Venerupis* spp.), for example, 164 individuals were responsible for 4,202 sanctions, representing 57.59% of all sanctions related to this species between 2012 and 2020. A similar pattern was observed for cockles (*Cerastoderma edule*), where 19 offenders accounted for 565 sanctions, equivalent to 59.86% of the total. The concentration is even more pronounced in multispecies infractions (AE), where 267 individuals accumulated 6,479 sanctions, i.e., 59.62% of all such records.

Although the proportion of sanctions concentrated among a few individuals is somewhat lower for species such as sea urchins (*Paracentrotus lividus*) and goose barnacles (*Pollicipes pollicipes*), 15.91% and 14.76%, respectively, the general trend indicates that a persistent minority of offenders generates the majority of punitive actions. This empirical evidence reinforces the hypothesis that recidivism is not randomly distributed but is structurally concentrated in specific combinations of actors and resources.

Discussion and Final Remarks

The data presented clearly shows the presence of recidivism in Galician shellfish poaching. This figure of the repeat offender is particularly problematic because it accumulates and amplifies all the negative effects of poaching: it intensifies resource overexploitation, undermines the equity of the system, weakens normative deterrence, and highlights the gaps in the sanctioning apparatus. Moreover, repeat offenders develop impunity strategies, including fragmenting their activities, using informal commercialization networks, and sustaining repetition as a livelihood strategy. Recidivism can thus be interpreted as a sign of institutionalized noncompliance, a warning signal about the limits of the control system and a concentrated expression of structural failures in the governance of illegal fishing.

In this regard, a relevant question is why recidivism in poaching persists over time. Galicia offers an especially interesting case. Beyond the institutional and economic dimensions, the persistence of recidivism in Galicia may also reflect deeper socio-historical dynamics. In many coastal communities, extractive activities are not only a source of income but also a cornerstone of local identity and intergenerational continuity (Ballesteros & Rodríguez-Rodríguez, 2018a, 2018b). These practices predate the establishment of modern regulatory systems and, in some cases, are perceived as customary rights inherited from past generations. This entrenched sense of entitlement to access marine resources coexists with a certain detachment from policymakers and the fishing laws they enact, as regulation is often perceived as external, bureaucratic, or misaligned with local realities (Ballesteros et al., 2021). As a result, recidivism may not stem solely from weak deterrence, but from a form of normative pluralism in which community-based notions of justice and belonging continue to shape the boundaries of what is considered legitimate extraction (Cepić et al., 2026; Bruquetas & Pascual-Fernández, 2023).

Nevertheless, these enduring local dynamics coexist with an evolving institutional architecture that has sought, over the past decades, to formalize and professionalize the sector. From a regulatory standpoint, significant steps have been taken in the past thirty years to professionalize the shellfish sector and to establish an institutional framework aimed at its protection (Frangoudes et al., 2008; Marugán-Pintos, 2012). This framework has been designed to ensure compliance with fisheries regulations. Among the most notable developments is the inclusion of poaching as a criminal offense in the Spanish Penal Code since 2015 (BOE, 2015), as well as the creation of specific legislation for the sector which establishes fines ranging from depending on the severity of the offence, (Xunta de Galicia, 2008)¹.

Public information campaigns have also been promoted to raise awareness of the consequences of consuming and trading illegal shellfish (Xunta de Galicia, 2018). These initiatives have been widely disseminated by local media, contributing to the delegitimization of poaching and presenting it as a social problem (Amoedo, 2021; RTVE, 2021). In addition, the Galician administration has made sustained investments in human and technical resources for surveillance and enforcement (González Arias et al., 2011; Unidade Policía Autónoma, 2020; Xunta de Galicia, 2021a, 2021b). At the same time, scientific research has played a key role in analyzing the phenomenon, generating studies that identify its main determinants (Alló & Loureiro, 2018; Ballesteros & Rodríguez-Rodríguez, 2018a, 2018b, 2019; Geiger et al., 2022; Macho et al., 2013; Mosquera, 2019; Ruiz-Díaz et al., 2020). These contributions have enriched both public and academic debate on potential intervention strategies.

¹ In Galicia, administrative sanctions for fishing or shellfishing without authorization are regulated by Law 11/2008 on Fisheries of Galicia, which establishes fines ranging from €601 to €300,000 depending on the severity of the offence, (Xunta de Galicia, 2008). Since 2015, following the reform of the Spanish Criminal Code (BOE, 2015), illegal shellfishing may also constitute a criminal offence, punishable by income-proportionate fines or up to two years' imprisonment. In practice, however, no prison sentences have been recorded, and enforcement remains largely administrative. Thus, the Spanish framework combines fixed administrative fines (set by regional law) with income-proportionate criminal fines, although in practice the administrative approach prevails, while the criminal pathway is rarely applied and remains a residual instrument.

Within this context, some authors have noted that although shellfish poaching in Galicia has decreased in aggregate terms since 2014, this reduction has not translated into a decline in the number of repeat offenders (Ballesteros et al., 2024). This suggests that although there may be fewer poachers, they exhibit a greater degree of professionalization. Additionally, these studies observe that while most individuals sanctioned do not reoffend, there exists a subset of chronic offenders who sustain their illegal activity through rational and adaptive strategies (Ballesteros et al., 2024).

Returning to the issue of recidivism, which has emerged as a persistent phenomenon and a structural challenge, the most immediate answer to why it persists over time is that poachers employ impunity strategies that prove effective (Mosquera, 2019). Particularly noteworthy is the use of economic insolvency as a structured mechanism of impunity. Insolvency refers to the condition in which an individual or legal entity is unable to meet their financial obligations. This occurs when debts exceed the value of one's assets or when there is insufficient liquidity to meet payments within required timeframes (BOE, 2022). Sanctions imposed for poaching apply regardless of the sanctioned party's financial capacity. However, in practice, many poachers declare themselves without legal income, registered property, or access to bank accounts or services. This renders administrative fines – the most common punishment for poaching in Galicia – unenforceable, making insolvency a *de facto* escape route that neutralizes the penalty. This dynamic is well-documented in the Galician context, where repeat offenders accumulate sanctions without facing material consequences (Gil, 2009; González Arias et al., 2011; González Vidal, 1989; López, 2012; Romero, 2015; Vellón, 2014). However, while legally effective, this strategy is not without cost; it imposes significant economic and social constraints on those who adopt it. Poachers who choose this path must remain excluded from the formal financial system: they cannot own property, contract services, issue invoices, or access credit. As such, they are highly dependent on a trusted support network, often composed of family members who, by necessity, become accomplices in poaching (Ballesteros et al., 2021, 2023).

This pattern is functional for two major offender profiles. The first includes those who have nothing to lose: individuals facing social exclusion, chronic unemployment, drug dependence, or structural poverty. For them, poaching represents a subsistence strategy rather than a deliberate act of transgression. The literature refers to them as "subsistence poachers," whose actions align more with survival logic (Ballesteros & Rodríguez-Rodríguez, 2018b; Duffy et al., 2013). These cases form what has been described as the "vicious cycle of poaching," a trap of impunity and insolvency (Ballesteros & Rodríguez-Rodríguez, 2019), in which offenders become locked into trajectories of marginalization, sustained by illegality as the sole source of subsistence or income. In this scenario, the sanctioning system not only fails to punish but may inadvertently entrench exclusion and recidivism.

The second profile refers to professional poachers, who turn poaching into a structured, persistent, and planned activity. This group is characterized by its use of technology, its capacity to organize support and distribution networks, and its detailed knowledge of the legal and ecological context in which it operates. In these cases, the

insolvency strategy is used deliberately as a tool to evade punishment, within a sustained and rationalized illicit economy. Interviews with Galician coastguards support this idea: several agents reported that some repeat poachers could engage in other illegal activities but prefer shellfish poaching because it is safer and more profitable (Ballesteros, 2018). This behavior aligns with the principles of rational choice theory and classical Beckerian microeconomic theory (Becker, 1968), which posits that individuals weigh the expected costs and benefits of a behavior before engaging in criminal conduct. In this case, professional poaching represents an optimal choice within an environment of low penal risk, structural challenges in sanction enforcement, and broad opportunities for illegal trade. Given this logic, the legal system could enforce the more severe measures reflected in the 2015 law, including imprisonment for dangerous and highly recidivist individuals.

As shown, recidivism in poaching responds to differentiated logics that demand equally differentiated responses from public policy and institutional intervention. In particular, the identification of at least two major recidivist profiles – those driven by need and those operating professionally – requires a rethinking of analytical frameworks and intervention strategies.

On one hand, there are individuals whose recidivism in poaching practices is linked to structural conditions of poverty, social exclusion, and lack of viable socioeconomic alternatives. In such cases, criminal punishment is not only insufficient but may even be counterproductive, reinforcing marginalization dynamics that perpetuate the problem. Institutional responses should therefore shift from a punitive logic to a social and redistributive one, focused on reducing structural inequalities that underlie regulatory noncompliance. In this sense, the numerous documented failures of coercive, top-down anti-poaching measures serve as a clear warning.

These policies often disregard the socioeconomic context in which poaching occurs (Ballesteros & Rodríguez-Rodríguez, 2018b; Bell et al., 2007; Gezelius, 2002; Hauck & Sweijd, 1999; Lambrechts & Goga, 2016; Raemaekers & Britz, 2009). By failing to consider resource users, such policies tend to exclude them from compliance, fostering feelings of injustice that can legitimize poaching as an act of rebellion or cultural and communal defense (Ballesteros & Rodríguez-Rodríguez, 2018a; Bell, Hampshire & Topalidou, 2007; Forsyth & Marckese, 1993a, 1993b; Gezelius, 2003; Muth & Bowe, 1998). As a result, public policy should prioritize job creation, the strengthening of social support networks, and the implementation of inclusion programs specifically designed for the most vulnerable communities.

On the other hand, the evidence suggests the existence of a segment of professional poachers, characterized by highly recurrent patterns of behavior, organized strategies, and in some cases, conduct comparable to mafia-like structures. In such instances, the existing legal framework allows for the application of more severe measures, including criminal prosecution and imprisonment. Given that these behaviors pose a significant threat to both resource sustainability and the legitimacy of the regulatory system, it is worth asking why

such legal tools are not used more frequently, especially when recidivism and harm are clearly documented.

This study also highlights a specific form of impunity – not due to the absence of sanctions, but rather to the inability to enforce them due to insolvency. In such cases, the sanctioning system loses both effectiveness and legitimacy by failing to ensure the actual application of the rules. This phenomenon introduces an additional dimension that deserves specific attention, both from a legal perspective and within a broader socioeconomic analysis.

Taken together, these findings open a relevant and urgent research agenda. It is necessary to advance studies that more precisely characterize poacher profiles, the factors driving recidivism, and the dynamics of impunity associated with insolvency. Additionally, there is a need for a systematic evaluation of current policies and their actual capacity to deter poaching, promote compliance, and restore equity in marine resource governance.

Although this study has outlined several interpretive lines, the complexity of the phenomenon extends beyond its analytical scope. The main objective of this article was to empirically identify the existence of highly recidivist poachers in Galicia, relying on the only formal and reliable source available – administrative sanction records. This data provided a solid empirical basis for examining institutional patterns of noncompliance, complemented by a robust theoretical framework grounded in previous qualitative research. While administrative records reveal important structural and institutional dynamics, they cannot capture the moral logics, local norms, and lived experiences that underpin shellfish poaching in Galicia. Future research should therefore combine quantitative and qualitative approaches, integrating comparative, cultural, social, and ethnographic perspectives, and engaging with theories of crime, distributive justice, and regulatory legitimacy. Only through such a multidimensional approach will it be possible to design more just, effective, and sustainable interventions to address the persistent challenge of repeated poaching in marine environments.

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