

**SWIMMING WITH DOLPHINS:
A STUDY ON LEGITIMACY PROCESSES IN THE
SOUTHERN CALIFORNIA TUNA INDUSTRY**

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ABSTRACT

ANA TEIXEIRA: Swimming with Dolphins. A Study on Legitimacy Processes in the Southern California Tuna Industry
(Under the direction of Howard E. Aldrich)

This dissertation examines organizational legitimacy processes in the Southern California tuna fleet fishing in the Eastern Pacific Ocean. The study employs a multidimensional model of organizational legitimacy consisting of cognitive legitimacy (producers' and consumers' dimension), and moral legitimacy. I use print media-based measures of cognitive and moral legitimacy collected for the period between 1903-2000 and an event history dataset on foundings and disbandings of Southern California tuna vessels' during the period between 1926-2003.

Findings suggest that producers' cognitive legitimacy plays an important role in organizational dynamics by increasing the number of vessel foundings and decreasing the number of vessel disbandings. The effect of producers' cognitive legitimacy is felt even after adjustment for important ecological predictors such as organizational density, prior foundings and prior disbanding, thus confirming the need to use direct measures of legitimacy in the study of organizational processes. In terms of the regulatory environment, international regulations have a negative impact on foundings, but national regulations did not show any impact on foundings or disbandings. Compared however to the regulatory period of the tuna industry, the pre-regulatory period of the industry shows decreased exits of vessels. However, neither consumers' cognitive legitimacy nor negative moral legitimacy show any impact on vessel foundings or disbandings.

In order to understand the different mechanisms that compose organizational legitimacy, I conduct an in-depth analysis of producers' cognitive legitimacy. Through a qualitative content analysis, I deconstruct the measure into different levels of analysis (i.e., organizational, population, and community), and identify different categories of organizational knowledge. I finalize my in-depth analysis by identifying the different negative impacts that became associated with the tuna industry and the several strategies that industry's producers used to raise and protect its legitimacy in the cognitive and moral arenas. The findings suggest that legitimacy has a differential influence on organizational foundings and disbandings, depending on the particular type of legitimacy and the historical period of the tuna industry.

Ao meu pai, José Reis Teixeira

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Time is Life

*When the time comes,
When the time rings,
I know I am here.
But sometimes,
I have to go up there,
And show this presentation.
And sometimes I am happy,
Sometimes I am sad,
Sometimes I am both,
And I feel so glad.
But I have to learn,
The world is full of danger.
But when the time comes,
When the time rings,
I sing along,
To find my way to this world.*

By Sara Jael Moore

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LIST OF ABBREVIATIONS

ATA	American Tunaboat Association
ETP	Eastern Tropic Pacific
IATTC	Inter-American Tropical Tuna Commission
MMPA	Marine Mammal Protection Act
NRC	National Research Council
NYT	New York Times
NMFS/SWR	National Marine Fisheries Service/ South West Region
VIF	Variance Inflation Factor
WWII	World War II

CHAPTER 1

THEORETICAL PERSPECTIVES ON ORGANIZATIONAL LEGITIMACY

In this chapter, I present the theoretical perspectives that inform my dissertation on legitimacy processes. First, I discuss the contributions of the institutional, ecological, and evolutionary schools that provided the theoretical and methodological foundations for the study of organizational legitimacy. The second section discusses the typology of organizational legitimacy used in this dissertation and relates it to other typologies of legitimacy found in the literature. The third section presents the central contributions of resource-dependence and strategic scholars to legitimacy theory. Drawing on these two perspectives I examine organizational, population, and community responses to legitimacy processes. In the last section, I discuss delegitimation processes and legitimacy loss and offer two main explanations for legitimacy decline among organizational bounded entities.

1.1. ORGANIZATIONAL LEGITIMACY: INSTITUTIONAL, ECOLOGICAL, AND EVOLUTIONARY PERSPECTIVES

In organizational studies, Suchman defined legitimacy as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.” (1995: 574).

Legitimacy processes are not limited to organizations. Organizational practices and elements, such as rules, procedures, routines, policies, teams, status and authority structures, and even organizational forms, industries, and organizational fields, are also objects of legitimation processes (Johnson 2004). In this section, I discuss how institutional, ecological,

and evolutionary organizational theories examine the concept of and processes associated with legitimacy.

Institutional theory analyzes legitimacy as an outcome of the institutionalization process. In his classic definition of institutionalization, Selznick affirmed that to “institutionalize is to *infuse with value* beyond the technical requirements of the task at hand” (1957: 17). Selznick drew a distinction between organizations and institutions: if organizations are expendable tools or technical systems aimed at accomplishing tasks, then institutions incorporate other external and internal social elements. Institutions reflect the social, cultural, and political environment(s) surrounding them, as well as reflect the internal struggles and needs of their organizational participants. However, this duality (i.e., organizations and institutions) exists within organizations since most cases rest on a combination of both elements (1957: 6-7). Institutionalization “happens to an organization over time” (Selznick, 1957:16) and is the result of a conjunction of factors such as the internal participants’ interests, the external environment and the way in which organizations adjust to their environment, and – perhaps most importantly – the degree to which organizations have defined goals and specialized tasks. Clear-cut organizational goals do not provide room for expression of internal social needs and thus lessen the chances of institutionalization. Why is it important for organizations to become institutionalized? Because, according to Selznick, institutions are less expendable to organizational members and to the communities in which they operate than organizations are. Institutions come to embody community values, and acquire a symbolic social meaning, a “self”, that makes each one of them a distinctive member of the social environment. Although Selznick did not directly elaborate on legitimacy processes, one could assume that as organizations

institutionalize and come to embody external and internal values they increase their legitimacy basis within their environment.

The dual nature of organizations is clearly expressed in the more recent works of institutionalists, which gave continuity to Selznick's thesis. This duality results from the need to integrate a formal or symbolic structure with technical systems of activities. An organization's formal structure reflects the social and political environment in which the organization operates. Technical systems of activities are directly related to the degree of efficiency attained by organizations in accomplishing their technical goals. In their classical essay "Formal Organizations as Myth and Ceremony," Meyer and Rowan (1977) contended that organizations have to resolve the conflict between efficiency and conformity to the institutional environment. In order to gain legitimacy and other valuable resources, organizations have to incorporate institutionalized practices and procedures, such as policies, techniques, services, and programs, among others (Meyer and Rowan, 1977; Miles, 1982). However, the integration of these "myths and ceremonies" into the organizational structure implies the sacrifice of efficiency parameters, and vice-versa, the emphasis on efficiency brings a loss of legitimacy. A frequently used path to solve this conflict is to *decouple* the formal structure from technical activities, thereby allowing the coexistence of institutionalized rules and efficient activity systems (Meyer and Rowan, 1977). The integration of institutionalized elements in organizations means that organizations conform to a set of societal norms and values, i.e., become legitimate. By doing so, organizations raise their chances of support from key stakeholders, and consequently their prospects for survival (Meyer and Rowan, 1977).

An important distinction separates the work of Selznick from more recent institutionalists: if for Selznick institutionalization leads to a process whereby organizations develop a distinctive character, recent institutionalists (Meyer and Rowan, 1977; DiMaggio and Powell, 1983) emphasize the isomorphic process that results from the integration of institutionalized elements. DiMaggio and Powell found that different mechanisms contribute to greater homogeneity among organizations: mimetic isomorphism refers to the tendency of organizations to replicate other organizations that they perceive as being more legitimate or successful; coercive isomorphism refers to organizational homogeneity that arises from pressures created by other organizations or pre-existent societal values and norms; and, lastly, normative isomorphism may result from the normative environment as embodied by professions (DiMaggio and Powell, 1983).

The same social mechanisms that contribute to the various types of isomorphic processes are also related to different sources of legitimacy in organizations and institutions. Scott (2001) writes that different streams of institutional theory have examined normative systems, regulatory systems, and cultural-cognitive systems as sources of legitimacy (2001:51-61). Scott equates legitimacy to social acceptability and credibility and considers that, from an institutional perspective, legitimacy is not equivalent to other material resources. Legitimacy, he says, is a “*symbolic value to be displayed in a manner such that it is visible to outsiders.*” (2001: 59). The regulatory system provides legitimacy based on conformity to rules, as organizations operate within established *legal and quasi-legal* (in Scott’s words) environments. Normative systems include values and norms. As such, they integrate the establishment of goals and objectives as well as the definition of appropriate ways to pursue those goals and objectives (Scott, 2001: 55). Normative systems constitute a

source of organizational legitimacy since organizations and industries' actions are morally evaluated and organizations adhere to professional and trade norms. Cultural-cognitive systems confer legitimacy through the adoption of shared and accepted frames of reference or taken-for granted forms (Scott, 2001).

Ecological and evolutionary theorists have introduced the subject of legitimacy in connection with the founding of new industries (Carroll and Hannan, 1989a; Hannan and Carroll, 1992; Aldrich and Fiol, 1994; Aldrich, 1999). According to Carroll and Hannan (2000) the lack of legitimacy in new populations makes it difficult for organizations to gather needed resources from various sources, including clienteles, banks and financing companies, suppliers, and employees. According to ecological organizational theory, the reproduction of organizational forms is the single most important way to increase legitimacy in new populations (Carroll and Hannan, 1989a; Hannan and Carroll, 1992). Initially, any new addition to a given organizational population contributes with an important increase in legitimacy; but as the number of organizations rises, increases in legitimacy tend to diminish (Carroll and Hannan, 2000). Thus, we arrive at the classical ecological formulation that states that population legitimacy increases at a decreasing rate until the organizational population reaches a density beyond which any new organizational addition fails to change the existing level of legitimacy (Carroll and Hannan, 2000). The point at which the legitimacy curve stabilizes corresponds to the moment when the organizational form is seen as "the natural way of doing things." In Carroll and Hannan's formulation (2000, 1989a) and in ecological formulations in general, legitimacy thus refers to a 'taken-for-grantedness' quality that originates in the cultural-cognitive system.

For Carroll and Hannan, legitimacy and competition processes explain the inverted U curve encountered in different organizational populations such as labor unions, railroads, and newspapers. When the population density (number of organizations in a population) is low, population growth results from increases in legitimacy. When organizational density reaches a point in which niche resources start becoming depleted, further increases in density only lead to higher rates of competition. A decrease in the growth rate of organizations becomes expected, which can even lead to its extinction (Carroll and Hannan, 1989a; Hannan and Carroll, 1992).

Ecological and evolutionary scholars (Carroll and Hannan, 1989a; Hannan and Carroll, 1992; Aldrich and Fiol, 1994; Aldrich, 1999) emphasize the idea that organizational founders in new populations must tackle two key problems: the lack of organizational knowledge about the activity or product, and the lack of cognitive legitimacy regarding the same activity or product. Organizational knowledge refers to the creation and diffusion of successful routines and competencies specific to an organizational activity system (Aldrich and Ruef 2006: 77). Organizational knowledge can be stored in individuals or it can be embedded in organizations, routines, technological systems and equipment, products and services, organizational structures, and organizational culture and norms (Levitt and March 1988; Argote 1999). Cognitive legitimacy entails the acceptance of those routines and competencies by organizational members, other organizations within the same population, key stakeholders, e.g., consumers, regulators, investors, suppliers, and the environment in general (Aldrich, 1999: 228). The lack of organizational knowledge and cognitive legitimacy makes the task of neophyte entrepreneurs much harder when compared with those entrepreneurs who venture into already established industries.

Aldrich presents a model of legitimacy that bridges institutional and ecological formulations of legitimacy. Like the ecological framework, Aldrich's evolutionary model of legitimacy (see also Aldrich and Fiol, 1994; Aldrich and Baker, 2001) stresses the importance of using a longitudinal approach when studying legitimacy processes and the need to examine carefully the period of population emergence. Examining populations and industries from their inception allows researchers to avoid the *fallacy of retrospective reconstruction* (Aldrich, 1999:32) and provides scholars a more reliable understanding of the processes that lead to the maturation of populations and their eventual decline (Aldrich, 1999). On the other hand, similar to the institutional school, the evolutionary framework examines the multidimensional nature of legitimacy processes focusing on their cognitive, normative or moral, and regulatory dimensions and assuming a co-existence and interplay of these three dimensions.

In this section I presented the main contributions of institutional, ecological, and evolutionary frameworks to the conceptual formulation of organizational legitimacy. Scholars tend to conceptualize legitimacy either as an organizational resource or as a symbolic value distinct from the technical systems of organizations. Although ecologists have studied legitimacy as a unidimensional property of organizations (i.e., taken for grantedness), institutionalists and evolutionists have treated legitimacy as a multidimensional phenomena with cognitive, normative or moral, and regulatory dimensions. In section 1.2, I present in greater detail the evolutionary model of organizational legitimacy.

1.2 CONSTITUTIVE ELEMENTS AND TYPOLOGIES OF LEGITIMACY

Scholars have offered a variety of typologies to examine the constitutive elements of organizational legitimacy. In this section I first present Aldrich's evolutionary typology of

organizational legitimacy (Aldrich, 1999; see also Aldrich and Fiol, 1994; and Aldrich and Baker, 2001) as will be used in the present research. Second, I discuss how other models of legitimacy relate to Aldrich’s typology. Table 1.1. presents a summary of some of the most significant legitimization typologies used in organizational theory.

Table 1.1. Types of legitimacy

Authors	Types of Organizational Legitimacy
Carroll and Hannan (1989:525; 1986:63; 1992: 33-37)	Cognitive legitimacy (the extent to which an organizational form is taken for granted; “how relevant actors regard it as the natural way to organize for some purpose”)
Suchman (1995)	Pragmatic (organizations’ contributions to its audiences’ interests)
	Moral (organizations’ contributions to a wider social interest)
	Cognitive (organizations are understood within an existing cultural framework, and are a social given)
Ruef and Scott (1998)	Normative (constraints produced by generalized societal norms)
	Regulatory (constraints produced by explicit regulative norms)
	Cognitive (taken-for-grantedness)
Aldrich (1999); Ranger-Moore, Banaszak-Hall and Hannan (1991); Aldrich and Baker (2001); Aldrich and Fiol (1994); Aldrich and Ruef (2006).	Cognitive (taken for grantedness; differentiates organizational learning)
	Sociopolitical (includes moral and regulatory aspects; moral refers to assessments of right and wrong, while regulatory refers to government approval)

Aldrich’s typology distinguishes between cognitive and sociopolitical legitimacy (Aldrich 1999; Ranger-Moore et al., 1991; Aldrich and Fiol 1994). Cognitive legitimacy is closely related to the concept of organizational knowledge in the sense that cognitive legitimacy is the acceptance of organizational routines and competencies as valid, normal, or

taken for granted (i.e., legitimate). An outcome of the generalized acceptance of organizational knowledge in a population or community is that new entrepreneurs will replicate the existing organizational form, output or routine as if that specific form was the “best possible way” of doing or organizing activities. For consumers, high levels of cognitive legitimacy mean that consumers or the general public have either acquired a considerable amount of information about the organizational output or activity or are regular users of that organizational output or activity (Aldrich, 1999).

Sociopolitical legitimacy refers to the cultural and normative acceptance of an organizational form, output or routine by significant social actors (e.g., organizational stakeholders, including the general public, opinion leaders, and government officials) (Aldrich, 1999). Aldrich divided sociopolitical legitimacy into moral and regulatory acceptance. *Moral acceptance* refers specifically to conformity with prevalent values and cultural patterns (Aldrich, 1999: 230). As proposed by Aldrich, measures of moral legitimacy include the lack of attacks by civil society leaders and social movement organizations. Suchman’s discussion of moral legitimacy draws our attention to the fact that moral legitimacy also includes positive evaluations from stakeholders and a belief that the organization’s activities and procedures promote social welfare (Suchman, 1995: 579). However, Suchman draws a distinction between *moral legitimacy*, which refers to stakeholder evaluations based on altruistic behavior, and *dispositional legitimacy*, which rests on stakeholders’ evaluations determined by self-interest. Although both aspects of legitimacy evaluate the promotion of social welfare by organizations, they nonetheless originate from very different behavioral motivations (i.e., altruism and self-interest).

The second element of sociopolitical legitimacy is *regulatory acceptance*. Regulatory legitimacy refers to an organization's compliance with governmental rules and regulations. According to Ruef and Scott, regulatory legitimacy refers to "explicit regulative processes" which include activities such as regulation issuance, monitoring, and sanctioning (Ruef and Scott, 1998; Scott, 1995). Measures of regulatory acceptance include state-based investments in the activity or industry, and the issuance of protective or supportive norms and regulations.

The sociopolitical form of legitimacy should be clearly differentiated from organizational reputation. Deephouse and Carter (2005) address the distinction between legitimacy and reputation and contend that while legitimacy refers to the acceptance of a social system's norms and values, reputation refers to comparisons among organizations on diverse individual-level attributes and can lead to comparative rankings. Furthermore, reputation can be measured along a greater number of organizational parameters than sociopolitical legitimacy. For instance, reputation can be measured as the quality of architectural design of headquarters' buildings, or the quality of the human resources policies.

The typologies presented in Table 1.1 are based on identical theoretical premises and therefore share similar dimensions of legitimacy. However, by interweaving the concept of cognitive legitimacy with organizational knowledge, Aldrich's typology furthers the study of cognitive legitimacy beyond its taken-for-granted property and suggests the existence of different elements of cognitive legitimacy. These elements directly relate to the bundles of routines, competencies, technologies, and outputs existent in a given organization or industry. Moreover, by integrating producer and consumer perspectives into the concept of

cognitive legitimacy, the model acknowledges the existence of alternative formulations of legitimacy according to different organizational or industry stakeholders. This extended construct of cognitive legitimacy is complemented by a moral dimension (which refers to organizations' or populations' acceptance of prevalent values and cultural patterns and also acceptance by main supporters of those values and cultural patterns) and a regulatory dimension (which refers to organizations' or populations' compliance with regulations and acceptance by regulators). The next section focuses on another aspect of organizational legitimacy: organizations and industries' efforts to build and maintain legitimacy foundations for their activities and outputs.

1.3. LEGITIMACY BUILDING AND MAINTAINING: RESOURCE DEPENDENCE AND STRATEGIC PERSPECTIVES

Evolutionary theorists, ecologists and institutionalists put much of the locus of change outside organizations, i.e., in the institutional environment. Resource dependence theorists and strategic scholars identify the locus of change within organizations, or at a more collective level of activity, at the population or community level. Dowling and Pfeffer (1975) take a strategic stance on legitimacy by positing that legitimacy is the result of “*on the one hand, the process of legitimation enacted by the focal organization, and on the other, the actions affecting relevant norms and values taken by other groups or organizations.*” (1975: 125). In this section, I draw on resource-dependence and strategic literatures to discuss legitimacy-building and legitimacy-maintaining actions of organizations and industries. First, I discuss whether organizations, populations, and communities can successfully adopt measures that will reinforce their basis of legitimacy. Secondly, I describe Dowling and Pfeffer's three types of organizational legitimacy-building strategies and question whether

the degree of success of legitimacy measures varies according to their level of strategic action over the environment. Thirdly, I present different examples of strategies employed by organizations and industries to raise or maintain their legitimacy levels and relate these strategies to their degree of strategic action.

Are there any strategic actions – at an organizational, population, and community level - that can contribute to higher levels of legitimacy? Organizational scholars adopting resource dependence and strategic approaches argue that organizations may successfully develop activities geared at increasing legitimacy. Aldrich (1999) suggested that gaining and maintaining legitimacy is a multi-level process that is built progressively up from individual organizations to the community level, passing through inter-organizational and population levels along the way. Some of the key strategies in legitimacy building include associating new products or services with already established and known activities, converging on dominant designs and competencies within the industry, constituting trade associations and certifying institutions, reproducing the industry's routines and competencies through the educational system and research facilities, co-opting government officials, agencies, and other institutions seen as credible, organizing industry-based marketing and lobbying, and endorsing social causes or contributing to charities (Aldrich 1999).

Dowling and Pfeffer (1975) (see also Miles, 1982; Suchman, 1995; Oliver, 1991; Zimmerman and Zeitz, 2002) divided organizational responses aimed at acquiring or maintaining legitimacy into three groups: (1) adaptation or conforming strategies, in which organizations adapt their goals, activity systems, and outputs to conform with prevalent societal values and norms and pre-existing definitions of legitimacy; (2) identification strategies in which organizations actively attempt to identify with well established and

legitimated values, symbols, or institutions or actively select specific niches and clienteles to position their activity; and (3) transformative or manipulative strategies in which organizations try to change or influence prevalent social values and norms in order to gain legitimacy for their organizational or industry goals, activity systems, or outputs .

As contended by Oliver (1991) and Suchman (1995) these three types of organizational or collective strategies involve different degrees of strategic action. Or, from a resource dependence perspective (Pfeffer and Salancik, 1978) different degrees of strategic action imply different levels of control over organizational resources. Adaptation strategies involve the lowest level of strategic action or resource-control since they are based on mere compliance. Identification strategies imply a more active involvement of organizations or populations since these entities attempt to identify and actively select niches or environments that they perceive as more beneficial for legitimacy gains. Manipulative strategies involve the highest degree of strategic action or control over resources from organizations or industries. This is due to the fact that such strategies try to change preexisting definitions of legitimacy or manipulate the construction of new formulations of legitimacy instead of adjusting to the already-existing environmental definitions of legitimacy.

In addition to asking whether certain legitimacy strategies are more successful in creating and securing legitimacy than others, one may also ask whether those legitimacy strategies that involve a higher degree of strategic effort are more successful in creating legitimacy than other less strategic activities? Tornikoski and Newbert (2007) contended that strategic legitimacy activities are more important for nascent organizations' survival than conforming legitimacy activities. The authors define strategic legitimacy as those activities that intend to create the impression of credibility or try to manipulate external's audiences'

perceptions. Conforming legitimacy refers to those organizational characteristics that confer credibility to organizations. Some of the organizational characteristics included in conforming legitimacy were organizational members' education and experience, and product/market competitiveness. The authors' findings showed that it is more important to bet on strategic management activities than to rely solely on conforming legitimacy in order to raise the chances for nascent organizations to reach the phase of emergence. Table 1.2 shows different types of legitimacy-building measures divided by levels of strategic action or levels of organizational control over resources.

Table 1.2. Types of legitimacy strategies by degrees of strategic action

Legitimacy Dimensions	Levels of strategic action (resource-control)	
	+ <i>Strategic Action Identifying/selecting</i>	++ <i>Strategic Action Transforming/manipulating</i>
<i>Cognitive legitimacy</i>	Attaching new ventures and new products to pre-existing products and organizations (Aldrich, 1999; Dobrev, 2001; Dowling and Pfeffer, 1975; Zimmerman and Zeitz, 2002)	Creating intra and inter-population organizations (i.e. trade associations, professional associations) to promote population's organizational knowledge (Aldrich, 1999)
	Participating in independent certification and reliability contests and organizations (Aldrich, 1999; Rao, 2001, 2004)	Creating and collaborating in standard setting organizations (Aldrich, 1999; Oliver, 1991)
		Realization of reliability contests and demonstration events by consumer groups (Rao, 2004)
		Transfer and expand industry's organizational knowledge through educational institutions and research facilities (Aldrich, 1999)

<i>Moral Legitimacy</i>	Integrating “ethical responsibilities” as a part of organizational goals (e.g., corporate social responsibility or corporate citizenship programs (Carroll, 1991, 1998; Matten and Crane, 2005)	Organizing collective marketing (e.g. institutional marketing campaigns) (Aldrich, 1999)
	Integrating “philanthropic responsibilities” as a part of organizational goals (e.g., developing corporate grants or charity programs that “give back to society”) (Carroll, 1991; Dowling and Pfeffer, 1975; Galaskiewicz, 1991; Johnson, 1966)	Organizing collective lobbying efforts (Aldrich, 1999; Oliver, 1991;)
		Co-opting opinion leaders, experts and social activists against industries’ critiques (e.g., social/ environmental activists, other competitors) (Dowling and Pfeffer, 1975; Nestle, 2003; Oliver, 1991; Selznick, 1949)
		Developing new organizational knowledge to refute accusations of negative consequences attached to organizational outputs or routines (Miles, 1982)
<i>Regulatory Legitimacy</i>	Lobbying for the regulatory approval of new industries in order to protect them from misconduct by some of its members, or to better define industry boundaries near stakeholders (Aldrich, 1999)	Co-opting governmental agencies and officials, or other credible personalities as allies against detrimental regulations (Aldrich, 1999; Dowling and Pfeffer, 1975; Nestle, 2003; Selznick, 1949)
	Create industry self-regulations in order to avoid potentially more restrictive federal or state-level regulations (King and Lenox, 2000)	Create industry self-regulations that surpass federal or state-level regulations (King and Lenox, 2000)

Source: Adapted from Aldrich (1999)

Organizational and population responses based on adaptation or compliance are not included in Table 1.2 since they presuppose that organizations merely follow, imitate, or conform (Oliver, 1991) to pre-existing technological, cultural, normative, and regulatory environments. Legitimacy strategies that include selection and identification strategies cause less change in the environment than manipulative or transformative legitimacy strategies. Populations or organizations that have more control over resources are better positioned to carry on manipulative strategies. However, collective action at the industry or population level offers a channel for less powerful organizations to transform their environment and thus acquire some degree of control over resources.

Associating new products or business ventures with existing organizational forms and participating in independent certification contests are cognitive legitimacy strategies that have a lower degree of strategic action. Both activities involve identifying particular elements in the environment and using them to create cognitive legitimacy for their product or organizational form. When new organizational forms take shape, or when new organizational outputs are offered, customers, investors, and potential organizational members do not have any previous knowledge or familiarity with the form or output. Founders must create a solid basis of trust and one of the ways for raising trust is by associating their ventures with already existing forms or products (Aldrich, 1999; Dobrev, 2001). Participation in independent certification and reliability contests is a way to raise trust and credibility in the products or in the organizations (Aldrich, 1999). Rao (2001; 2004) argues that consumer groups played an essential part in raising cognitive legitimacy in the early American automobile industry through the organization of certification and reliability contests. Because these contests usually concern assessments of organizational knowledge,

they served to raise the cognitive dimension of legitimacy in the industry. If certification events or organizations themselves operate independently of the organizational population under evaluation, then those events or organizations are considered to have lower degrees of strategic action. However, as Rao (2001) pointed out, some of the institutional activists (Barron, 1998; DiMaggio and Powell, 1991; Rao, 2001) that organize certification and reliability events are major actors within organizational populations. In such cases, such legitimating activities will have a higher degree of strategic action.

Some of the cognitive legitimacy activities with higher levels of strategic action include the creation of trade associations and professional organizations that promote specific organizational knowledge by organizing trade fairs, congresses, and exhibition events, among others (Aldrich, 1999). These population-level and community-level legitimating strategies have the potential to manipulate the environment by changing social values or prevalent technological models. The creation of standard setting organizations is another activity that has the potential to raise cognitive legitimacy and influence the acceptance of certain types of technological models or routine bundles. Aldrich (1999) considers the convergence under a dominant design a fundamental phase for the establishment of an industry's organizational knowledge and for the setting of clear population boundaries. The existence of dominant designs also contributes to the creation of a clear set of expectations on the part of outsiders towards the new organizational form or which competencies are associated with a new product or service. When a population offers consistent sets of organizational knowledge – instead of competing technological models and routine sets – consumer and stakeholder acceptance becomes facilitated. Educational and research institutions constitute another channel to solidify the legitimacy basis of organizational

knowledge (Aldrich, 1999). Not only educational and research institutions have the capacity to diffuse knowledge to potential entrepreneurs and stakeholders, they also have the ability to select which knowledge is diffused or to spread new models altogether. Additionally, the endorsement of specific organizational knowledge by educational and research institutions confers a seal of credibility to their users and promoters.

Organizations, populations, and communities can pursue moral legitimacy through actions that interfere less with the environment. Integrating ethical or philanthropic concerns into organizational goals helps to consolidate a moral basis for organizational action. Carroll (1991) defines corporate ethical responsibility as those actions that reflect a concern with what consumers, employees and stakeholders in general consider to be fair, just, or respectful, even though these values and expectations are not codified into laws. These values and expectations may include traditional value systems or more emergent social values. For instance, an organization's concern with environmental sustainability is an example of ethical responsibility if this behavior is not the result of regulatory sanctioning (Carroll, 1991). Matten and Crane (2005) also emphasize the importance of corporate ethical responsibility by contending that corporations should foster citizenship, social, civil and even political rights as a part of their corporate citizenship programs.

Philanthropic responsibilities include those organizational practices that contribute to the welfare of the social environment, such as financial contributions to education, arts, or community resources or contributions in the form of voluntary work from organizational members (Carroll, 1991). Dowling and Pfeffer (1975) gave special attention to corporate charity as legitimizing behavior. According to these authors, contributions to charity are a way of incorporating societal or community needs into organizational goals. Corporate

giving conveys the message that a particular organization or industry cares about its community (Dowling and Pfeffer, 1975; Galaskiewicz, 1991; Johnson, 1966). Galaskiewicz suggested that there has been an institutionalizing and isomorphic trend in corporate charity: from corporate grants based on informal social networks to corporate giving based on formal roles and reward systems (1991: 299-300). These legitimating activities are considered less self-serving because they do not directly try to manipulate or change societal expectations over particular organizational forms or outputs.

Moral legitimacy measures carrying higher levels of strategic action include the organization of collective marketing campaigns and collective lobbying efforts. According to Aldrich (1999) the foundation for sociopolitical legitimacy strategies resides in population and community-level collective action. Moral claims that aim at re-fitting existing social values and expectations are better accepted if they are sustained by a collective effort (Aldrich, 1999). In fact, individual claims may be easily perceived as guided by self-interest alone. Thus, marketing or lobbying campaigns aimed at promoting the cultural and ethical appropriateness of a class of products or a particular organizational form may be more effective in raising stakeholder acceptance than individual marketing campaigns centered on a single product or organization. Moreover, collective action organizations can more easily offset costs carried by marketing and lobbying campaigns than individual organizations. Another strategy to raise moral legitimacy is co-optation. Co-optation strategies refer to the process of bringing personalities with a legitimate status into the governing boards of corporations or trade associations, such as the case of the American Institute for Foreign Study (Dowling and Pfeffer, 1975) and the Tennessee Valley Authority (Selznick, 1949). Co-optation can also include the practice of recruiting professional and scientific experts as

consultants or advisors (e.g. the case of nutritionists in the food industry) (Nestle, 2003).

Concerns regarding the ethical foundations of corporate behavior or the cultural appropriateness of organizational outputs or routines may be addressed more effectively if addressed by a legitimate authority (i.e. experts, political figures, opinion leaders, or even celebrities). Likewise, organizations and industries may develop organizational knowledge with the objective of addressing concerns over possible negative consequences attached to organizational outputs or routines.

In the regulatory arena organizations, populations, and industries may also adopt different strategies to consolidate their legitimacy. As Aldrich contends (1999) new populations may pressure state or federal authorities to regulate their field of activity for diverse reasons: 1) regulatory gaps may prompt some organizations to misuse resources and even perform illegal actions that may endanger future legitimacy claims; 2) regulation helps define population boundaries and thus establish a clear set of competencies near stakeholders and ward-off competitors; or, 3) by lobbying for early regulatory frames, populations may avoid more restrict regulations at a later stage. An alternative strategy to state regulation is industry self-regulation practices. In this case, industries may voluntarily adopt norms (with or without sanctions) that regulate corporate practices as a way to reinforce the image of the industry near stakeholders. An example of this practice is the “Responsible Care Program” created in 1989 by the U.S. Chemical Manufacturers Association which tried to address safety concerns and a deteriorating public image (King and Lennox, 2000). A third type of strategy is the co-optation of governmental agencies or officials as supporters of populations’ interests against detrimental regulations. Some of the strategies mentioned above imply a more adaptive position which aims at selecting a regulatory environment that facilitates

populations' activities. However, some of these strategies may cause more forceful changes on the regulatory environment and actually change regulatory frames.

In this section, I addressed the strategic responses of organizations, populations, and communities to legitimacy processes. I described several strategies used by organizations and industries to reinforce their legitimacy and differentiated these legitimacy practices according to the different dimensions of legitimacy and their level of strategic action. The central questions addressed in this section were whether certain legitimating strategies are more successful than others and, second, if the effectiveness of certain strategies changes along with their level of strategic action. In the next section, I address the topic of delegitimation and legitimacy loss.

1.4. LEGITIMACY LOSS IN ORGANIZATIONS AND INDUSTRIES

In this section, I discuss how and why organizational bounded entities lose legitimacy. Delegitimation processes are generally based on a misalignment between organizations or populations and their environments. This misalignment may be based on the cultural, normative, or regulatory system and may affect only one dimension of legitimacy or more than one dimension. Second, I examine two main causes of legitimacy erosion in organizations and populations. One of the causes resides in the fact that certain types of industries or lines of activities are especially prone to legitimacy problems. These are usually activities that encounter some type of resistance from specific interest groups or social movements within society. Therefore, organizations or populations with these types of activities have higher chances of suffering legitimacy declines. The second main cause for legitimacy erosion is related to the occurrence of organizational crisis. Organizational crisis happens when an event such as a mistake, an accident, or an illegal action, originates within

an organization or a population, and causes stakeholders to stop trusting in the competence or accountability of that organization or group of organizations to accomplish their organizational goals.

Dowling and Pfeffer (1975) contended that challenges to organizational legitimacy may arise from (1) changing social norms and values, (2) inter-organizational competition over specific sets of activities and domains, and (3) the association of certain organizational outcomes (e.g. products or services) with perceived risks (e.g., cigarette smoking or nuclear power). As a consequence, legitimacy in organizations, industries, and organizational communities may decrease. In fact, the three dimensions of legitimacy used in the present research (cognitive, regulatory, and moral) imply a process of delegitimation. An organizational form, output, or routine may fall out of conformity with prevalent values and cultural patterns and thus lose moral legitimacy. This *misalignment* of organizational forms and practices (Glynn and Marquis, 2004) with the cultural and social environment may be due to changes in the cultural preferences and value systems of an environment or due to changes in the normative frames sustaining organizational practices. Governmental legislation may cease to support certain industrial sectors or even produce restrictive legislation affecting specific industrial sectors, as a consequence of changing social values, social activism pressures, or lobbying practices from competitive interests. The cognitive acceptance of organizational outputs or routines may decrease because of competition from populations nested in the same market niche or due to changes in consumer preferences and practices. If an organizational output or practice is perceived to be associated with substantial risks (such as the case of tobacco, or genetically modified foods in Europe) or is

involved in an industrial accident (for instance, the case of the Bhopal accident and the U.S. chemical industry) all three dimensions of legitimacy may be affected simultaneously.

Certain types of industries and organizational activities may be especially prone to legitimacy disputes. Those activities that employ less well known technologies with less well known or controlled effects (biotechnology, nanotechnology); or activities which are morally or ethically contested by one or more social groups within society (abortion clinics, cigarette companies) are more likely to be under higher levels of public scrutiny and therefore to see their legitimacy contested (Aldrich 1999). For example, an annual rating of firms' corporate social responsibility (KLD Research & Analytics, Inc. 2007) considered "problematic" the involvement of firms with issues such as abortion, adult entertainment, alcohol, contraceptives, firearms, gambling, the military, nuclear power, and tobacco. All these activities offer in some way the grounds for contest from one or more relevant interest groups or social movements and therefore, the moral, cultural, and social acceptance of the activity in question may not be universally accepted. In these examples, the source of legitimacy erosion is exterior to organizations or industries. It resides in a non-alignment of organizational core activities or production and technological systems with specific sectors of society, usually based on cultural, social, or ethical patterns. In cases like these, legitimacy problems may arise during the phase of emergence of a new industry or organization or in a phase when industries or organizations are already established, but changes in the social, political, or normative frames of society shift and produce a lack of fit between organizations/industries and the environment.

Additionally certain types of events can prompt organizational crisis, which may lead to legitimacy erosion. The literature on organizational crisis (Pearson and Clair 1998;

Pearson and Mitroff 1993) offers typologies and scenarios on possible sources of crisis. For instance, organizational crisis may occur for a number of reasons: 1) technical and economic sources; 2) human and social sources; 3) the escalation of normal events into accidents or disasters; or 4) simply due to abnormal, non-routine events. Examples of types of crisis are *breaks* (such as product defects, recalls), *external information attacks* (e.g., loss of information or client records), *occupational health hazards* (e.g. hepatitis in the restaurant sector), and *mega damage* (e.g., environmental accidents) (Pearson and Mitroff 1993). These cases point to another possible source of legitimacy erosion. The source resides within organizations or industries themselves and it is related with some type of mistake, misconduct, or disaster (Vaughan 1999) in which organizational features such as routines, production or technological systems, organizational goals, organizational outcomes, or even the organizational form itself have an active role. In these cases, there was a pre-existing alignment between a given organization and its environment but an event brought about a breach in the external audiences' trust in the competence and accountability of the organization or industrial leaders to perform their roles (see on this subject the concept of *recreancy*, Freudenberg 1993). These types of events are not connected to an emergence phase *per se*, although they may occur during organizational emergence, or when an industry or organization is already well established. In short, the sources of legitimacy erosion or problematic acquisition of legitimacy for organizations, populations, or even communities may originate in the environment, in which case organizational properties only have a passive role in the legitimacy problem; or they may originate within organizations or industries, in which case organizational properties have an active role in the process of delegitimation (independently of organizational members' motivations).

Legitimacy links organizational bounded entities to their cultural, normative, and regulatory environments. From a structural perspective (i.e., institutional, ecological, and evolutionary), legitimacy reflects an alignment between organizational goals, outputs, and routines and the cultural, normative, and regulatory expectations on what an organization is supposed to be. From a strategic perspective, legitimacy implies an ability of organizational bounded entities to perceive and respond to their social environments. It is important to use a model of legitimacy that allows for the inclusion of these two perspectives on legitimacy. Additionally, organizations, populations, and communities acquire or construct legitimacy in the cognitive, moral, and regulatory arenas with different stakeholders participating at different moments of the entity's trajectory. Just like organizational bounded entities can acquire legitimacy in different domains they may also lose their legitimacy basis in different arenas. Legitimacy quests are ever more problematic when organizations operate in activities under high levels of scrutiny or suffer from organizational crisis that lead to breaks of trust on the entities' competence to perform their roles.

The next chapter offers a narrative of the history of the tuna industry in the U.S. and the Southern California tuna fleet, in particular, from the perspective of legitimacy processes. Using the case of the tuna industry, I describe how new organizational populations (i.e. the tuna fisheries and tuna canneries) acquired cognitive legitimacy for their new products; and how populations' organizational knowledge became widely accepted and taken for granted thus contributing to a consolidation of these populations within the United States food industry. I also explain why and how the tuna fisheries and tuna canneries saw their moral and regulatory legitimacy challenged by changing cultural and regulatory environments,

which in turn prompted a series of responses from these two populations. Additionally, I present my hypothesis and research objectives regarding legitimacy processes.

CHAPTER 2

BUILDING AND LOSING LEGITIMACY IN THE U.S. TUNA INDUSTRY

2.1. BUILDING COGNITIVE LEGITIMACY IN THE TUNA INDUSTRY: FROM *HOG OF THE SEA* TO *CHICKEN OF THE SEA*

This section focuses on the phase of emergence and establishment of the tuna industry in the United States and in the industry's quest for cognitive legitimacy at the level of its product (canned tuna), the different species of tunas caught by the fishery, and the fishing gear and vessels employed in the commercial fisheries.

As discussed previously, cognitive legitimacy refers to the acceptance of a new activity, product, or process (i.e., organizational form) as a valid element in the social and institutional environment. When an organizational form, organizational population, or community acquires a considerable amount of cognitive legitimacy, the entity becomes socially given and assumes a taken-for-granted nature (Aldrich, 1999; Suchman, 1995; Carroll and Hannan, 1989). This widespread knowledge implies that new entrepreneurs will tend to replicate that form or activity system and consumers are either users or knowledgeable of the product or service (Aldrich, 1999). In the case of the present research, cognitive legitimacy encompasses such dimensions as (1) consumer acceptance of canned tuna as a food-product and ideally as a staple; (2) producer acceptance of tuna as a profitable and worthwhile food industry, and (3) the acceptance of tuna vessels and related gear as efficient harvesting forms. Moreover, these different dimensions are also located at different

levels of analysis. While the legitimacy of tuna vessels is established both at the population and organizational level, the cognitive legitimacy of canned tuna as a product is created at the community level, i.e., it reflects on the tuna industry in general. As suggested by some authors, community-level legitimacy may share symbiotic effects with population and organizational-level legitimacy (Ruef, 2000; Astley, 1985).

The history of the emergence of the tuna industry in the U.S. is intertwined with the creation of a new product: canned tuna. The canning of tuna in the U.S. started relatively late, if compared with the development of other canned fish industries in the U.S., such as oysters (1819), lobsters (1820), salmon (1864), and sardines (1877) (Pacific Fisherman, 1950). The emergence of the tuna industry in the United States is commonly traced to a California cannery owner – A. P. Halfhill – who in 1903¹ had to cope with a sudden shortage of sardines - his conventional supply of canned fish (Anderson and Stolting, 1952; Bonanno and Constance, 1996; Swift, 1956; Wolff, 1980). The process of “discovering” albacore tuna as a suitable replacement for sardines may be seen as an example of an *accidental innovation* (Aldrich and Kenworthy, 1999). Until that moment, tuna was regarded by the American consumers as an inedible fish. The large amount of blood and oil in the fish made it less attractive and it even granted albacore the title of “*hog of the sea*”. Halfhill used a steam box to steam the fish and he discovered that live steam turns albacore flesh into a white color that resembles chicken meat in taste and appearance. It was this white-meat tuna – also known as

¹ The trade publication “Pacific Fisherman”, considers 1909 to be the beginning of the tuna canning industry: it was in this year that the Southern California Fish Co. cannery sold the first commercial pack of 2000 cases to a New York distributor company (Pacific Fisherman Yearbook, 1950). Scofield (1951) considers 1911 to be the year of the first important pack of albacore.

“*chicken of the sea*”² – that was first presented to the American consumers as American canned tuna (Anderson and Stolting, 1952; Swift, 1956).

In 1903, the first experimental production of canned albacore took place. Halfhill’s cannery in Southern California produced 700 cases (Anderson and Stolting, 1952; Clemens and Craig, 1965; Swift, 1956; Ben-Yami, 1980; Bonanno and Constance, 1996; Collins, 1924). Halfhill’s canned albacore was first distributed commercially to Los Angeles wholesalers (Anderson and Stolting, 1952; Swift, 1956). Gradually, the production increased as the product found its way to new geographical markets within the U.S. As albacore canned tuna became increasingly accepted by the general American consumer, the number of canneries in Southern California multiplied. By 1913, there were nine tuna canneries with the number increasing to sixteen by 1916 (Scofield, 1951).

In parallel, the tuna fisheries developed to support the increasing market for canned tuna. In the U. S., three types of vessels and associated gear were used in the capturing of tuna: bait-boats, purse-seiners, and trollers (see Table 2.1.1). (Anderson and Stolting, 1952; Bureau of Marine Fisheries, 1949; Godsil, 1938; Shimada and Schaefer, 1956). Bait-boats used hook-and-line associated with live bait. According to a description in the *Pacific Fisherman*, fishing from a clipper was “*done by men standing on iron racks hung outside the rail at the stern of the vessel, which is trimmed down until the men are standing almost level with the water. This is necessary in order to enable them to swing the big tuna aboard with their poles*” (Pacific Fisherman, 1950: 19). Purse-seiners employed a large net that encircles

² The name “*chicken of the sea*” is associated with Halfhill’s presentation of canned albacore to the largest handler of imported Italian tuna at the time (the Seeman Brothers). Here I recount how this title came about, as narrated by Halfhill’s two sons:

““When Halfhill opened his sample can of albacore, Seeman said, “What is this?”

“What do you think it is?”

“I do not know what it is, but it looks like chicken.”

“It is,” replied Halfhill, “*chicken of the sea.*”” (Swift, 1956, p.58).

the school of tuna and prevents the fish from escaping through the bottom. Trollers were usually smaller boats (in between 30 to 60 feet in length) that employed trolling with special lures, called jigs. (Anderson and Stolting, 1952; Pacific Fisherman, 1950: 19). Larger versions of bait-boats (tuna-clippers) and purse-seiners employed state-of-the-art equipment, ranging from sonar, radar, loran, to airplanes and depth-sounding devices.

Each of these craft and gear were more efficient for the capture of specific species of tuna. In the ETP area, tropical tuna (i.e. yellowfin and skipjack) were mostly fished by purse-seiners and tuna-clippers. Bluefin was almost exclusively caught by purse-seiners. Trollers were more frequently used for albacore (Anderson and Stolting, 1952; Bayliff, 1980; Bureau of Marine Fisheries, 1949; Godsil 1938; Shimada and Schaefer, 1956; Pacific Fisherman, 1950). Table 2.1. shows the variety of craft used in the Southern California tuna fisheries, some of which is still in use in California fisheries.

Table 2.1. Commercial fishing craft employed in the Southern California tuna fisheries in the Eastern Pacific Ocean

<i>Fishing vessels</i>	<i>Fishing gear/ equipment</i>	<i>Fisheries</i>	<i>Type of tuna fishery</i>	<i>Year activity began</i>
Trollers	Hook-and-line; trolling	Multi-fisheries (Tunas: albacore; Non-tunas: salmon, halibut, and others)	Seasonal	1903
Baitboats	Hook-and-line; Live-bait	Multi-fisheries (Tunas: yellowfin, skipjack, albacore, and other non-tunas)	Seasonal fishery in coastal waters	1903
Purse seiners	Purse seine	Multi-fisheries (Tunas: bluefin; Non-tunas: sardines, pilchard, mackerel, salmon, herring)	Seasonal fishery in coastal waters	1915
Tuna Clippers (larger baitboats)	Hook-and-line; Live-bait; additional equipment.	Specialized fisheries (Tunas: yellowfin, skipjack,)	Year-round fishery in high-seas	1926
Giant Purse seiners	Purse seine; power block, nylon nets	Specialized fisheries (Tunas: yellowfin, skipjack)	Year-round fishery in high-seas	1957

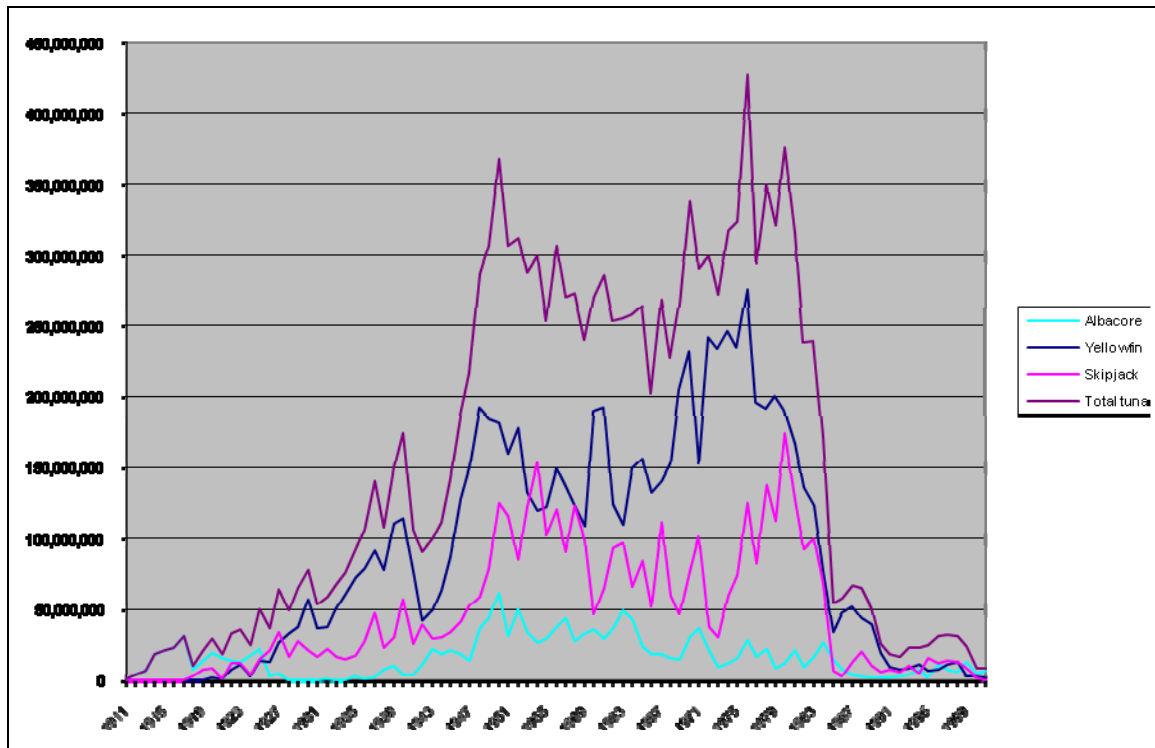
Based on data from: Anderson and Stolting (1952); Scofield, 1951, 1956; Coan, 2000a; Clemens and Craig, 1965.

The first types of craft to be used in the tuna fisheries were the small trollers and bait-boats, joined later in 1915 by the purse-seiners. These vessels were generally of small dimensions, and were dedicated to more than one fishery.

Shortages in the availability of albacore schools coupled with technical innovations prompted a change in the tuna fisheries. Albacore is a migratory species and the fishing season in California was confined to a limited number of months. Around 1916, the fishermen “discovered” bluefin, yellowfin, and skipjack as marketable tuna species, and thus an alternative to albacore. This discovery allowed a more intensive and profitable dedication of the fishermen to the tuna fisheries, since the newly found tunas were available all year-round (Anderson and Stolting, 1952; Swift, 1956)³. As a canned product, albacore was labeled “white meat” and constituted the most expensive type of canned tuna; yellowfin, skipjack, and bluefin used the label “light meat tuna” (Anderson and Stolting, 1952; Pacific Fisherman, 1950). In 1926 there was a sudden disappearance of albacore from the temperate Pacific waters. As this shortage of albacore lasted for approximately 12 years it impelled yellowfin as the main source of tuna for canneries (Anderson and Stolting, 1952; Swift, 1956). Figure 2.1. displays these trends in landings of tuna by species (albacore, skipjack, and yellowfin) in California, between 1911 and 2001. Consumers’ tastes had now to be re-adjusted to a slightly different product known as “light-meat tuna.” This adjustment was done successfully through the use of promotional activities and advertising by the tuna industry (Anderson and Stolting, 1952; Swift, 1956).

³ Although, according to the sources the fisheries were initiated in 1916, the California Fish and Game Commission only started to record landings of skipjack in 1918 and yellowfin in 1919 (Bureau of Marine Fisheries, 1949; Richardson, 1981).

Figure 2.1. California landings of tuna, per species (1911-1999)



Source: for years 1911-1915 Anderson and Stolting (1952, pp. 170-172); for years 1916-1968 Heimann and Carlisle, Fish Bulletin 149 (1970, pp.); for years 1969-2001 NMFS 2003 (unit: pounds)

The increasing demand for tuna implied extending the fisheries range south off the Mexican border. Longer trips imposed new requirements on the fishing vessels and equipments employed such as larger and sturdier ships, larger carrying capacities (for fish and fuel), and improved refrigeration systems to keep the fish and bait fresh for longer periods on board. A new type of bait-boat emerged in 1926: the tuna clipper, which ranged from 90 to 130 feet in length and had an increased autonomy at sea of approximately 30 days⁴ (Anderson and Stolting, 1952; Godsil, 1938; Swift, 1956). The clippers introduced a considerable amount of innovation in the tuna fisheries⁵ by allowing the range of fisheries to

⁴ The tuna clipper *Atlantic*, built in 1926 by M. O. Medina, was considered the prototype of the modern tuna clippers. Its cost was \$55,000 (Swift, 1956).

⁵ Some of the technological innovations improving fishing techniques and vessel operations introduced during the decades of 1930s and 1940s were the use of insulated ice fish containers and diesel engines, brine

expand towards waters with larger and richer tuna schools, mainly in the south, off the coast of Mexico. An additional bonus of increased autonomy at sea was being able to avoid the payment of duties to Mexican authorities since fishing could take place outside Mexican territorial waters (Anderson and Stolting, 1952; Swift, 1956).

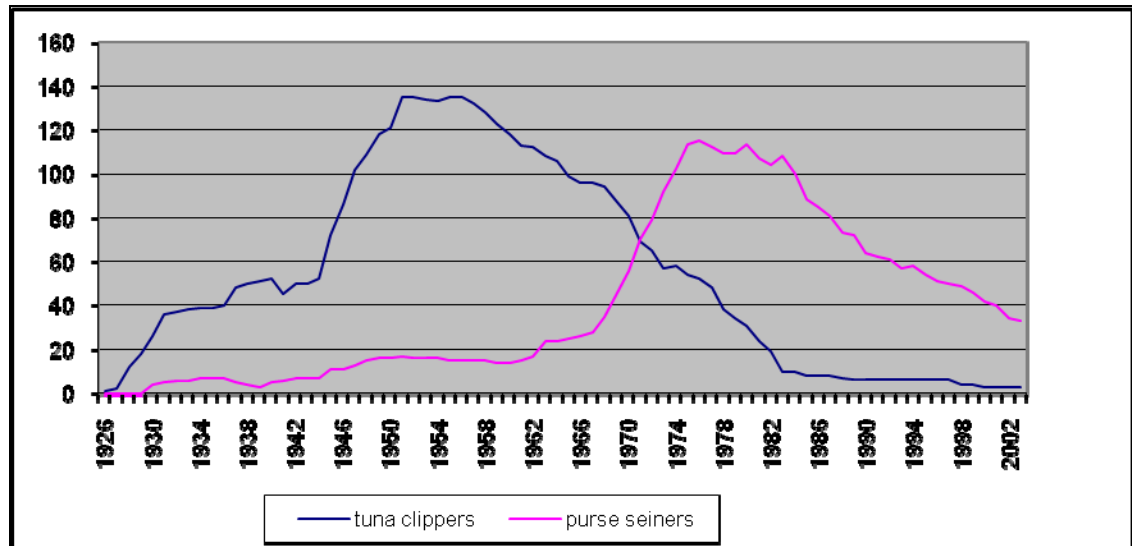
As the tuna clippers' reputation grew, they were increasingly adopted by fishermen until they became the "backbone of the industry" (Anderson and Stolting, 1952; Godsil, 1938) and the industry's major domestic suppliers. In 1938, Godsil stated that the tuna clippers were responsible for 74 per cent of the catch of yellowfin and skipjack (1938: 39). In 1952, Anderson and Stolting presented a governmental report in which the fleet of 190 tuna clippers was reported to have an average carrying capacity of 230 tons, an average crew of 10 to 14 individuals, and considered the world's most expensive commercial fishing vessel (some of the vessels had an approximate cost of \$700,000) (1952: 30). Figure 2.2. shows the number of vessels of my sample existing between 1926-2003 according to their gear.

Several events marked the tuna industry during the tuna clipper epoch. In 1937, the U.S. tuna industry expanded to the Pacific Northwest where albacore commercial fisheries and canned tuna production reached a significant level in the states of Washington and Oregon. On the East Coast, the canning of bluefin was initiated in Gloucester, Massachusetts in 1937. By 1952, the East Coast canned tuna industry was present in Maine, Maryland, New York, and South Carolina. (Anderson and Stolting, 1952; Swift, 1956). The tuna industry had become a national enterprise. The U.S. involvement in the two World Wars contributed to a recession in the number of boats and canneries although the fleet benefited from technological innovations used by the U.S. navy during the Second World War, e.g., the

immersion systems, radar, sonar, loran, ship-to-shore telephones, supersonic depth recorder, and aircraft employed to locate tuna schools (Anderson and Stolting, 1952; Godsil, 1938; Swift, 1956).

sonar and radar. Concurrently, the need for scientific studies of tunas in the eastern Pacific led to the creation in 1950 of an international fisheries management organization: the Inter-American Tropical Tuna Commission. On the processors' side, two important trends occurred during the fifties and the sixties: first, the canners started to expand their activities into the South Pacific and Latin American countries to accompany the expansion of fishing activities into those areas, and second, some of the traditional canneries were acquired by larger food companies⁶ (Wollf, 1980; Herrick, 1996; Bonanno and Constance, 1996).

Figure 2.2. Number of tuna clippers and purse seiners in the Southern California tuna fleet (1926-2003)



Source: Teixeira (2009), based on NMFS and IATTC datasets.

During the fifties, the tuna fleet of San Diego – the main port of the tuna clippers - decreased by approximately one-third. Some authors attributed the causes of this recession to the imports of lower priced tuna (especially from Japan) and to the lack of governmental protection of the fleet (Richardson, 1981). Although the existing fleet of purse-seiners initiated a trend toward a larger size in the late 1930s (Swift, 1956), it was not until 1957 that

⁶ Such was the case of StarKist Foods, acquired by H. J. Heinz Company (1963), Van Camp Seafood Company bought by Ralston Purina (1963), and California Marine Curing and Packing Company bought by Westgate-Sun Harbour (1965), the latter was the result of a merger occurring between Westgate and Sun Harbour (Wollf, 1980).

the introduction of nylon fishnets and the Poretic power-block dramatically improved the efficiency of the purse-seiners in the tuna fisheries (Bonanno and Constance, 1996; Richardson, 1981). The new purse-seiners proved to be an enhanced, i.e., more productive, form of harvesting tuna as compared to the clippers, since they reduced considerably the amount of fishing time and were not dependent on the availability of bait (Richardson, 1981; National Research Council, 1992). As a proof of the increasing acceptance of this new type of vessel, a trend to convert tuna clippers into purse seiners began in 1958. In this year, the first clipper (Southern Pacific) was converted into a purse seiner, and in 1959 thirteen more clippers were transformed (Richardson, 1981). Over the next decade, a significant number of clippers were changed into purse-seiners (Bonanno and Constance, 1996, Richardson, 1981). Within roughly a decade, the giant purse seiners had displaced the tuna-clippers from their key role and had become the prevalent form of exploiting tropical tuna in the ETP. By 1974, 150 purse-seiners accounted for 75 per cent of the U.S. tuna catch, mostly in the Eastern Tropical Pacific (Bonanno and Constance, 1996). The California tuna fleet was rapidly approaching this the pinnacle of its success.

The tuna industry first struggled to gain cognitive legitimacy for its main product (canned white tuna) by transforming the previously known *hog of the sea* into an edible *chicken of the sea*. Concomitantly, the canners' increasing acceptance of canned tuna as a viable product contributed to the fast reproduction of tuna canneries in California and in other states. The successful acceptance of canned tuna was first challenged by a shortage of albacore. Consumer tastes had to be readjusted to a slightly different product (light meat tuna) and additional efforts to gain cognitive legitimacy had to be made. In order to accommodate the rising demand of canned tuna and the new requirements imposed by light

meat tuna, the tuna fleet began a gradual transformation from a seasonal coastal fishery into a year-round high-seas fishery. New types of vessels, gear, and technologies competed to achieve the “most-efficient-way” to harvest tuna in the Eastern Pacific Ocean. Two organizational forms of high-seas fisheries were able to impose their designs in two consecutive phases of the industry, and were thus widely reproduced: first, the tuna clipper and then later the giant purse seiner.

To understand the processes surrounding cognitive legitimacy building in the tuna industry, I examine the effects of cognitive legitimacy on the tuna fleet vital rates, such as tuna-boat founding and disbanding rates. Following the conceptualization proposed by Aldrich (1999) I differentiate between cognitive legitimacy from a producer’s perspective and from a consumer’s perspective. In the present research, producer’s cognitive legitimacy includes the acceptance of tuna vessels and related gear as efficient harvesting forms by fishermen, vessel owners, canners, and other stakeholders, as well as the acceptance of tuna as a profitable and worthwhile food industry. Consumer’s cognitive legitimacy refers to the acceptance of canned tuna as a food-product and ideally as a food staple. The following hypotheses guide the research on cognitive legitimacy:

H1. Increasing levels of cognitive legitimacy in the tuna-fleet from a producer’s perspective, and increasing levels of consumer acceptance of industry legitimacy increase tuna fleet foundings.

H2. Increasing levels of cognitive legitimacy in the tuna-fleet (at the producer and consumer dimension) decrease the rate of tuna fleet disbandings.

In order to contribute to the on-going debate on the empirical measurement of legitimacy, I propose to test the traditional measure of legitimacy used in population ecology

theories by comparing the effects of population density with the effects of a direct measure of cognitive legitimacy on organizational foundings. I contend that:

H3. Direct measures of cognitive legitimacy (at the producer and consumer perspective) have significant positive effects on tuna fleet founding rates, even when controlling for tuna fleet population density.

In order to test whether legitimacy measured at the three levels of analysis (organizational, population, and community) has differential effects on population vital rates, I compare the effects of the three levels of producers' cognitive legitimacy measured at the organizational, population, and community level on foundings and disbandings of the Southern California tuna fleet population.

H4. Community, population and organizational cognitive legitimacy from a producer's perspective have significant differential effects on the tuna-boats' founding rates and tuna-boats' disbanding rates.

Secondly, I proceed with a qualitative analysis of the different elements of producers' cognitive legitimacy in the tuna industry. I identify and build a set of components or categories conceptualized as organizational knowledge produced in the tuna industry throughout its existence. I then analyze the contents of each category as well as the timing of its appearance and disappearance for each type of knowledge. To complete my analysis of cognitive legitimacy as accepted organizational knowledge, I test the effects of each type of knowledge on the foundings and disbandings of tuna vessels:

H5. Different types of organizational knowledge have significant differential impacts on the tuna-boats' founding rates and tuna-boats' disbanding rates.

The first period of the Southern California tuna industry was marked by successful efforts in gaining cognitive legitimacy for its product as well as core technologies used in processing facilities and fishing vessels. Growing consumer demand and a sound technological and scientific basis coincided and led to the successful establishment of the Southern California tuna industry among the American fishery industries. In the following section, I focus on the second period of the Southern California tuna fleet. This period was marked by an increasingly dense regulatory environment, a rise in competition from foreign fleets, and most importantly a serious erosion of the industry's moral legitimacy in the U.S. due to the high levels of dolphin mortality caused by the fishing techniques employed by the tuna fleet.

2.2. MORAL LEGITIMACY EROSION IN THE TUNA INDUSTRY OR THE *FISHERMEN WHO FELL OUT OF GRACE FROM THE SEA*⁷

“If a seagull landed on the bow of my seiner each Monday and brought me a \$1,000 check would I kill the seagull, would I kill off the seagull population? Of course not!!!! While many believe that tuna fishermen are solely out to catch fish, regardless of killing porpoise, many fishermen are themselves now determined to catch fish while also preserving their ‘seagulls’.”

Lionel Souza, skipper, quoted by Wolf, 1980: 137

Several issues have confronted the tuna industry during its existence. Some of these issues were competition from imported foreign tuna, international disputes over the extension of the fishery conservation zones (FCZs), the rights of the nation-states within those waters, seizures of US tuna boats by foreign authorities, and the international management of highly migratory fish species (such as tuna). However, one issue has caused a considerable amount of public debate and seriously questioned the industry's moral legitimacy: the tuna-dolphin question. Environmental associations' actions targeted the ethics of the tuna industry and the Southern California purse-seining fleet in the ETP in relation to the tuna-dolphin question.

⁷ Title inspired by Yukio Mishima's novel "The sailor who Fell from the Grace with the Sea."

These civil society organizations initiated an erosion of the industry's moral legitimacy. Moral legitimacy is defined here as the cultural and moral conformity of an industry's goals or techniques with prevalent societal values and cultural norms. In the case of the tuna industry, moral legitimacy was taken-for-granted until specific aspects of the industry, such as its production system, main product, and even an organizational form were specially targeted by civil society leaders and organizations. What brought about this misalignment between the tuna industry and its social and cultural environment was a change in environmental values. As social activism intensified and the environmental impact of certain techniques of tuna fishing became salient, regulators brought about a change in the normative environment. This change in the normative environment caused, in turn, an erosion in the legitimacy of the tuna industry in the regulatory sphere.

In the Eastern Tropical Pacific (ETP), yellowfin tuna schools tend to swim with dolphins. This phenomenon predominantly occurs in the ETP and scientists have yet to uncover the reasons for this bond (Shomura, Majkowski, and Langi, 1994; Bayliff, 1980; NRC, 1992; USITC, 1992). Southern California fishermen developed a specific fishing technique that takes advantage of this association: since dolphins are visible at the surface, fishermen used dolphins as an indicator of the presence of yellowfin tuna. The technique of "porpoise fishing" or "dolphin fishing" was used previously by the tuna clippers without causing porpoise mortality (Richardson, 1981; USITC, 1992). Contrarily, the association of porpoise fishing with purse seining often caused porpoise mortality. Unlike tuna clipper fishing, the purse-seining technique implied the use of a large net (purse-seine) to encircle the tuna. In the process, dolphins were also encircled and entangled in the net thus causing them to drown. The increasing predominance of the new purse seiners in the ETP tuna

fisheries starting in the sixties, dramatically contributed to increased rates of porpoise mortality⁸ (NRC, 1992; Richardson, 1981).

During the decade of the 1960s onwards, environmentalists were active in the defense of the dolphins and in accusing the tuna industry of using unethical fishing techniques that caused porpoise mortality. Dolphins were seen as intelligent creatures (Richardson, 1981; Wolff, 1980), friendly to human beings, and of great aesthetic value (Wolff, 1980). Tuna fishermen were accused of “abusing porpoise populations,” “herding them with cherry bombs,” and also “gaffing porpoise with hay hooks, and [shooting] seagoing turtles” (Wolff, 1980: 132). The conflict that opposed environmentalists to fishermen was framed within the context of a societal change in values that brought into mainstream culture the ethic of preservation of endangered species and the defense of animals’ rights, with a specific interest in the preservation and conservation of marine mammals in the U.S. (Mertig, Dunlap, and Morrison 2001). Wolff, explaining the fishermen’s side, contended that: “*California tuna fishermen are now fighting for the survival of an industry that has from time immemorial been based on an old ethic: to fish and to make money. The fishermen’s beliefs are honest, deeply held, and time-tested. Up until the late 1960s their activities went unchallenged*” (Wolff, 1980: 137). Concurrently, the change in societal values coincided with the emergence and prevalence of a new fishing system (“porpoise fishing” with giant purse-seiners) that produced a large amount of porpoise by-catch, and which clashed directly with the animal conservation ethic.

⁸ Statistics on porpoise mortality differ in numbers and in quality of the data. Only in 1972 the National Marine Fisheries Service began to collect data on a regular basis through a sampling of the U.S. tuna vessels, however, some authors contended that the official numbers were an underestimation of the actual mortality rates (Bonanno and Constance, 1996; NRC, 1992; Richardson, 1981). According to NMFS, dolphin mortality in the ETP reached a peak in 1967 (with 707,300 deaths) and gradually declined to 128,200 in 1976, and 27,300 in 1991 (USITC, 1992:3-3).

The tuna industry replied with some technical innovations such as the “backdown procedure” (designed circa 1960 by Capt. Manuel Neves) and the “Medina safety panel” (designed by Capt. Harold Medina in 1971) aimed at protecting the dolphins while using purse-seining nets (USITC, 1992; and also NRC, 1992; Richardson, 1981). However, while these techniques helped to reduce porpoise mortality, a substantial number of dolphins were still being killed in the ETP (NRC, 1992; Richardson, 1981). According to a report on porpoise mortality, dolphin-friendly techniques of harvesting yellowfin tuna in the ETP “*are elusive, may be costly to develop, and may require considerable investment in new vessels and equipment*” (NRC, 1992:29).

As a result of public and scientific concerns for the preservation of marine mammals, the U.S. Congress passed the 1972 Marine Mammal Protection Act (MMPA)⁹. The tuna industry henceforth was operating in a charged regulatory environment in which the multiplicity of regulations and amendments became increasingly restrictive of the tuna-boats activities in the ETP and the canners’ sources of tuna. The MMPA reiterated that mammals should be kept above their optimum sustainable population and a concern was expressed about the depletion of species as a result of human activities. The MMPA specified it to be unlawful for any U.S. vessel to take (i.e. to, or try to, harass, hunt, capture, or kill) any marine mammal on the high seas (Wolff, 1980). However, the MMPA also stipulated that the incidental killing of marine mammals in purse-seine fishing for yellowfin should be reduced to a level “*deemed to be satisfied by application of the best marine mammal safety techniques and equipments that are economically and technologically practicable*” (USITC, 1992: 3-3). In practice, special permits to take mammals were issued for a period of two years, which could be later renewed for another pre-determined period. In return, the tuna

⁹ The Marine Mammal Protection Act was preceded by the 1969 Endangered Species Act (ESA).

industry was expected to develop, in conjunction with other state agencies, fishing techniques geared at reducing porpoise mortality and bringing it close to zero (Bonanno and Constance, 1996; Richardson, 1981; Wolff, 1980). An association that represented the most of the large tuna vessel owners operating in the Southern California tuna industry (American Tunaboat Association - ATA) was required to guarantee that minimum training and equipment requirements should be met by the tuna vessels. ATA was also required to guarantee that vessels' captains would keep records of their fishing activities (Bonanno and Constance, 1996; Richardson, 1981).

The Congress delegated partial responsibility for implementing the MMPA to the National Marine Fisheries Service (NMFS). The NMFS was responsible for the establishment of dolphin kill quotas, and initiated and supervised the "observers' program". The "observers' program" placed observers aboard U.S. tuna boats to record the number of dolphins killed. Additionally, the NMFS should guarantee that the tuna imported into the U.S. and caught by foreign fleets would have dolphin mortality rates similar to the ones practiced by U.S. vessels in the ETP. (Bonanno and Constance, 1996).

In 1975, the NMFS established an annual quota of 78,000 allowed dolphin kill which was intended to be gradually reduced until "insignificant" mortality levels were achieved. If and whenever the quota was reached, the U.S. Department of Commerce was authorized to close the ETP tuna fisheries to U.S. tuna vessels (USITC, 1992: 3-4). Additionally, U.S. vessels were required to use specific gear aimed at reducing dolphin mortality (NRC, 1992). The industry's special protective clauses foreseen in the MMPA caused a general discontent among environmentalists who sued the Secretary of Commerce/NMFS for the issuance of special permits. A period of lawsuits and legal appeals was initiated over the question of the

dolphin kill quotas (Bonanno and Constance, 1996). In 1977, the quota was set at 20,500 dolphins per year and only in 1986 the ETP tuna fisheries were closed for the first time when the quota was reached (USITC, 1992:3-4). Only countries that were signatories of the Commission's treaties and actually enforced those treaties were subjected to these regulations. Throughout this period, the MMPA was amended several times to include additional regulations on (1) embargos on imported tuna from direct producers and intermediary nations, (2) mortality restrictions for specific dolphin species, and (3) the operation of the observer program among others (NRC, 1992; USITC, 1992).

The tuna industry addressed the tuna-dolphin problem at different levels. Besides the above-mentioned technical innovations in gear, trade and industry organizations were involved in research and training on the use of gear and techniques less damaging to dolphins. In conjunction with the Inter-American Tropical Tuna Commission, tuna industry organizations offered training courses for the tuna boats' crews and inspected dolphin-saving gear and vessels. Additionally, the industry founded the Porpoise Rescue Foundation in 1975, an organization dedicated to developing research and gear and training crews to reduce dolphin mortality and injury. The Porpoise Rescue Foundation had representatives of the processors, fisherman, and labor among its administrative body (NRC, 1992; Wolff, 1980: 132).

One of the most important industry-based measures was the "dolphin-safe" label adopted by tuna canners in 1990 and 1991. Prior to this decision, tuna canners faced several consumer boycotts of canned tuna organized by animal-rights' activist groups. According to the canners, activists' pressures bore little weight on the actual consumption patterns of the American market (USITC, 1992). Nevertheless, in 1989 the Congress was assessing a new

bill (the Boxer Bill), which would enforce canners to purchase tuna that was strictly harvested in a dolphin-safe manner. In an effort to address consumer and regulatory pressures, StarKist announced in 1990 its decision to exclude purchases from either domestic or foreign sources that harvested tuna in a way that could endanger dolphins. By 1991, the “dolphin-safe” label had been adopted by all major American tuna processors, such as Heinz (which carried the “StarKist” brand), Bumble Bee Seafoods and Van Camp Seafood Company (which carried the “Chicken of the Sea” brand) (USITC, 1992; Bonanno and Constance 1996).

Concomitantly, the Boxer Bill was approved by Congress in 1990 as the Dolphin Protection Consumer Information Act (DPCIA). This bill further regulated the harvest and importation of tuna products from the consumer’s perspective (USITC, 1992). In practice, the DPCIA sought to prevent the American consumption of tuna caught with purse-seiners in the ETP - by domestic and foreign vessels alike – and tuna harvested with driftnets in the Northern Pacific (USITC, 1992).

At the same time, the size of the U.S. tunaboat population in the ETP decreased considerably. According to my data the U.S. fleet dropped from 115 purse-seiners and 52 bait-boats active in the ETP in 1976, to 33 purse-seiners and 3 bait-boats in 2003. This decrease signaled different fates for the tuna boats: some were lost at sea, others entered alternative fisheries in the Western Tropical Pacific, or in the Atlantic Ocean, while others still transferred their flags or sold their vessels to foreign fleets (NRC, 1992; USITC, 1992). Of the 189 purse-seiners fishing in the waters of the ETP in 1997, only 7 carried a U.S. flag: Mexico was now the major fishing-nation in the ETP (NMFS, 1999).

Domestic tuna processors, which had invested in a significant number of corporate tuna fleets, began to rely increasingly in the international market for their tuna supplies, thereby disinvesting from corporate fleets and shortening their contracts with domestic independent tunaboat owners (NRC, 1992; USITC, 1992). U.S. tuna processors initiated a trend to relocate their canneries to offshore locations, first to U.S. territories (Puerto Rico, American Samoa) and, more recently, to Asian countries. Moreover, the three most important American tuna processors (i.e. Van Camp Seafood's Chicken of the Sea, Heinz's StarKist, and Castle and Cook's Bumble Bee) closed down their canneries in Southern California and went through successive foreign and domestic acquisitions (Herrick, 1996; NRC, 1992; Tuna Council, 2008).

Government-based research has found that dolphin mortality rates decreased during the 1990s and the 2000s due to the introduction of conservation measures (Bonanno and Constance 2008). However, new concerns about dolphin safety also emerged during this period. Some fisheries researchers contended that the technique of encircling and chasing dolphins causes high levels of stress among these mammals, which has in turn an adverse effect on their health and reproductive rates. Therefore, according to this research, purse-seining techniques pose a threat to the survival of dolphin populations. On the other hand, other fisheries researchers did not find evidence of adverse effects caused by the activities of encircling and chasing dolphins, and therefore contended that presently purse seining is not harmful to dolphins (Bonanno and Constance 2008; Buck 1997; Humane Society of the United States 2009). It is around this scientific debate that the standards applied to the "dolphin-safe" label are being negotiated and contested. The supporters of a less strict dolphin-safe standard claim that stringent environmental regulations are damaging U.S. trade

relations with Mexico and other neighboring countries (Bonanno and Constance 2008; Buck 1997). The supporters of strict labeling criteria argue that purse seining is still harmful to dolphin populations and that the United States should not sacrifice their environmental policies for the benefit of trade policies (Humane Society of the United States 2009; Buck 1997). After forty years of debate, the tuna-dolphin controversy is still a salient topic in the global tuna industry of the 21st century.

My dissertation conceptualizes negative moral legitimacy as the public's perception of negative impacts caused by the tuna industry in local communities and in the social and natural environments. In my dissertation, I examine the effects of decreasing moral legitimacy on population founding and disbanding rates. I expect that negative moral legitimacy will decrease the number of organizational foundings and increase the number of disbandings among the tuna vessels. Moreover, moral legitimacy erosion is expected to have effects mainly on organizational disbandings.

H6. The decrease of moral legitimacy in the tuna industry lowers the tuna-boat foundings.

H7. The decrease of moral legitimacy in the tuna industry raises the tuna-boat disbandings.

Additionally, I identify different categories of negative social impacts that were attributed by the general public to the tuna industry throughout its existence. I describe these negative impacts and examine their distribution across the industry's different periods. I also analyze the perceptions of the tuna industry on the areas that represent a divergence of interest between the tuna industry and its social environment. I compared both the public

perceptions and the tuna industry's perceptions and examine the amount of overlap or dissent existing between the two.

Lastly, I identify two types of legitimacy strategies developed by the tuna industry: strategies aimed at *building* legitimacy and strategies geared at *protecting* legitimacy. I present the type of legitimacy strategies developed by the tuna industry to raise cognitive legitimacy and regulatory acceptance, and the strategies enacted to face problems that emerged throughout its existence.

In this chapter I present the history of the Southern California tuna industry from the perspective of legitimacy processes. In the first part, I narrate the processes of emergence and establishment of the tuna industry and the role played by legitimacy in the success of the industry. I explain how the tuna industry successfully raised legitimacy for its products and organizational populations, which allowed it to achieve a considerable position among the fisheries in the US. In the second section, I describe how social and cultural changes brought about a misalignment between the tuna industry's core technologies and ethics and society at large. I contend that as the tuna fleet's activities were increasingly targeted by environmentalists, the normative environment became more restrictive causing an erosion in the industry's moral legitimacy and regulatory acceptance. In the next chapter, I focus on the type of data and measurements used to study legitimacy processes. I identify the units and levels of analysis employed in the research, followed by a discussion on the measurement of legitimacy and the use of media sources. I then present the data, variables, and methods used in my empirical analysis.

CHAPTER 3

METHODS AND DATA

3.1. THE SOUTHERN CALIFORNIA TUNA INDUSTRY: DEFINING LEVELS AND UNITS OF ANALYSIS

This section applies the concepts of organizational population, organizational community, and organization to the case of the Southern California tuna industry. This section describes the Southern California tuna community, defines the Southern California tunaboat population, and the heterogeneity of organizational arrangements.

Ecological theories of organizations define organizational populations as a “*set of organizations engaged in similar activities and with similar patterns of resource utilization*” (Baum 1996: 77). Hannan and Freeman (1977) defined organizational population in relation to a specific organizational form (1977). They contended that an organizational form is a “*blueprint for organizational action*” (ibid: 935) that can be defined based on either the formal structure of the organization, the patterns of activity, or the normative structure in which the form exists. Thus, according to organizational ecologists, an organizational population coincides with a particular organizational form embedded in a specific environment (Hannan and Freeman 1977) bounded by time and space constraints (Aldrich 1999). Nevertheless, Hannan and Freeman called our attention to the fact that organizational populations are theoretical constructs and their definition depends upon the problem under study (1977).

The overlap between organizational form and organizational population does not preclude the existence of a heterogeneous group of organizations within populations (Aldrich

1999; McKelvey and Aldrich 1983). In fact, an alternative definition of population is based on the existence of common sets of routines and competencies among organizations embedded in specific cultural, normative, and technological frames (Aldrich 1999). According to this definition, the emergence of new populations takes place with the discovery of new competencies and routines – or of an innovative re-combination of existing ones – employed in the exploitation of new resources (Aldrich 1999: 224).

A higher level of organizational analysis is the one carried out at the community level: a straightforward definition considers organizational communities to be composed by sets of interrelated populations (Baum 1996; Scott 1998). Aldrich proposed a definition of community, which emphasizes the type of relational ties that bind populations together: a set of populations linked by relations of competition and cooperation between similar units (commensalism) or by ties of mutual interdependence between dissimilar units (symbiosis). Commensalistic and symbiotic relations come into existence within a common technological, normative, or regulatory framework. (Aldrich 1999: 298-301). Different types of participants may be included within the same organizational community, such as suppliers, consumers, or regulators (Ruef 2000:660).

According to these perspectives, the Southern California tuna industry is an organizational community that encompasses a variety of interrelated populations present in the harvesting sector (a tuna fleet composed of different types of commercial vessels and respective gear aimed at specific fisheries), the processing sector (canneries and processors), the infra-structure sector (ship-building and repair, ship chandlery, electronic equipment suppliers, maritime brokers and insurance), the marketing sector (distributors, advertisement companies, etc.), among others (see Rockland 1978; USITC 1992 for an identification of

different sectors). The U.S. tuna industry originated in Southern California in 1903, and was based primarily in San Diego and San Pedro. From Southern California the tuna industry expanded to the Northwest coast of the United States (mainly Washington and Oregon) and the East coast (e.g. Virginia and Massachusetts) in 1937 (Anderson and Stolting 1952; Richardson 1981; Swift 1956). However, San Diego and San Pedro lead the harvesting sector (fisheries) and the production of canned tuna in the United States during most of its existence (Bonanno and Constance 1996; Bureau of Marine Fisheries 1949; Richardson 1981; Rockland 1978; Swift 1956; Wolff 1980).

Tuna boats fit the tri-dimensional definition of organization presented by Aldrich (1999) as entities that are 1) goal-oriented; 2) boundary-maintaining, with a distinctive set of members which share pre-defined sets of tasks and roles inside the boat; and 3) have socially constructed sets of activities aimed at accomplishing organizational goals. Additionally, commercial fishing vessels are similar to other small entrepreneurial units (such as restaurants or stores), in the sense that they may be owned by an individual entrepreneur (boat owner), a group of entrepreneurs (several boat owners), a corporate owner (cannery), or even as a shared ownership between an individual entrepreneur and a corporate interest (boat owner and cannery). Although one owner may operate more than one tuna-boat, the unit of analysis of the tuna-boat population is the vessel instead of the vessel-operator, since it conveys a clearer measure of organizational foundings and disbandings.

My dissertation focuses on two organizational arrangements of the Southern California tuna fleet population – the tuna-clippers and the giant purse-seiners. Both types of vessels were specially designed to be exclusively employed in the tuna fisheries, instead of operating in multi-species fisheries, as was the case of the trollers, smaller purse-seiners, and

smaller bait-boats (Herrick 1996; Bureau of Marine Fisheries 1949). Secondly, due to their larger carrying capacities and high-seas autonomy, both types of vessels became the most important sources of harvested tuna in two different consecutive periods. Thirdly, both the tuna-clippers and the giant purse-seiners were capital-intensive and technologically state-of-the-art commercial fishery vessels, with a more intensive pattern of resource utilization when compared to the smaller, artisanal trollers, baitboats, and purse-seiners.

An important aspect of the analysis of legitimacy processes is the historical timing of emergence. Ruef (2000) suggested that as with the emergence of organizations, the emergence of populations (and communities) should be regarded as a process - that can take up to decades - instead of a discrete event. There are, however, some critical events that taken in conjunction with the nature of the environment may serve as markers of emergence. When the environment is heavily institutionalized, regulatory events are critical; if the environment is conditioned primarily by technology, then technical innovations, inventions, or patents, should be used as markers. When the population or community under analysis strives on neither regulatory nor technological environments, the acknowledgement by media sources can be used as a critical event (Ruef 2000: 671). Different timings of emergence of the canned tuna industry in the U.S. are suggested by existing research. Is it the first experimental production of canned tuna in 1903, or the first commercial significant transaction of canned tuna cases in 1911 that should be employed as an industry marker? In the case of the tuna boat population – tuna clippers and giant purse-seiners – we could argue whether technology or media sources should be used as markers. For the purpose of my research, I chose technological markers of emergence: the emergence event of the tuna industry community is considered to be the year when canned tuna was first experimented

and marketed on a trial basis (1903), while the emergence event in the case of the tuna vessels is the appearance of the first prototype of a tuna-clipper (1926).

3.2 HOW TO MEASURE LEGITIMACY

Although there is some consensus about what organizational legitimacy is, there is considerable disagreement on how to measure legitimacy empirically. The heterogeneity of empirical measurements has led to a considerable variation on results and has limited the amount of theory building on the theme of legitimacy and organizations. Hannan and Carroll have been criticized for their use of an indirect measure of cognitive legitimacy. The authors used organizational density (i.e. the number of organizations in a population) as a proxy for cognitive legitimacy. According to these authors, “density increases legitimacy at a decreasing rate but increases competition at an increasing rate” (Carroll and Hannan 1989a: 545). Legitimacy increases organizational foundings and decreases disbandings, while competition decreases foundings and increases disbandings.

The main criticism of this thesis is that the authors failed to measure legitimation (and competition, for that matter) directly (Zucker 1989; Baum and Powell 1995). Furthermore, Carroll and Hannan’s model is also criticized for being a-historical, that is, organizational foundings and disbandings are analyzed without regard to their historical context¹⁰. Hannan and Carroll (1989b) responded to this critique by emphasizing the need to preserve comparability of empirical findings across populations and different historical contexts. Carroll and Hannan questioned the need of employing direct measures of cognitive legitimacy because it would seriously restrict any expectations of developing cross-

¹⁰ It is time between organizational foundings that is the main time variable in Hannan and Carroll’s model (Zucker 1989), and not historical time. Moreover, Zucker stressed the fact that organizational foundings are not independent and they are more influenced by historical time than by an abstract measure of time between foundings (Zucker 1989: 544).

population and cross-context theories. Any direct measure would have to make use of idiosyncratic indicators of particular populations in particular historical contexts.

On the other hand, Baum and Powell (1995: 530) contended that focusing on one type of legitimacy alone might hinder the study of legitimacy as a multidimensional phenomenon. Instead, students of legitimacy should use measures that are more precise and more realistic. Baum and Powell suggested some ways to construct these types of measures, namely the use of content analysis of media coverage of the industry under study. According to these authors, “media differentially selects what to communicate about the organizational world (due, for example, to variation in sociopolitical legitimacy or network centrality of organizations)” (Baum and Powell 1995: 530).

Several organizational scholars have suggested the use of media sources in the direct measurement of organizational legitimacy (Dowling and Pfeffer 1975; Baum and Powell 1995; Ruef and Scott 1998). Other researchers have used media-based measures of organizational legitimacy, such as Hybels (1994) in a study of biotechnology firms, Deephouse (1996) in a research of commercial banks, and Lamertz and Baum (1998) in a study of middle-management layoffs in Canadian companies. Media – particularly trade or professional media - reflects the amount of knowledge existing over specific organizational forms, activity systems, or even entire industries. Printed media is also an important register of public and elite discontent over organizational and industry activities. Moreover issue salience is an important mechanism mediating the perception of corporate action by organizational stakeholders and audiences. Media-based measures are particularly adequate to measure issue salience since media play a key role in the diffusion and creation of issue

salience around corporate activities or other types of events surrounding organizations and industries (Bonardi and Keim 2005: 558).

3.3. VARIABLES AND DATA

In this section I identify the variables under study and describe how these variables were measured. Table 3.1. at the end of this section, presents the list of variables, measurement scale, and sources of data. In what refers to legitimacy variables, I constructed two measures of cognitive legitimacy from the producers' perspective, one measure of consumers' cognitive legitimacy, and one measure of moral legitimacy. With the exception of the consumers' acceptance variable, all the measurements of cognitive and moral legitimacy were based on articles published in the print media.

3.3.1. Cognitive legitimacy from the producers' perspective

Cognitive legitimacy from the producers' perspective (CLP) was constructed on the basis of news articles on tuna products, tuna fisheries, tuna boats, tuna canneries, and industry scientific developments, appearing in three trade publications specialized in fisheries and the fishing industry: the Pacific Fisherman, the National Fisherman, and the Pacific Fishing. All three periodicals published a monthly journal and an annual Yearbook; and have been widely used by the fisheries professionals, and by fisheries scholars in general (Godsil 1938; Anderson and Stolting 1956; Bureau of Marine Fisheries 1949; Swift 1956). To confirm that the National Fisherman and Pacific Fishing were the main source of trade and professional news among the tuna industry of Southern California from 1980 through 2000, I contacted direct sources in the industry (e.g. American Tuna Association President) and consulted all the available printed media. Because the selected publications were seen as

inside voices of the industry, the measures of cognitive legitimacy based on these trade publications qualified as the producers' perspective.

A) The data sources: description of the trade publications

The Pacific Fisherman was first published in 1903 and its scope covered the different fisheries and fishery industries in the West coast. The different exposure that the Pacific Fisherman gave to any particular fishery thus reflected the specific weight each fishery carried in the overall Pacific fishing community during different historical periods. The Pacific Fisherman was absorbed and continued in 1967 by a publication entitled National Fisherman. The National Fisherman was initially a regional fisheries newspaper that began to have a national scope only after it absorbed a series of regional fishing publications (e.g., the Pacific Fisherman, the Maine Coast Fisherman, the Alaskan Fisherman's journal). Thus the National Fisherman only began its coverage of the West coast in 1967 after absorbing the Pacific Fisherman. The Pacific Fishing is a regional publication covering the West coast fisheries. It had its first year of publication in 1980 until present.

After a thorough analysis of the existing trade publications in the fisheries in what regards content and audiences, and after consulting with tuna fishery professionals, the measurement of cognitive legitimacy on the producers' perspective was based on the Pacific Fisherman for the period of 1903 through 1967, on the National Fisherman for the period of 1968 through 2002, and the Pacific Fishing for the period of 1980 until 2002. The reason for basing the second period of the measurement in two publications, instead of one, is that those two publications represented the main source of information for fishery professionals throughout the period in study. The National Fisherman assumed the West coast editorial market left open by the Pacific Fisherman. However, when the Pacific Fishing started to be

published in 1980, its focus on the West coast fisheries made this publication a competitor for the West coast readership market share. Adding the Pacific Fishing publication to the measurement of cognitive legitimacy was a way to assure that the reliability of the measure would not be compromised by a changing media market. The three publications issued 12 monthly issues per year and an annual Yearbook.

B) Types of data, sampling method, and observation period

Two different types of data collected from the trade publications were used to construct two variables of cognitive legitimacy from the producers' perspective (CLPP). The first type of data was collected from the monthly issues of the trade publications published in a given year. The second type of data was collected from the yearbook issues edited by the trade publications.

The monthly issues offered a myriad of articles on fish products, fishing techniques, vessels, canneries, equipment and gear, technological and scientific developments, policy debates, trade associations and unions, fishery professionals, among others, covering the existing types of fisheries (e.g., tuna, sardines, salmon, crab, shrimp, etc.). In order to be selected and recorded as units of data collection (Neuendorf 2002) the articles had to fulfill three different criteria: 1) exclusiveness, i.e., the articles had to be exclusively dedicated to the tuna fisheries; 2) organizational knowledge, i.e., the articles had to be coded as one of the categories of organizational knowledge identified in my coding scheme (see below); and 3) size, i.e., the articles had to occupy at least half a page of the newspaper. Although some articles discussed more than one fishery, or a technological improvement that could be applied to more than one fishery, articles were classified under the category of "tuna articles"

only if they were *exclusively* dedicated to a tuna content. Under this coding scheme, the articles are mutually exclusive events coded under one fishery or another.

In order to be selected and recorded as units of data collection (Neuendorf 2002) the articles had to occupy at least half a page in the journal (including text and image). Any article that occupied less than the mentioned space was disregarded. The articles' *size* was measured in multiples of 0.5: 0.5, 1, 1.5, and so forth. In order to increase reliability (Neuendorf, 2002) the coding of size was simplified: whenever an article occupied half a page in a journal it was coded as size of 0.5, if it occupied more than 0.5 but less or equal to 1 page, it was coded as size 1, and so forth.

In order to analyze one hundred years of print media (1903 – 2002, inclusive), a systematic random sample of years was selected for the observation period (N=100 years) (Singleton and Straits 1988; Neuendorf 2002). Using a sampling interval of 4 (100/25) the first starting year was randomly selected, between time 1 (1903) and time 4 (1906). Thus, every fourth year was sampled with the starting year in 1904. The following years constituted the systematic random sample used in the dissertation: 1904, 1908, 1912, 1916, 1920, 1924, 1928, 1932, 1936, 1940, 1944, 1948, 1952, 1956, 1960, 1964 (Pacific Fisherman), 1968, 1972, 1976, 1980, 1984, 1988, 1992, 1996, 2000 (National Fisherman) and 1980, 1984, 1988, 1992, 1996, 2000 (Pacific Fishing). A systematic sampling procedure was preferred to a simple random sample since it is important to have time intervals equally distributed throughout the observation period.

The second CLP construct was based on the yearly publications of the Pacific Fisherman for the period 1903 thru 1967, and the National Fisherman for the period 1968 thru 2002. The yearly publications report annual reviews of each fishery and provide some

statistical data. Similar to the monthly publications, they allocate different amounts of space to each of the existing fisheries. Considering that print media space is a limited and valuable resource, space allocation to a given subject denotes an assessment of importance by the editorial team. When the publication is influential and reaches key stakeholders and opinion leaders (as is the case) the way the editorial team decides to allocate space is an important indicator of the weight carried by the specific fishery in the regional or national context.

C) CLP1: Monthly issues

This variable is constructed on the basis of the 12 monthly issues of the trade publications published in a given year. It is estimated as the product of the *number of articles selected* by the *size of the articles* divided by the total number of pages of all the monthly issues published in a given year. This value is estimated for each of the 25 years of the observation period sample.

$$CLP1_monthly = \frac{\sum (tuna\ articles\ y * size\ of\ tuna\ articles\ y)}{total\ number\ of\ pages}$$

For the period comprised between 1968 through 2002, when two publications were used to estimate the values of CLP1, an average of both ratios is used. Additionally, in order to correct for the fact that the National Fisherman covered a national readership as well as three different regions (Northeast coast, Southern coast, and Pacific coast), I gave a weight of 4 to all the values based on this publication. The rationale for choosing a measure that takes into account the number and size of the articles instead of a simple count of articles is that it is a more reliable way of capturing the weight carried by a specific industry, organizational form, or activity system in relation to other existing forms, activities, or industries. A mere count of articles over a long period such as this may reflect numerous editorial changes and modifications in the format of the print media that bear little weight on cognitive legitimacy

values. For instance, if the count of articles yields increasing values throughout the years, this increase will not necessarily convey the real weight given to knowledge of a certain industry or activity, it may be instead a simple reflection of an increase in the number of pages of the publication throughout the study period. On the contrary, this measure gives a relative value that can be comparable throughout the study period, independently of the editorial changes that took place within the observation period.

D) CLP2: Yearbook issues

The data based on the yearly issues offer an alternative measure of cognitive legitimacy. This measure is based on a ratio of the number of pages dedicated to the tuna fisheries divided by the publication's total pages, in a given year. CLP2 yields a value of cognitive legitimacy per year for all the years under study.

$$CLP_yearly = \frac{\text{No. of tuna pages in the yearbook in year } x}{\text{Total no. of pages of the yearbook in year } x}$$

E) CLP at the organizational, population, and community level of analysis

The data based on the monthly issues yields a construct of CLP which could be differentiated according to its level of analysis: organizational, population, and community levels. The monthly publications convey a plethora of news articles, which comprise the industry in general, and the specific social actors inside the industry, in particular. Because these articles transmit different types of knowledge to different types of audiences, it is possible to identify different levels of analysis within cognitive legitimacy. Once again, each category is mutually exclusive.

a) Organizational cognitive legitimacy comprises those articles featuring individual tuna-clippers, purse-seiners, or tuna canners operating in the Southern California tuna industry;

b) Population cognitive legitimacy encompasses those articles featuring the Southern California tuna boat fleet, including the tuna clipper fleet, and the tuna seiners' fleet. Also included are references to the Southern California tuna canners, Southern California tuna industry, and Southern California tuna fishermen;

c) Community cognitive legitimacy consists of all the remaining articles on the tuna industry, including those that refer to other populations, such as regulators, ship builders, or even when the articles feature individual references to industry stakeholders that are not vessels or tuna canners. The community level includes references to the American tuna industry, or the Pacific tuna industry or other types of fisheries such as albacore in the Northwest Pacific or the fishery of bluefin in the Atlantic Ocean. All articles coded under the two previous categories are excluded from this category.

Each of the three variables is constructed as a ratio of the product of the number of cognitive legitimacy articles at a given level of analysis by their size, on the total number of pages of all the monthly issues published in a given year by the Pacific Fisherman (for the period 1903 through 1964), and by the National Fisherman, and Pacific Fishing (for the period 1968 through 2000).

$$CLP_levels = \frac{\sum (tuna\ articles\ level\ z * size\ tuna\ articles\ cat\ z)}{Total\ number\ of\ pages}$$

F) CLP as categories of organizational knowledge

One of the main objectives of the present research is to explore the mechanisms through which legitimacy operates by understanding what legitimacy is. Therefore, it is an important goal to analyze the different elements that constitute cognitive legitimacy. Considering that this concept refers to the *acceptance of the industry's organizational*

knowledge, the media coverage of the different facets of the industry's organizational knowledge is assumed as an indicator of that acceptance.

The news pieces published in the *monthly issues* of the three trade publications were content analyzed and coded according to different aspects of the industry's organizational knowledge. In order to identify these specific categories I first used the existing theory and empirical research on organizational learning (Aldrich and Baker 2001; Argote 1999; Levitt and March 1988) to identify important areas for accumulation of knowledge in industries and organizations. The next step was to develop a categorical grid based on a grounded approach (Neuendorf 2002: 102-104; see also Singleton and Straits 1999; and Bardin 1977). I selected three sample years that had a high number of news articles (namely, 1940, 1956 and 1964) and constructed the first working grid of coding categories. The third step was to apply the working grid to the remaining years, adjusting and redefining the original categories to the new data until reaching a final coding grid.

The content analysis revealed the following categories of organizational knowledge: 1) *organizational and industrial routines* (refers to news pieces on work systems, labor conflict, price settlements, market regulation, development of infrastructures and facilities, among others), 2) *technology and science* (includes news pieces on technological or scientific inventions, equipments, scholarly or professional pieces on fishery developments, articles on maritime biology or ecology, and the development of educational programs and educational institutions related to tuna fishing), 3) *industry's output or productivity* (articles on amounts and quantities of fish caught or canned tuna produced), 4) *heroes and myths* (news pieces on the industry's heroes or individual participants, such as fisherman, canners, vessel owners, associative leaders, politicians, scientists, governmental employees,

regulators), 5) *isomorphism* (includes articles on the founding or creation of new organizations, such as vessels or canneries, which do not bring any major technological innovation but merely reproduce existing organizational forms. It also includes conversions of tuna clippers into purse seiners), 6) self-assessments (articles on past analysis and future forecasts, and possible strategies of development), and collective action (articles on industry associations and associative leaders). If articles focusing exclusively on the tuna industry did not concern the organizational knowledge of the industry, they would not be included in the measurement.

None of the three trade publications conveyed direct negative assessments of the tuna industry and its organizational members. In the case of news pieces that carried a negative assessment, these were usually directed at external audiences and industry stakeholders not subsumed under the sphere of production, such as federal high-level authorities, foreign competitors. For this reason, I do not measure the “interpretative relevance” of each article, which implies a content analysis based on the valences (e.g., positive or negative assessments) of the articles (Ruef 2000).

I estimate the values given to each category of the tuna industry’s organizational knowledge acceptance as a ratio of the product of the number of articles in a given category of organizational knowledge by the size of the articles, divided by the total number of pages of the monthly issues published in a given year. This value is estimated for each of the 25 years of the observation period sample.

$$CLP_categories = \frac{\sum (tuna\ articles\ category\ z * size\ tuna\ articles\ cat\ z)}{Total\ number\ of\ pages}$$

G) Reliability of measures

To test the reliability (Singleton and Straits 1999) of the legitimacy construct measured through this sampling technique and considering that one measure every four years may mask a high variability of measures in the remaining three years, I selected two 4-year periods in which every year was sampled and measured. Both 4-year periods coincide with critical and eventful regulatory moments in the tuna industry: 1968 thru 1971 and 1972 thru 1975. The Pearson correlation coefficient between these values and the values of CLP1 is 0.9571. Since CLP1 is taken every 4 years, I assigned the value of the sampled year to the following 3 years. Figure 3.1. exhibits the distribution of the cognitive legitimacy variable taken every 4 years, with the values within the interval. Figure 3.2. shows the distribution of both aggregated measures of cognitive legitimacy (CLP1 and CLP2) by years of observation, plus a smoothed version of CLP2 (yearly issues).

Figure 3.1. Comparison between CLP1 and values within intervals

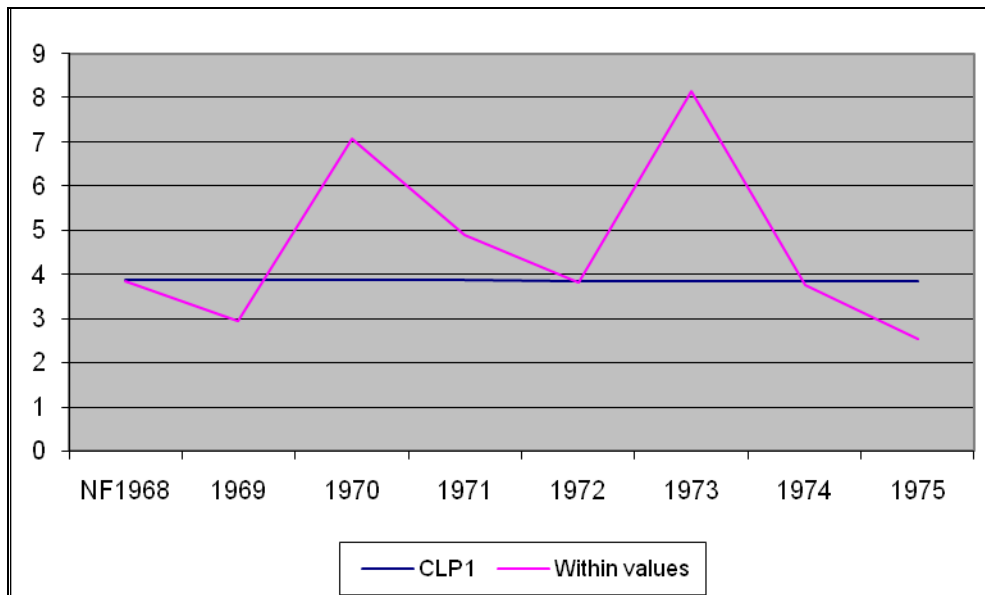
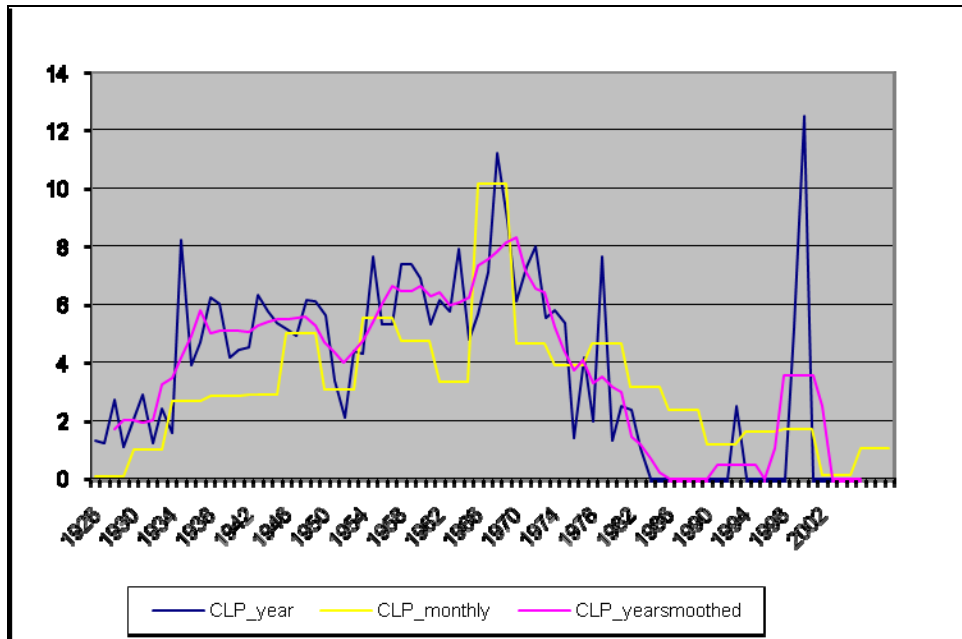


Figure 3.2. Aggregated measures of CLP1 and CLP2 by year

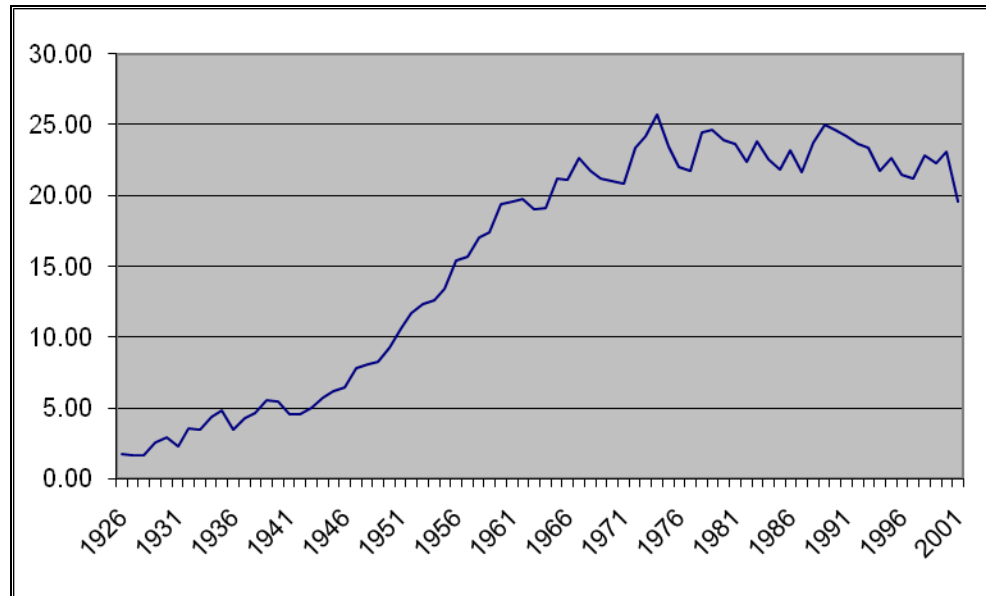


3.3.2. Other Legitimacy Variables

A) *Consumer Acceptance of Industry Legitimacy*

The consumer dimension of cognitive legitimacy is measured as the percentage of canned tuna consumption out of total annual canned fish consumption per capita in the United States. This measure is an indicator of the level of knowledge and use of this product by U.S. consumers, as well as of the market share of canned tuna consumption. Figure 3.3. shows the distribution of this variable by years. The shape of the curve shows that canned tuna consumption gained a significant increase in the fish market share from the 1920s up until the mid 1970s, when canned tuna consumption stabilized and even showed a slight decrease from the 1990s onwards.

Figure 3.3. US canned tuna consumption *per capita* as a percentage of total canned fish (1926-2001)



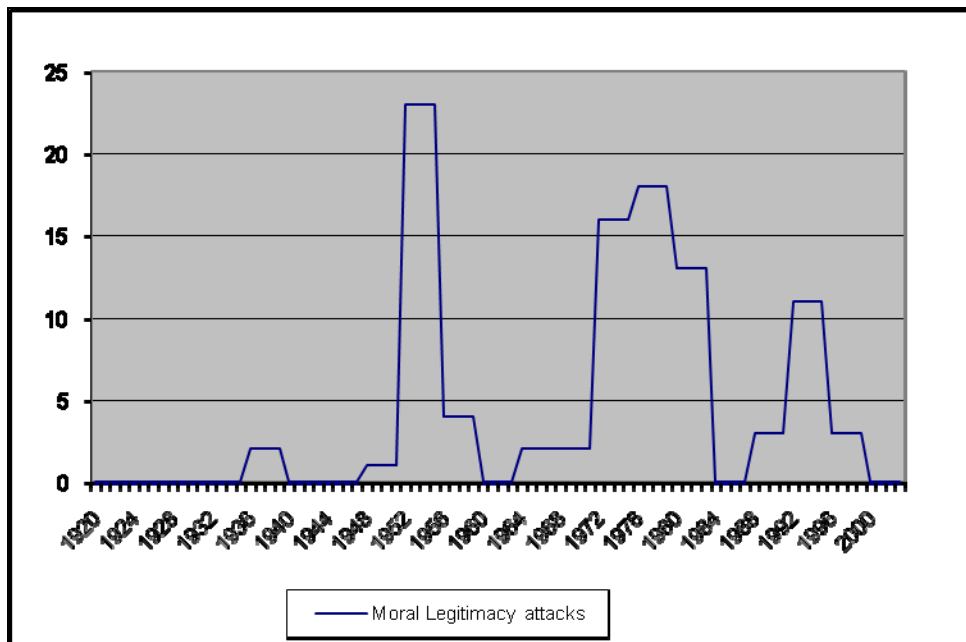
B) Moral Legitimacy

As stated earlier, moral legitimacy refers to the cultural and social conformity existing between an industry or organization's goals and activity systems and the wider values and norms prevalent in the social environment of the industry or organization. Aldrich proposed as a measure of moral legitimacy, the attacks by civil society organizations and its leaders (1999, 2002). This measure presupposes an important feature of moral legitimacy: the fact that the moral legitimacy of an organizational community, population, or organization is taken-for-granted until it is specifically targeted by civil society leaders or organizations. I assume that the social worth of an industry or an organization is generally not questioned and thus it is a given, until the moment when it becomes socially salient under criticism or negative assessment by opinion leaders, civil society organizations, and key stakeholders.

I measure the decrease of moral legitimacy in the tuna industry on the basis of news articles appearing in a print media with a national scope: the *New York Times* (New York

Times Historical Newspaper, Proquest Company). As one of the leading national newspaper in the U.S., the *NYT* not only reflects the general public opinion but it also influences public opinion. Additionally, the life of the newspaper accompanies the period of existence of the tuna industry. In order to measure a decrease in moral legitimacy(i.e. negative moral legitimacy), I use a count of the news articles that are concerned with the negative social impacts of the tuna industry, or any subject that questions the social worth of its goals and activities in general (henceforth referred to as negative articles). This criterion encompasses news pieces that are critical of the tuna industry, those that maintain a neutral tone, and those that are written in a supportive way, alike. In fact, the relevant selection criterion is the article’s subject, which should concern a negative impact of the industry, (e.g., killing dolphins, depletion of fishing stocks through over-fishing, defective canned products causing health hazards, etc.).

Figure 3.4. Negative moral legitimacy in the tuna industry by sample year



Negative moral legitimacy is measured as the number of negative tuna articles appearing in the *NYT* in a given year. I sample this measure every four years, following the sample of years used for the cognitive legitimacy measure. The sample of years already mentioned was used for the analysis of negative moral legitimacy. Figure 3.4. shows the distribution of the aggregated measure of moral legitimacy erosion by years.

My dissertation also analyzes the different types of negative social impacts that the press relates to the tuna industry. In order to accomplish this objective, I examine the negative news articles and constructed a coding scheme of different categories of negative social impacts attributed to the tuna industry. The eight categories were: (1) conflicts over territorial waters, (2) the practice of tuna tariffs on imported tuna, (3) vessel accidents at sea, (4) unethical business practices, (5) overfishing and tuna stocks depletion, (6) the killing of dolphins, (7) health risks carried by canned tuna products, and (8) unethical practices towards consumers.

3.3.3. Tuna-vessel populations' vital rates

For the purpose of the present study, the population of tuna-boats of Southern California is defined empirically as follows: 1) those boats engaged in the tuna fisheries in the Eastern Tropical Pacific, 2) based in the ports of San Diego (CA), and San Pedro (CA), 3) identified as tuna-clippers and giant purse-seines, 4) founding during the period 1926-2002.

The *founding date of a tuna-vessel* is considered to be the beginning of the vessel's tuna-fishing activity in the ETP. There are two ways for the vessels to enter the ETP tuna fishery: either the vessels transfer from another fishery, or they are built new and enter the fleet directly. I coded both types of entry as the same founding event. Accordingly, there are different forms of exit from the tuna fleet: a vessel may be lost at sea (through fire, sinking,

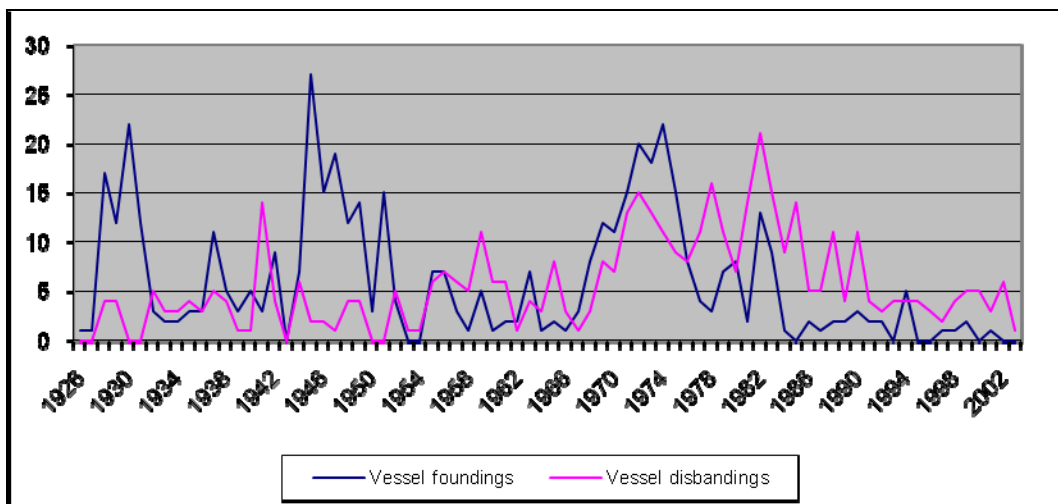
etc), transferred to other fisheries, or sold to a foreign fleet (USITC, 1992). I coded all these different exit forms as *disbandings*. Foundings and disbandings are recorded in years.

The main source of data on foundings and disbandings is a dataset constructed for this research which is based on two preexisting datasets and complemented by documentary sources. One of the preexisting datasets is from the National Marine Fisheries Service/ South West Region (NMFS/SWR), which has historical vessel information on the U.S. tuna cannery baitboat and purse seine fleets. The first record of the NMFS/SWR dataset dates back to 1927, and includes data on the dates when each vessel entered or left the fishery, the vessel's name, vessel's gear type, vessel's estimated capacity in tons, and identifies the specific type of exit from the tuna fleet. The second pre-existing dataset is from the Inter-American Tropical Tuna Commission (IATTC) and has information on U.S. tuna vessels operating in the Eastern Pacific Ocean. The IATTC dataset covers the period 1955 to 2000 and has data on the vessel's name, gear type, years of activity, area of the fishery, the vessel's carrying capacity, and other additional measures of size (such as gross weight, net weight, and length). Both datasets did not present exhaustive data on existing vessels, particularly at the beginning of the tuna clipper period.

In order to address possible gaps in the data, I used the Pacific Fisherman and National Fisherman Yearbooks, which published on an irregular basis listings of the boats that constituted the Southern California tuna fleet. The type of information published in these listings varies, but it usually included vessel data on the managing owner, the builder, carrying capacity, and length. Moreover, the Yearbooks' annual reports of the industry, usually mentioned the vessels that entered the tuna fleet, the vessels that exited, and the reasons for the exit. In addition, several papers published on the tuna fisheries cover partial

periods of the Southern California tuna fleet, with focus on specific types of vessels, and/or specific types of tuna. All these papers were used as complementary data sources in order to cross check information on the numbers of boats for specific periods (Godsil 1938; Anderson and Stolting 1956; Bureau of Marine Fisheries 1949; Felando 2003; Shimada and Schaefer 1956; USITC 1992). Figure 3.5. presents data on tuna vessel foundings and disbandings, respectively.

Figure 3.5. Southern California tuna vessels (1926-2003)

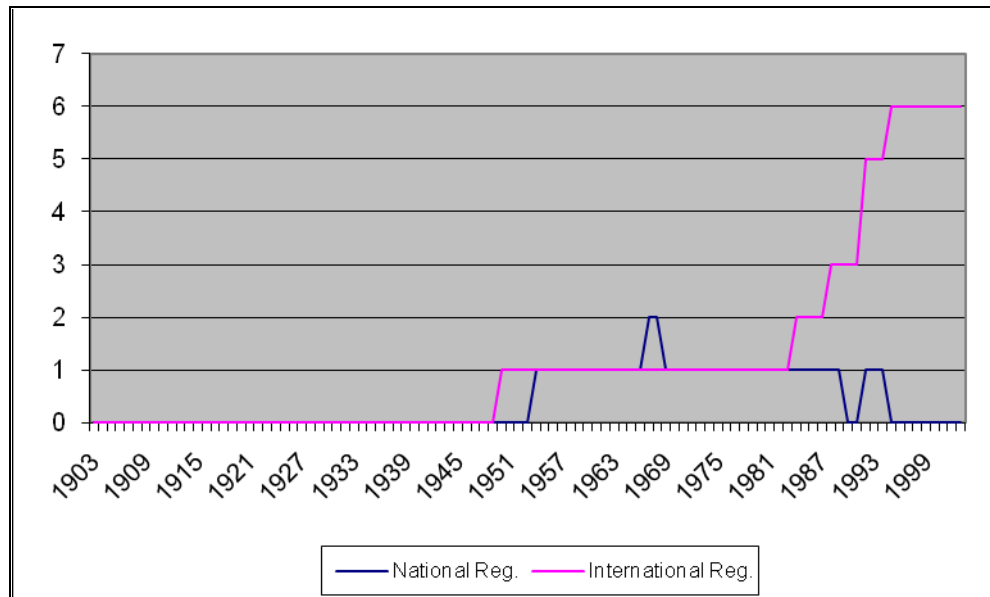


3.3.4. Regulatory environment

Some of the laws that characterized the regulatory environment of the tuna industry had a beneficial impact on the industry (such as the Fishermen Protective Act of 1954) while others (such as the Marine Mammal Protection Act of 1972) were seen as restricting the growth of the tuna fisheries in the ETP. In my dissertation, I use two regulatory variables: one variable measures how national regulations affect the tuna industry by assigning the value of “1” for every beneficial regulation, the value of “0” for each mixed effect regulation, and the value of “-1” for each restrictive regulation. The higher the positive value the more beneficial the regulatory environment, and vice-versa, the higher the negative value the more

restrictive regulations are in place. The second measure sums the number of international regulations in place. All variables were constructed on the basis of documentary sources providing technical and historical information on the tuna industry and also on the basis of the Pacific Fisherman, National Fisherman, and Pacific Fishing publications¹¹. Figure 3.6. presents the distribution of the variable national regulations and international regulations.

Figure 3.6. National and international regulations in the tuna industry (1903-2003)



¹¹ The national regulations identified in the measure were the following:

- (1) *Restrictive National Regulations*: Endangered Species Conservation Act (1969-1972) repealed by Endangered Species Act (1973 – active); Marine Mammal Protection Act (1972 – active); Dolphin Protection Consumer Act Information (1990 – active); High Seas Fishing Compliance Act (1995 – active);
- (2) *Mixed National Regulations*: Bartlett Act (three mile fishery jurisdiction and twelve mile fishery jurisdiction) (1964 - 1975); Magnuson-Stevens Fishery Conservation and Management Act (1976 - 2003);
- (3) *Positive National Regulations*: Fishermen's Protective Act of 1967 (until now) includes Pelly Amendment 1971; Central, Western, and South Pacific Fisheries Development Act (1972 - until now); National Oceanic and Atmospheric Administration Marine Fisheries Program Authorization Act (1992- until now); Saltonstall-Kennedy Act of 1954 (1954 - until now);
- (4) *International Agreements and Regulations*: Tuna Conventions Act of 1950 (1950 - until now); Eastern Pacific Ocean Tuna Licensing Act (1984 - until now); South Pacific Tuna Act (1988-until now); International Dolphin Conservation Act (1992 until now); High Seas Driftnet Fisheries Enforcement Act (1992 - until now); High Seas Driftnet Fishing Moratorium Protection Act (1995 - until now).

3.3.5. Ecological variables

In order to test my direct measures of legitimacy with the ones used by ecological studies, I use *tuna fleet organizational density*, which is defined as the number of vessels contained in a population in a given period (Hannan and Carroll 1992), *total number of foundings* in a given year, and *total number of disbandings* in a given year. These variables are constructed on the basis of my tuna vessel dataset.

3.3.6. Control variables

The following variables are used as control variables: total vessel capacity (the sum of all vessel capacity in a given year); individual vessel capacity (which corresponds to the capacity registered by a vessel at the time of its founding); total tuna landings caught by the Southern California tuna fleet; vessel gear (a dummy variable which assigns “1” when the vessel is founded as a tuna clipper); change in gear (a dummy variable which assigns “1” when there is a change of gear; most conversions were from tuna clippers to purse seiners); and World War II (a dummy variable which assigns the value “1” for the years 1942 thru 1944).

3.4. METHODS AND DIAGNOSTICS

In this section I identify the methods chosen to test the effects of legitimacy on vessel foundings and disbandings. I also describe the diagnostic measures taken to check the adequacy of the data.

The method used to examine vessel foundings is a negative binomial regression. The dataset on the tuna vessels operating in the ETP provides information on the year in which each tuna vessel entered the ETP tuna fisheries. As Carroll and Hannan suggest (2000) founding times based on a discrete reading of time should be analyzed as aggregated count

variables when the dependent variable does not follow a normal distribution. The number of vessels founded in a given year – the dependent variable in this analysis - is a count variable. Since the conditional variance (41.27) of the dependent variable is larger than its conditional mean ($\mu=6.05$), the distribution of foundings violates one of the requirements of a *Poisson* distribution. This characteristic of the data may cause inefficiency in the estimates of the *Poisson* regression and a bias in the standard errors (Long 1997). I also ran the models with a *Poisson* regression and the full model showed a deviance value/DF of 3.00, which suggests the existence of over-dispersion (i.e., normal value is close to 1). As a result, I have chosen to use a negative binomial model which deals with ill-dispersed variables and has the following formulation (Long 1997):

$$\mu_i = \exp(x_i\beta + \varepsilon_i)$$

In order to study tuna fleet disbandings I use event history analysis methods. The dependent variable is the hazard of tuna fleet disbandings. The event history dataset is organized in a stacked format, this is has one record for each boat per year. It has a total of 468 vessels distributed across 7854 vessel-year records. There are 435 vessel disbandings and 31 censored cases. I use a discrete logit model which assumes that the events occur only at discrete moments in time (Allison, 1995). The logit model for discrete time is:

$$\log (P_{it} / (1 - P_{it})) = \alpha_t + \beta_1 \chi_{it1} + \dots + \beta_k \chi_{itk}$$

In both discrete-time and negative binomial regression models the measure of producers' cognitive legitimacy (based on monthly issues) is constructed as a dummy variable. In order to build the dummy variable I ranked all the values of the continuous variable and split them into two groups. I assigned the value of "1" to the group with highest values, and "0" to the group with lowest values. The dummy variable is named *high*

cognitive legitimacy, with low cognitive legitimacy as the reference category. I applied a similar design also to the three variables measuring cognitive legitimacy at different levels of analysis, and to the seven variables measuring different types of cognitive legitimacy (i.e. organizational knowledge). The reason for opting for indicator variables in the construct of cognitive legitimacy is that the continuous measurement of cognitive legitimacy does not show a significant effect when regressed against foundings of tuna vessels. However cognitive legitimacy as a dummy variable shows a significant effect on vessel foundings. Cognitive legitimacy shows very similar and significant effect on disbandings in either form (i.e., as a dummy variable or as a continuous variable). However in order to keep the consistency I use a dummy variable of cognitive legitimacy in both analysis.

For each set of models, I ran diagnostic measures. I use V.I.F. and tolerance estimates to check for the presence of multicollinearity among the independent variables. Whenever an independent variable shows multicollinearity I either replace it with a similar variable or drop it from the model. I also check the negative binomial models for the presence of autocorrelation. I use the Durbin Watson d-statistic to test for the presence of autocorrelation. No models presented in my research exhibit this type of bias. In the next chapter, I present my analysis testing the aggregated measures of legitimacy on the vessel foundings and disbandings.

Table 3.1. Descriptive statistics

Variable Name	Aggregated Dataset		Event history dataset	
	Mean	Std. Deviation	Mean	Std. Deviation
CLP1_monthly	3.3	2.2	3.8	2.2
CLP2_year	3.9	3.1		
CLP1_organizational	1.2	1.0	1.4	1.1
CLP1_population	1.1	1.0	1.2	1.0
CLP1_community	1.0	0.9	1.3	0.9
CLP1_routines	0.6	0.6	0.6	0.6
CLP1_technology&science	1.1	0.9	1.3	0.9
CLP1_outputs	0.5	0.7	0.5	0.6
CLP1_isomorphism	0.9	0.97	1.1	1.1
CLP1_heroes	0.0	0.1	0.1	0.1
CLP1_self assessment	0.1	0.2	0.1	0.2
CLP1_collective action	0.1	0.1	0.1	0.1
CLC_consumer	15.6	8.3	17.4	7.0
Moral Legitimacy	5.0	7.0	6.8	7.9
Vessel Density per year	96.6	44.9	117.2	37.5
Vessel Foundings per year	6.1	6.4	_____	_____
Vessel Disbandings per year	5.6	4.5	6.5	4.8
Vessel Foundings	_____	_____	1.9	0.2
Vessel Disbandings	_____	_____	1.9	0.2

National positive regulation	0.5	0.6	0.7	0.5
International Regulation	1.6	1.9	1.3	1.4
Total vessel capacity	456.509	337.018	_____	_____
Tuna landings	1728	1207	2.2	1.1
WW2 (1942-44)	0.05	0.22	0.0	0.1
Individual Vessel Capacity	_____	_____	457.757	399.959
Vessel Gear (tuna clipper)	_____	_____	0.58	0.49
Change in Gear (Yes)	_____	_____	0.34	0.47

CHAPTER 4

**ANALYZING THE EFFECTS OF LEGITIMACY ON FOUNDINGS AND
DISBANDINGS OF TUNA VESSELS**

4.1. INTRODUCTION

In this chapter I study the effects of three forms of legitimacy on the foundings and disbandings of tuna vessels. I examine cognitive legitimacy from the producers' perspective, cognitive legitimacy from the consumers' perspective, and negative moral legitimacy in their aggregated forms. The measure of producers' cognitive legitimacy is constructed as a dummy variable named "high cognitive legitimacy." This variable indicates the years in the sample that recorded higher levels of cognitive legitimacy in comparison with the years that registered lower levels of producers' cognitive legitimacy. The measure of negative moral legitimacy reflects the degree to which the public began to identify certain negative consequences resulting from tuna industry activities. Since this variable is based on a generalist newspaper, this measure is meant to represent existing social perceptions of the negative consequences of the tuna industry. Consumers' cognitive legitimacy is measured as the percentage of canned tuna consumption out of total fish consumption. Not only does this measure represent the degree of acceptance of *canned tuna* as a product among consumers, it also reflects the market share of this product *vis-à-vis* other competitive products.

I also included two measures of the regulatory environment: 1) national regulations and 2) international regulations. These reflect regulatory authorities' degree of acceptance of a given business activity or products. To test whether direct measures of legitimacy are

significant when adjusting for more-established ecological measures of legitimacy, I also include variables representing the previous year's foundings and disbandings and population density in my analyses of vessel foundings and disbandings.

In the first section, I examine the effects of legitimacy on the foundings of American tuna vessels operating in the Eastern Tropical Pacific waters. The results show that high levels of cognitive legitimacy (in comparison with low levels of cognitive legitimacy) are positively associated with foundings. This effect holds with adjustment for the significant positive effect of the number of previous foundings. Additionally, the one year lagged variable of vessel density has also a significant negative effect on the expected number of foundings. Public perceptions of the negative impacts of the tuna industry as well as national regulations have no effect on the foundings of vessels. However, international regulations decrease significantly the expected number of foundings.

The second section analyzes the effects of legitimacy variables and the regulatory environment on tuna vessel disbandings. Using event history analysis to study vessel disbandings, I first present life tables of the hazard and survival rates of vessel disbandings. Two different methods of counting the duration of time until event occurrence are possible. One method counts the duration of time as *organizational age*. This method counts the number of years from the founding of a particular vessel until it was disbanded or censored. The second method counts the duration of time as *historical time (i.e. the period effect)*, this is, from the emergence of the population of tuna vessels in 1926 until each vessel was disbanded or censored. Methodological limitations make organizational age a more appropriate method of counting time, but historical time provides different exploratory perspectives on the data. Additionally, I examine different specifications for the main effect

of time on the disbandings' baseline function, and conclude that the best time specifications to use in discrete time event history models of vessel disbandings are 1) a quadratic specification, and 2) an indicator variable representing the tuna industry pre-regulatory period versus the regulatory period.

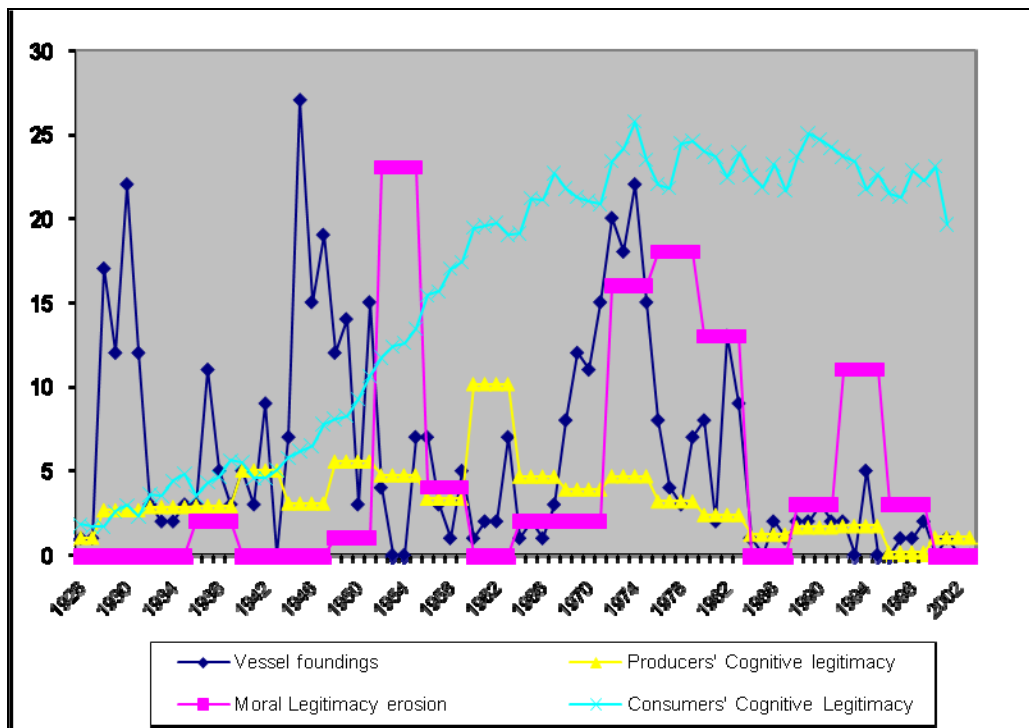
The discrete time event models of disbandings show that producers' cognitive legitimacy at high levels decreases the odds of vessel disbandings, thus promoting the retention of vessels in the tuna fleet. Among the ecological variables, only vessel density presents a significant negative effect in the odds of disbandings. The findings presented in the full model show that consumers' cognitive legitimacy and negative moral legitimacy have no influence on tuna vessel disbanding. National and international regulations were also found to be non-significant..

4.2. THE ROLE PLAYED BY LEGITIMACY PROCESSES IN TUNA VESSEL FOUNDINGS

Figure 4.1. shows the frequency of vessel foundings and the level of producers' cognitive legitimacy, consumers' cognitive legitimacy and moral legitimacy during the study's observation period. During this period, vessel foundings register peaks in 1930, 1945, and 1974. The peak in 1930 corresponds to the period in which tuna clippers became important organizational forms; the 1945 peak corresponds to the post-war period; and the peak in 1974 corresponds to the rise of purse seiners. Producers' cognitive legitimacy reached its highest values around 1960 during the period of the conversion of tuna clippers into purse seiners. This conversion represented an important effort and financial investment of the industry. Producers' cognitive legitimacy gradually decreased until the end of this study's observation period.

The consumption of canned tuna as a percentage of the total amount of consumed fish gained a considerable amount of market share in the U.S. over the study period. From the end of W.W.II until 1974, canned tuna steadily gained in market share against other fish products: namely salmon and sardines (from 4.54 up to 25.73). From the 1970s onwards however, the market share of canned tuna plateaued and even registered a small downward trend. This trend in the canned tuna's market share paralleled changes in the per capita consumption of canned tuna, which reached its peak in 1989 at 3.9 pounds and steadily decreased to 2.9 in 2003. Negative moral legitimacy registered three main peaks: 1952-55, 1972-79, and 1992-95. As we will see in the next chapter, increases in negative reports about the tuna industry correspond to issues concerning 1) the setting of a tariff on tuna imports in the 1950s, 2) dolphin by-catch and the conflicts over territorial waters during the 1970s, and 3) the reappearance of the issue of dolphin by-catch in the 1990s.

Figure 4.1. Frequencies of tuna vessel foundings, cognitive legitimacy and moral legitimacy (1926-2003).



To examine the effects of legitimacy on vessel foundings I use negative binomial regression analysis. The explanatory variables in this analysis are grouped into three main sets. The first set includes aggregated measures of cognitive and moral legitimacy variables. I use a dummy variable indicating a one year lag in producers' cognitive legitimacy¹² and another indicating a one year lag in negative moral legitimacy. As mentioned in chapter three (Methodology), I dichotomized cognitive legitimacy into high and low legitimacy because in its continuous form cognitive legitimacy did not show a significant effect on tuna vessel foundings. Differences in findings may suggest that cognitive legitimacy is important for foundings only after a certain threshold of cognitive legitimacy is achieved. Values below the specific threshold will not be relevant for foundings, independently of what that value might be.

The initial model includes a measure of cognitive legitimacy from the perspective of the consumer. However, the variable measuring the consumer dimension of cognitive legitimacy (*percentage of canned tuna as a part of total fish consumption*) is not significant in the model. Additionally, the consumer variable exhibits a variance inflation factor (VIF) of 18 (cutoff point is circa 10) suggesting the presence of multicollinearity, and a Pearson correlation coefficient of 0.83 with vessel capacity. Therefore this variable is not included in the model. The second set of explanatory variables corresponds to classical ecological explanations of organizational foundings. I use one-year lagged measures of organizational density (the number of vessels founded in a given year) and organizational foundings

¹² As mentioned in chapter 3 (Methods) for terminology simplicity I refer to “producers’ cognitive legitimacy” as “cognitive legitimacy”, and maintain the term “consumers’ cognitive legitimacy.”

(number of entries in the tuna fleet in a given year)¹³. I opted not to use squared measures of density and foundings since not only did these variables register high levels of multicollinearity with other variables in the model but they were also not significant in the full model. The third set of explanatory variables corresponds to the regulatory environment. It includes the variable national regulation (where higher values correspond to more beneficial regulatory environments) and international regulations.

The main control variables used in the present analysis include 1) industry productivity, 2) vessel size, and 3) a dummy variable indicating the period of World War II. Industry productivity was measured by the total number of tuna landings per year of the Southern California tuna fleet. Vessel size corresponds to the total tuna vessel capacity per year. In ancillary analyses, I also examined the effects of a 1) one-year lagged variable of the real gross domestic product, 2) industry competition, as measured by the proportion of total landings divided by total vessel capacity, and 3) a set of three dummy variables indicating three main periods of the tuna industry (i.e., the tuna clipper, purse seiner, and regulatory periods). These variables were not however included in the final model since they exhibited high multicollinearity and were not significantly associated with tuna foundings in the full models.

Table 4.1. presents results from four negative binomial models analyzing the founding process of the American tuna fleet in the Eastern Tropical Pacific. The first model estimates coefficients for the legitimacy variables, the second model tests ecological variables, the third model examines regulatory legitimacy variables, and the fourth model tests the full model. All independent variables were lagged one year, with the exception of

¹³ I also modeled ecological variables with disbandings and squared disbandings, but the improvement on the model was insignificant and it would add extra two parameters to the model.

the regulatory variables, and W.W. II. The reference categories for dummy variables are shown in parentheses. All models were estimated using the *proc genmod* command in SAS, version 9.

Likelihood ratio tests were used to compare models 1, 3 and 4 to evaluate if the full model (model 4) provides an improved fit over the preceding models. The likelihood ratio test assessing the difference between model 1 and model 3, showed that the additional parameters included in model 3 jointly improved the fit of the model ($X^2=25.73, p=0.005$). Similarly, the tests show that the new parameters in model 4 provided a greatly improved fit compared to model 3 ($X^2 = 27.57, p= 0.005$).

Table 4.1. Coefficients from Negative Binomial Models of the Logs of Expected Foundings of Tuna Vessels

<i>Independent Variables</i>	<i>Model 1 Legitimacy Variables</i>	<i>Model 2 Ecological Variables</i>	<i>Model 3 Legitimacy & Regulatory Environment</i>	<i>Model 4 Full Model</i>	<i>Model 4 Full Model % of factor changes (100[exp(β)-1])</i>
Intercept	1.429*** (0.187)	1.199*** (0.2595)	1.983*** (0.2097)	2.229 *** (0.304)	829.06%
High Cognitive Legitimacy (low) (t-1)	0.7129** (0.248)	_____	0.3416 (0.2474)	1.152** (0.377)	216.45%
Negative Moral Legitimacy (t-1)	-0.0095 (0.183)	_____	0.013 (0.0182)	0.003 (0.017)	0.3% (N.S.)
Vessel Density (t-1)		-0.0007 (0.002)	_____	-0.028*** (0.007)	-2.761%
Vessel Foundings (t-1)		0.085*** (0.018)	_____	0.0498** (0.016)	5.022%
National positive regulation			-0.0583 (0.2386)	0.217 (0.244)	24.23% (N.S.)
International Regulation			-0.3958*** (0.0786)	-0.268** (0.093)	-23.509
Total vessel capacity (t-1)				0.0010* (0.0005)	0.1%
Tuna landings (t-1)				0.0005* (0.0002)	0.05%
WW2 (1926- 1942;1945-2003)				-1.064* (0.502)	-65.493%
N	77	77	77	77	
Dispersion	0.9211 (0.183)	0.6926 (0.153)	0.6231 (0.1361)	0.323 (0.094)	

Log-likelihood	520.6525	528.5129	533.517	547.3013
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Standard error in parenthesis.

*p<.05; **p<.01; ***p<.001.

When all variables in the full model are set to zero the logs of expected counts of vessel foundings is 2.229 (i.e. the value of the intercept). High levels of producers' cognitive legitimacy showed a more positive effect on foundings than lower levels of cognitive legitimacy. In other words, high levels of cognitive legitimacy increase the logs of expected foundings compared to low levels by 1.152, holding the remaining variables constant. In order to ease the interpretation of coefficients, I calculated percentages of factor changes for each coefficient (Long 1997:223-230): high cognitive legitimacy increases the expected number of foundings by 216.45%, holding all other variables constant (see column 5 in Table 4.1.). This finding supports hypothesis one that states that cognitive legitimacy from the producers' perspective (i.e. accepted organizational knowledge) has a significant effect on vessel foundings.

Negative moral legitimacy, on the other hand, has no significant impact on vessel foundings. In other words, when tuna entrepreneurs made the decision to enter or add a new boat to the existent fleet, reports of the negative social or environmental impacts of the tuna industry or the existence of conflicts between the industry and other social groups or interests was irrelevant for their decision. Thus, hypothesis six is not confirmed. This result is important because it suggests that in deciding to found a new organization, entrepreneurs give more importance to the cognitive acceptance of an industry's organizational forms and the industry's products or services than to any moral and ethical issues surrounding the industry. However, qualitative research indicated that many of these entrepreneurs had previous links to the industry through previous ownership of tuna vessels, previous work

experience in the industry, or were from tuna fishermen families. If one is already a member of an industry and has accumulated knowledge of that industry, they may be less likely influenced by negative exposure than entrepreneurs who may still choose among alternative industries (or at least industries which do not have negative exposure).

The two ecological variables proved to be important in explaining foundings. First, for each additional vessel in vessel density, the expected number of vessel foundings decreases by 2.761%, holding other variables constant. This finding contradicts conventional ecological theories in which density is expected to have a positive impact on foundings, while density squared is expected to have a negative impact¹⁴ (Carroll and Hannan 2000). However, this type of effect may reflect organizational environments where resources are more limited (such as direct dependence on natural resources), and thus potential entrepreneurs may perceive large numbers of organizations as direct competition from an early period in the industry's existence. Earlier research on organizational ecology has shown the existence of pure competitive processes as measured by organizational density, particularly when organizations have similar resource requirements (Baum 1996). This is certainly the case in the present research, where although there are two different organizational forms (tuna clippers and purse seiners), they both compete for the high seas tuna species in the E.T.P.

Second, in terms of vessel foundings, the number of foundings in the previous year had a positive impact on vessel foundings, contributing as much as a 5.02% increase in the expected number of vessel foundings. These two findings suggest that potential entrepreneurs look at vessel density as a signal of competition and industry saturation, whereas the previous

¹⁴ I also ran the model with vessel density squared and the coefficient had a value of zero and was insignificant.

year's foundings may signal a degree of confidence that other potential entrepreneurs have in the organizational form or organizational population.

In terms of the effects of regulatory systems on organizational foundings, international regulations appear to be more influential on vessel foundings than national regulations. National regulations are not significant, but international regulations have a significant and negative effect on foundings. For each international regulation related to the tuna industry that is introduced into the regulatory environment the expected number of foundings decreases by 23.51%. International regulations do not refer to regulations created in foreign countries; instead they concern those regulations that are formulated at an international level, by a group of countries in which the United States is included. An example of an influential international regulation is the International Dolphin Conservation Program of 1992 (also known as the 1992 La Jolla Agreement), and later reinforced in 1999. This agreement was managed by the Inter-American Tropical Tuna Commission and established a set of conservation measures to be undertaken by the ETP fishing nations who ratified the agreement. Among other measures, it established annual dolphin mortality quotas, and managed an observers' program with the presence of IATTC observers aboard tuna vessels. Although environmentalists criticized the weak enforcement of the agreement, nevertheless it imposed a limit on dolphin mortality through tuna purse seining, and therefore restricted tuna fisheries in the ETP.

Because the American tuna fleet in the ETP was fishing in international waters, international agreements were more likely to regulate such fisheries and therefore interfere in national fisheries. An additional interpretation is that entrepreneurs and producers of the American tuna industry felt that they had lower degrees of control over what is decided in the

international regulatory arena, and therefore perceived international regulations as more threatening to their activities. Moreover, these international platforms also offer a channel for different countries and competitive fisheries to voice their own interests and exert their own influence.

Several of the model's control variables also showed significant effects on tuna vessel foundings. Total vessel capacity per year and yearly catch of tuna (tuna landings) both had a positive impact on vessel foundings. World War II had a negative effect of 65.49% on the expected number of foundings. WW II had a number of diverse and complex effects on the tuna industry. On the one hand, the American armed forces overseas constituted a new market for canned tuna. On the other hand, many tuna clippers were required to assist military operations in the Pacific, and temporarily left the tuna fisheries. This temporary absence from the tuna fleet is not reported as a vessel disbanding since I only recorded non-temporary exits. However, this absence is reflected in the tuna landings, since the years of 1941 to 1944 registered lower levels of tuna catch. The war also produced some uncertainty in the setting of tuna prices since the insurance costs of the fishing fleets and crews operating in the Pacific increased as a result of increased war risks. These factors may have led some entrepreneurs not to enter the fishery during this period and could thus help explain the decline in the number of foundings during this period. The end of WW II marked the return of many tuna clippers to the tuna fleet (which again are not recorded as foundings) and also new vessel entries into the fleet. Many of the new entries borrowed from technologies and equipments used in military vessels, such as radio telecommunication, and sonar and radar technologies.

Producers' cognitive legitimacy and the two ecological variables both contribute to explain vessel foundings, with each providing insight into different aspects of organizational foundings. There are thus substantive and empirical grounds for the use of direct measures of legitimacy. Hypothesis three, which states that direct measures of cognitive legitimacy are expected to have a significant positive effect on tuna fleet founding rates, even when the tuna fleet population density and lagged number of foundings is controlled for, is confirmed. This confirmation does not include consumers' cognitive legitimacy.

4.3. THE EFFECTS OF LEGITIMACY IN THE DISBANDINGS OF TUNA VESSELS

4.3.1. Hazard and survival functions for tuna vessels' disbandings

In this section, I present life tables of the hazard and survival rates for the Southern California tuna vessel disbandings. Two different methods are used for counting the duration of time: organizational age and historical time. The tuna vessels dataset has a total of 468 vessels in the dataset, distributed across 7854 vessel-year records. There were 435 vessel disbandings, and 31 cases of censored vessels. The censored cases correspond to those vessels that were still in activity when the observation period of the study ended in, 2003.

The time unit used in the construction of the life tables is the year. One of the main components of life tables is the "duration" of event histories for each vessel until event occurrence (Allison, 1995; Singer and Willet, 2003). The duration of the event histories for each vessel was measured using two different conceptions of "starting time:" 1) duration as the number of years since the vessel founding year until the disbanding year of the vessel (i.e. organizational age) and 2) duration defined from the year in which the organizational population of tuna clippers was founded (i.e., 1926) to the year in which the vessel disbanded (i.e. historical time). Both these methods of counting time are similar to the components of

an evolutionary-historical framework described by Aldrich and Ruef (2006) as age effect and period effect, respectively.

I estimated the survivor and hazard rates of vessels' disbandings using the life-table or actuarial method calculated with the *proc lifetest* command in SAS, version 9. When duration is counted from the founding of a particular vessel, the minimum number of years until disbanding is 1 and the maximum number of years until disbanding is 59. Considering the relatively high number of years registered, I grouped the years of duration into four year intervals (corresponding to the existing sample of legitimacy measures). The life table can be seen in Table 4.2. Figures 4.2. and 4.3. show hazard and survival rates of tuna fleet disbandings:

Table 4.2. Life Table describing tuna fleet disbandings (time from tuna vessel foundings)

<i>Interval</i> <i>[Lower, Upper)</i>	<i>Number</i> <i>Failed</i>	<i>Number Censored</i>	<i>Effective Sample</i> <i>Size</i>	<i>Survival</i> <i>function</i>	<i>Hazard function</i> <i>(midpoint)</i>
0 1	0	0	468	1	0
1 5	59	1	467.5	1	0.0337
5 9	57	2	407	0.874	0.0376
9 13	77	1	348.5	0.751	0.0621
13 17	60	4	269	0.585	0.0628
17 21	29	1	206.5	0.455	0.0378
21 25	44	9	172.5	0.291	0.0731
25 29	52	4	122	0.291	0.1354
29 33	23	5	65.5	0.167	0.1065
33 37	19	1	39.5	0.108	0.1583
37 41	5	1	19.5	0.056	0.0735
41 45	6	0	14	0.042	0.1364
45 49	4	0	8	0.024	0.1667
49 53	1	0	4	0.012	0.0714
53 57	1	0	3	0.0089	0.1
57 .	0	2	1	0.0059	

Figure 4.2. Hazard function for tuna fleet disbandings (time from vessel founding)

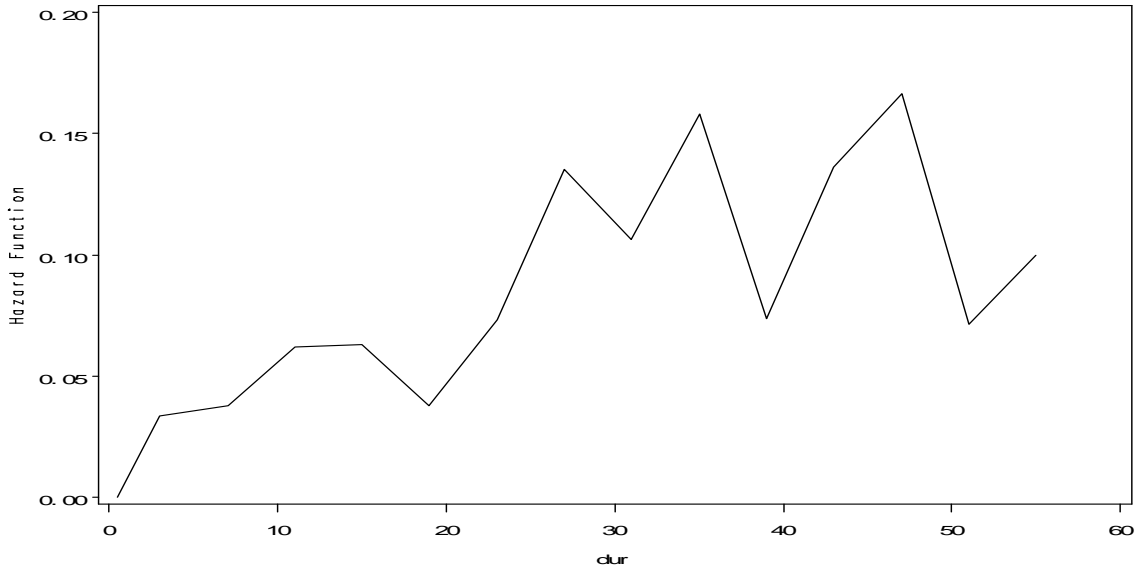
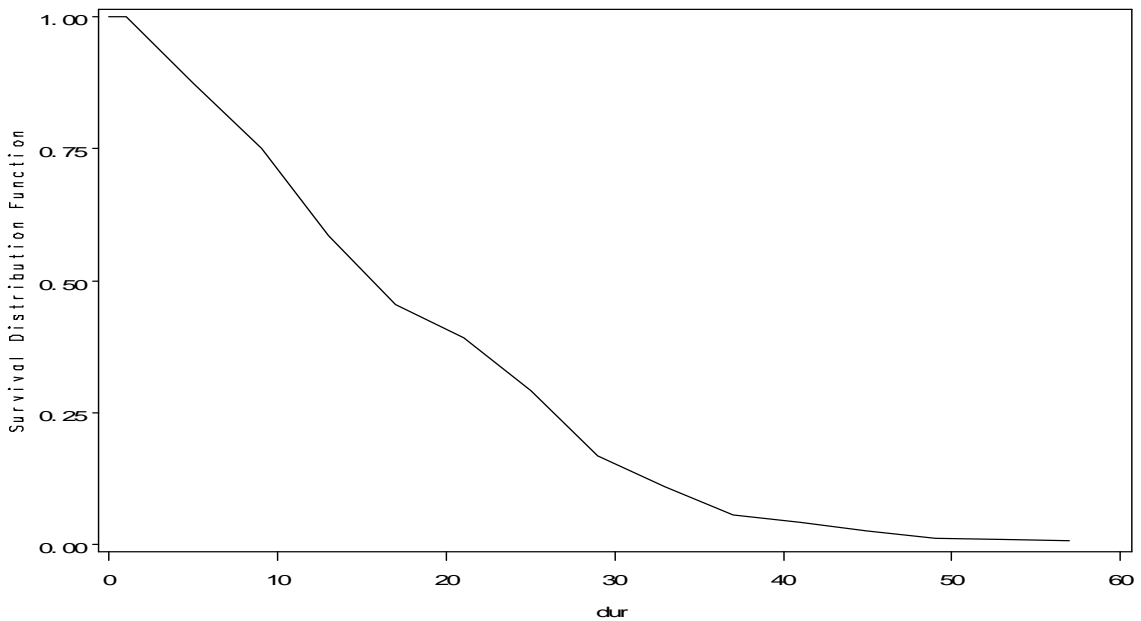


Figure 4.3. Survival function for tuna fleet disbandings (time from vessel founding)



The hazard estimates correspond to the hazard at the midpoint of each interval (Allison, 1995) and refers to the conditional probability of a vessel i experiencing the event of disbanding in the time interval j , given that the event was not experienced before (Singer

and Willet, 2003). As shown in Table 4.2., the risk of disbanding becomes higher as vessels become older. In addition, certain age groups show particularly high risk levels for disbanding (for instance, age groups 25-29, 33-37, 41-45, and 45-49). Looking at the shape of the hazard function (Figure 4.2.) one can observe that initially the risk of disbanding is low and it is characterized by multiple peaks occurring at the time periods referred to above. This shape can be better defined as a non-monotonic hazard function, since although the hazard of disbanding tends to increase until year of duration 25, afterwards the hazard function registers multiple peaks and dips. Although incomplete, since the hazard function is not controlling for other important effects such as organizational size, the hazard shape does not correspond to the more frequent findings in organizational theory where organizational disbandings are expected to occur at higher rates among younger organizations (Carroll and Hannan 2000). The estimated median lifetime given by the survivor function (Figure 4.3.) is between the intervals 13-17 and 17-21.

Next, I present the second type of hazard and survival functions, which give information on the historical time (also known as period effect) by measuring duration since the year 1926 until disbanding occurs. The minimum value for the duration variable is also 1 and the maximum is 78 years (i.e., $1926+78=2004$). For this type of measurement, the risk set artificially assumes that all tuna vessels were in existence in 1926. The corresponding life table can be seen in Table 4.3., and the hazard and survival functions of the tuna fleet disbandings are plotted in Figure 4.4. and Figure 4.5.

Table 4.3. Life Table describing tuna fleet disbandings (time from 1926)

Interval [Lower, Upper)		Number Failed	Number Censored	Effective Sample Size	Survival function	Hazard function (midpoint)
0	1	0	0	468	1	0
1	5	8	0	467.5	1	0.0043
5	9	8	0	407	0.983	0.0044
9	13	15	0	348.5	0.966	0.0084
13	17	20	0	269	0.934	0.0117
17	21	12	0	206.5	0.891	0.0073
21	25	11	0	172.5	0.865	0.0069
25	29	6	0	122	0.842	0.0038
29	33	20	0	65.5	0.829	0.0132
33	37	28	0	39.5	0.786	0.0198
37	41	16	0	19.5	0.727	0.0120
41	45	15	0	14	0.692	0.0118
45	49	48	0	8	0.66	0.0421
49	53	39	0	4	0.558	0.0404
53	57	48	0	3	0.474	0.0606
57	.	143	31	1	0.372	.

Figure 4.4. Hazard function for tuna fleet disbandings (time from 1926)

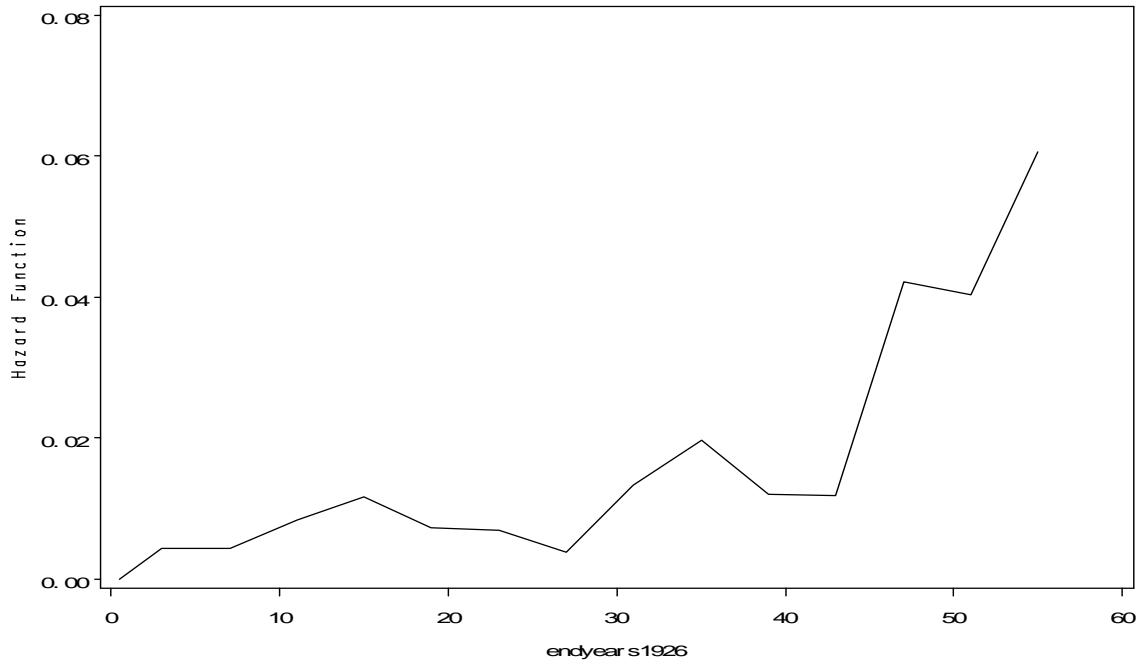
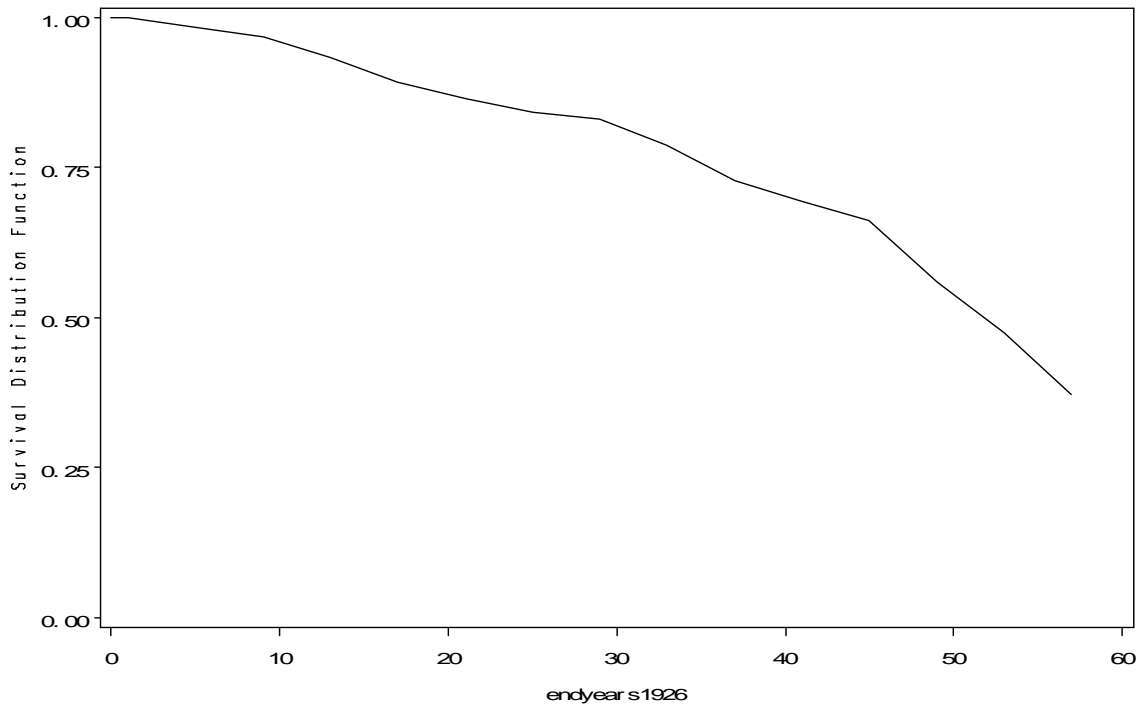


Figure 4.5. Survival function for tuna fleet disbandings (time from 1926)



The shape of the hazard function shown in Figure 4.4. shows an increase in the hazard function, although the risk of disbanding tends to be lower until interval 41-45 after which the risk increases. This increase occurs during the decade of the 1970s and onwards. This trend is also noticeable in the survival distribution curve (Figure 4.5.). There is a peak period in the hazard probability during the years 1958 through 1962 (interval 33-37), but the hazard rates for disbandings clearly peak in the 1970s. This method of measuring time gives an alternative perspective on the shape of the hazard and survival functions since the peaks coincide with the period of regulatory intensification and greater exposure of the tuna industry to negative reviews from environmental groups.

The life-tables offer a first overview of the data, by presenting specifically the hazard and survival functions associated with vessel disbandings. One of the main conclusions of

this section is that time – whether measured as organizational age or as historical time – does matter in the risk of vessel disbanding. Therefore, I continue the analysis by examining different specifications of time and selecting the one that presents a better overall fit in the discrete-time hazard model.

4.3.2. Comparing different specifications for the main effect of time

In this section I compare different specifications for the main effect of discrete time on the disbandings' baseline hazard function, and select the one(s) that exhibit(s) a better model fit. The baseline hazard of vessel disbanding was regressed on different specifications of organizational age as measured by the number of years in operation since founding until disbanding. I also include a range of specifications of historical time and compare the various time specifications. In this analysis I follow the criteria for comparing different time specifications proposed by Singer and Willet (2003:407-419).

I specify the time variable corresponding to organizational age using different forms including constant, linear, quadratic, cubic, and fourth-order shapes. These different specifications represent nested models, where the restricted model is a constant specification of time. The models' goodness of fit was estimated on the basis of deviance statistics which evaluated the contribution of each new added parameter. Singer and Willet (2003) propose the specification of the constant model through the creation of a variable that has the value of “one” for all observations in the dataset. Because my dataset embraces an extended number of years I also include the specification of logarithm of time, and compare it to the constant model.

The alternative time constructs for the period effect include a set of dummy variables which comprises four-year cycles corresponding to the sampling scheme used in my

dissertation, six-year cycles starting at 1926, decades, and industry periods specifications. Industry periods correspond to the two main periods of the tuna industry: 1) 1926-1971 is the pre-regulatory period, and 2) 1972-2003 is the regulatory period. I also examine constant, linear, quadratic, cubic, and fourth order shapes for the period effect. Although Singer and Willet (2003) propose the use of a general construct of time which puts no restriction on time through the use of dummy variables for each year, I was not able to make such a specification since the use of 78 dummy variables did not offer a satisfying model fit. I use AIC statistics to compare models that are not nested.

Table 4.4. shows the goodness of fit statistics of different specifications of the baseline hazard of disbandings regressed on time. The first five specifications use organizational age, while the last nine use historical time.

Table 4.4. Comparison of different time specifications regressed on a baseline discrete-time hazard model of tuna vessel disbandings (n disbandings=437)

Time specifications	Number of parameters (n)	Deviance (-2 Log L)	Difference in deviance from:	AIC
Organizational age effect				
Constant	1 (7854)	3374.072	<i>previous model</i> -----	3376.072
Linear	2 (7854)	3309.496	64.576	3313.496
Quadratic	3 (7854)	3306.497	2.999	3312.497
Cubic	4 (7854)	3303.083	3.414	3311.083
Fourth order	5 (7854)	3302.610	0.473	3312.610
Log of age	2 (7854)	3319.463	<i>“constant” model</i> 54.609	3323.463
Period effect (historical time)				
Linear	2 (7854)	3336.329	<i>previous model</i> 37.743	3340.329
Quadratic	3 (7854)	3329.368	6.961	3335.368
Cubic	4 (7854)	3297.679	31.689	3305.679
Fourth order	5 (7854)	3297.521	0.158	3307.521
Log of year	2 (7854)	3356.485	<i>“constant model”</i>	3360.485
Industry periods	2 (7854)	-----	-----	<i>Non-nested models</i> 3316.105

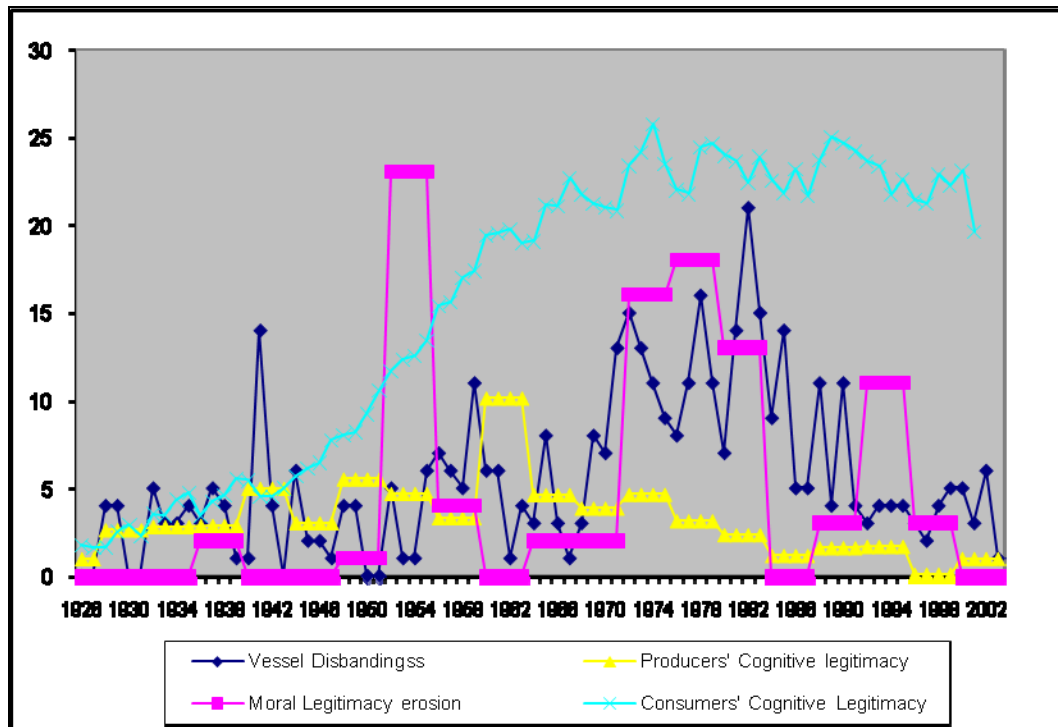
Decades	8 (7854)	-----	-----	3302.635
Six-year periods	13 (7854)	-----	-----	3288.862
Four-year periods	19 (7854)	-----	-----	3285.806

In what regards organizational age, the deviance statistic (3rd column and 4th column) shows that there is an improvement in the model fit from the first set of specifications of age to the cubic model of age. The fourth order model, although still showing some improvement in the deviance statistic, represents a drop in the improvement intensity while adding extra predictors. Therefore, either the cubic specification or the quadratic specification of time represent, thus far, the best degree of fit while also keeping the number of parameters low. Analyzing the specifications for period effect, the four-year period, the six-year-period, the decades, and the cubic variable are the ones that present lower AIC values. However, decades, six year and four year periods have a large number of parameters. Additionally, I fitted the cubic specification in the full model and it revealed high VIF, which is a sign of collinearity in the model. Therefore, I chose the quadratic form of age as specification of organizational age effect and the dummy industry periods' variable as a specification of the period effect.

4.3.3 Discrete-time event history models on the tuna vessel disbanding

In this section I present the results of the discrete-time event analysis of the effects of legitimacy and the regulatory environment on the disbandings of tuna vessels. I start the analysis by presenting a similar graph as presented before for vessel foundings (Figure 4.1.). Here, vessel disbandings present many peaks and drops, however the peaks that stand out take place in 1941 (circa WW II) and 1982. The decade of the 70s through the 80s marks a generalized increase in the number of disbandings, followed by a steady downward trend until 2003.

Figure 4.6. Frequencies of tuna vessel disbandings, and cognitive and moral legitimacy (1926-2003)



In order to study the disbandings of the population of tuna vessels I opted to use a discrete-time hazard model since the available yearly information on tuna boats disbandings fits a discrete distribution instead of a continuous distribution (Allison, 1995; Singer and Willet, 2003).

The modeling of tuna vessel disbandings follows the basic model analyzed for foundings, but adds individual-level variables. This is because the dataset consists of individual-level information stacked by year. There are three sets of explanatory variables. The first set corresponds to cognitive and moral legitimacy variables. Cognitive legitimacy from the producers' perspective is dichotomized into low and high levels of legitimacy, and negative moral legitimacy in a particular year is a continuous variable based on the number

of negative articles on the tuna industry, published in the *New York Times*. In the modeling of disbanding, I include the variable *canned tuna consumption as a percentage of total per capita consumption of fish* as a measure of consumers' cognitive legitimacy. The second set of explanatory variables includes the ecological variables *organizational density* and *organizational disbanding* (both lagged one year). Lagged density squared and lagged disbanding squared were not used because when introduced in the model these variables were not significant and VIF values became high. The third set of explanatory variables corresponds to the regulatory environment and includes a measure of valued density of national regulations and a measure of the amount of international laws that interfere or could interfere with the activities of the American ETP tuna fleet.

Control variables used in the event history models include a dummy variable for WW II and yearly total tuna landings. I also included individual-level variables: 1) vessel capacity, 2) vessel gear, i.e., whether the vessel entered the fleet as a tuna clipper or purse seiner, and 3) gear change, i.e., if the vessel changed gear during its existence in the tuna fleet. Additionally, I specified the effect of organizational age as age and age squared, and specified the period effect with a dummy variable indicating the pre-regulatory tuna industry period (in contrast with the post-regulatory).

Table 4.5. exhibits the results of the discrete-time survival analysis of the disbanding events for four models. Model 1 shows the results for legitimacy variables, model 2 presents results for the ecological variables, and model 3 presents the full model (legitimacy, ecological, regulatory, and control variables). The three first models include the effect of organizational age (year and year squared). Model 4 adds the period effect to the previous model. Model 4 includes a dummy variable representing the pre-regulatory period compared

to the regulatory period. All models were estimated with the *proc logistic* command in SAS, version 9.

The ecological variable model showed the lowest degree of fit. The AIC values of the ecological model (3267.048) compared with those of the legitimacy model (3248.53) indicate a lower fit of the ecological variables in explaining disbanding processes. This finding confirms my hypothesis three on the importance of using direct measures of legitimacy in the study of organizational disbandings. However, the explanatory power of Model 1 rests primarily on the significance of *producers' cognitive legitimacy*, since neither consumption nor moral legitimacy were significant in this model.

Table 4.5. Coefficients from discrete-time event history analysis of the log-odds of disbandings of tuna vessels

	<i>Model 1 Legitimacy Variables</i>	<i>Odds ratio</i>	<i>Model 2 Ecological Variables</i>	<i>Odds ratio</i>	<i>Model 3 Full Model</i>	<i>Odds ratio</i>	<i>Model 4 Full Model (w/ industry period)</i>	<i>Odds ratio</i>
Intercept	-3.576*** (0.183)	—	-3.3252*** (0.1898)	—	- 4.396*** (0.354)	—	-3.218*** (0.438)	—
High Cognitive Legitimacy (low) (t-1)	-0.591*** (0.106)	0.554	—	—	- 0.581*** (0.136)	0.560	-0.442** (0.140)	0.643
Consumers' Cognitive Legitimacy (t-1)	0.01 (0.009)	1.010	—	—	0.069*** (0.018)	1.072	0.029 (0.021)	1.029
Negative Moral Legitimacy (t-1)	0.005 (0.007)	1.005	—	—	0.001 (0.01)	1.001	-0.018 (0.011)	0.982
Vessel Density (t-1)			-0.007*** (0.0013)	0.993	-0.013** (0.005)	0.987	-0.011* (0.005)	0.989
Vessel Disbandings (t-1)			0.068*** (0.01)	1.070	0.042** (0.014)	1.043	0.021 (0.015)	1.021
National Regulation					-0.007 (0.165)	0.993	0.139 (0.179)	1.15
International Regulation					-0.0104 (0.071)	0.99	-0.031 (0.073)	0.969
Tuna landings (t-1)					0.317* (0.131)	1.373	0.325* (0.13)	1.381
WW2 (1926-41; 1945- 2003)					1.074*** (0.295)	2.926	0.984*** (0.299)	2.675

Ind. Vessel Capacity					-0.0003 (0.000)	1.000	-0.000 (0.000)	1.000
Tuna clipper (purse seiner)					0.955*** (0.180)	2.599	1.040*** (0.184)	2.83
Change in Gear (no change)					- 1.214*** (0.156)	0.297	-1.148*** (0.160)	0.317
Organizational age	0.073*** (0.015)	1.076	0.072*** (0.014)	1.075	0.091*** (0.016)	1.096	0.089*** (0.016)	1.094
Organizational age squared	-0.001* (0.000)	0.999	-0.001** (0.000)	0.999	- 0.001*** (0.000)	0.999	-0.001*** (0.000)	0.999
Pre-regulatory Period (Reg. Period)							-1.044*** (0.224)	0.352
N	7783		7853		7753		7753	
Likelihood Ratio (DF)	106.7593 (5)		116.9092 (4)		245.71 (14)		268.3235 (15)	
AIC	3248.53		3267.048		3078.739		3058.125	
Wald Chi-Square (DF)	104.375 (5)		115.7352 (4)		215.6921 (14)		235.5068 (15)	

Standard error in parenthesis.

*p<.05; **p<.01; ***p<.001

Comparing model 3 with model 4, one can observe that as the period effect is added to model 4 consumers' cognitive legitimacy (i.e., consumption) and vessel disbanding both, lose their significance. This change may be explained by the fact that the variables representing tuna consumption and vessel disbandings are negatively correlated at medium to high levels with the dummy variable representing the pre-regulatory period.

Model 4 exhibits the full model including the period effect. Among the legitimacy variables, producers' cognitive legitimacy has as expected a significant negative effect on vessel disbandings. The odds ratio estimate indicates that the odds of disbanding decline by 36% for periods of high cognitive legitimacy, compared with periods of low cognitive legitimacy. This result confirms my hypothesis two regarding the role of producers' cognitive legitimacy in the disbanding process. Similar to the results attained on vessel foundings, moral legitimacy does not show any significant effect and therefore does not

appear to have an impact on organizational exits. Therefore, my hypothesis seven contending that moral legitimacy impacted the decision to disband is not confirmed.

Canned tuna consumption (consumers' cognitive legitimacy) has a positive impact on the odds of disbanding, but as we have seen above it loses significance when the period effect is introduced in the model. Regardless of the level of significance, the direction of the estimate contradicts hypothesis two which expected consumption to have a decreasing impact on vessel disbandings. Once I introduced into the model a one-year lagged variable of tuna imports, the direction of consumption reverses, and the sign becomes negative. In other words, when controlling for tuna imports, tuna consumption shows a decreasing although non-significant effect on disbandings. This result suggests that future specifications of tuna consumption (or consumers' cognitive legitimacy) may need to include the effect of tuna imports. I did not include lagged imports in the final model because when the variable was introduced in early models, the VIF levels of lagged tuna imports, vessel density, and consumer cognitive legitimacy exceed acceptable limits.

Of the ecological variables, only organizational density has a significant impact on the odds of disbanding. Lagged vessel density presents a 1% decrease in the odds of disbanding per unit increase in the size of the fleet. This finding concurs with prevalent empirical findings in organizational ecology that suggest that initial increases in organizational density tend to lower disbandings and subsequent increases in density tend to increase organizational disbandings (Baum 1996). In fact, I modeled the joint effect of fleet density and fleet density squared in a full model and the effects were just as expected, albeit density squared was not significant¹⁵.

¹⁵ As stated earlier, this variable is not included in the model because it rises VIF levels of both density variables.

With regard to the regulatory environment, neither national nor international regulations have a significant effect on disbandings. This finding indicates that the regulatory environment is more relevant for founding events than for disbanding events. Regulations affecting the industry are important for the functioning and survival of a given industry; however regulatory effects may be filtered through other mechanisms such as consumption, access to credit, and taxes, among others. In fact, examining the period effect variable, it shows that the pre-regulatory period (1926-1971) has a negative effect on the rates of disbandings as compared with the regulatory period (1972-2003), this is, disbandings in the pre-regulatory period decrease by 35% compared to regulatory years. This finding suggests that regulations may have had an impact in the tuna industry, although that impact is not evident in the regulatory variables specified in the disbanding model.

Focusing now on the individual-level control variables, the analysis shows that the type of gear and whether a vessel went through a change in gear are strong predictors of a disbanding. In effect, being a tuna clipper increases the odds of disbanding by 183%, in comparison with purse seiners. This result is not unexpected since tuna clippers were the first organizational form to dominate the tuna fleet and were then replaced by the more productive purse seiner. Secondly, the boats that converted their gear – predominantly from tuna clippers into purse seiners – decrease the odds of disbanding by circa 70%, in contrast with boats that did not suffer a gear conversion. This finding has two meanings. First, converting a vessel implies an amount of capital investment in the vessel and thus an expectation to remain in the fleet. Secondly, the vessels that converted to a different gear were founded between 1926 and 1960, and were in their majority tuna clippers. In fact of the 96 vessels that went through a conversion in gear, 95 were initially founded as tuna clippers and later

converted into purse seiners. The present finding stresses the importance of organizational change in improving the chances of vessel survival (particularly, tuna clippers) and contradicts some of the prevalent organizational arguments concerning transformation and change (Carroll and Hannan 2000). As expected, vessels tend to have higher rates of disbanding during WW II, and tuna landings seem to increase the rate of disbanding. The unexpected finding on tuna landings suggests that this variable may be a proxy for the size and growth of the tuna industry and, in this case, it may influence the amount of organizational foundings and disbanding, just as the market becomes more vibrant and registers more entries and exits.

Focusing now on the effects of age, *organizational age* initially increases the odds of disbanding by 1% for each year that a vessel stays in the fleet. However, if vessels remain for long periods of time in the fleet, this effect is reversed. *Age squared* was found to decrease the odds of disbanding by 1% for each year that a boat remained in the fleet. This finding resembles the classical effect of the “liability of newness” (Stinchcombe 1965, see also Carroll and Hannan 2000, and Baum 1996), which states that as organizations age they improve their core abilities and their fit in the organizational population.

4.4. DISCUSSION AND CONCLUSION

In this chapter, I analyzed aggregated measures of producers’ cognitive legitimacy, consumers’ cognitive legitimacy, and moral legitimacy and studied their effects on crucial organizational events, such as foundings and disbandings. Cognitive legitimacy from a producers’ perspective plays an important role in both vessel foundings and disbandings, even when important ecological predictors are included in the equation. This finding suggests

that density, prior foundings, prior disbandings and cognitive legitimacy, each contribute in different ways to the entry and exit events in a given industry.

My models do not fully explain the role played by consumers' cognitive legitimacy in these processes. The results on the importance of consumer acceptance are inconclusive and bear further investigation, specifically in regards to the use of direct measures of consumer acceptance or knowledge of the product. Thirdly, negative moral legitimacy measured among the general public does not play a role in foundings nor disbandings, at least as an aggregated measure. When tuna entrepreneurs entered or added a new boat to their existent fleet, negative reports circulating within the general public on the impact of the tuna industry on the natural or social environment, or reports of conflicts between the industry and other social groups did not have an impact on their decision. Similarly, negative moral legitimacy had no effect on disbanding events. Assuming that disbandings are intentional, vessel owners will probably give more importance to other factors (such as cognitive legitimacy) when exiting the tuna fleet.

The expected findings on the effects of the regulatory environment on foundings and disbandings are only partially confirmed by my analysis. International regulation does have a significant negative impact on foundings. However, the results in relation to disbandings are mixed. On the one hand, neither regulatory variables have a significant effect on vessel disbandings, however, the period effect shows that the pre-regulatory period of the tuna industry decreases the number of exits from the tuna fleet (in relation to the regulatory period). A possible interpretation for these findings is that the issuance of a particular regulation will not influence directly and entry or exit event a given industry, however regulations produce effects on other conditions that have a direct effect on these events. The

exception here is the effect of international regulations on the decision to enter the industry which, as I suggested above, signals that the regulatory decision-making power lies outside the realm of the country's legislators, and therefore has a higher degree of uncertainty.

The next chapter presents an in-depth analysis of cognitive legitimacy from the producers' perspective and moral legitimacy in the tuna industry. First, I examine the different elements that constitute cognitive legitimacy and model these different components on the foundings and disbandings of vessels in the tuna industry. I examine whether there are specific components that carry more explanatory power than others in explaining organizational dynamics. Secondly, I present two different measures of moral legitimacy, one that represents the public perceptions of the negative consequences of the tuna industry's activities (used in this chapter) and another measurement that represents the tuna industry's perceptions of threats from the social environment. I then finalize with a qualitative analysis of the components of the two types of measurements of moral legitimacy, and present the strategic responses the tuna industry developed to face the identified threats.

CHAPTER 5

**AN IN-DEPTH ANALYSIS OF LEGITIMATION PROCESSES AND
ORGANIZATIONAL KNOWLEDGE IN THE TUNA INDUSTRY**

5.1. INTRODUCTION

In the present chapter, I conduct an in-depth analysis of legitimacy processes by examining the different elements that constitute producers' cognitive legitimacy and moral legitimacy. In the first part of the chapter, I examine the distribution of cognitive legitimacy at different levels of analysis (i.e., organizational, population, and community) throughout the existence of the Southern California tuna fleet. My analysis reveals that during the tuna clipper period producers' cognitive legitimacy was built mostly at the organizational and population levels, but during the purse seiner period, cognitive legitimacy was more prevalent at the organizational and community levels. In addition, I address the question of whether certain levels of cognitive legitimacy were more important for vessel foundings and disbandings. Analyses in this chapter suggest that organizational-level cognitive legitimacy have a positive impact on foundings, whereas high levels of cognitive legitimacy at the organizational and population level decrease the number of disbandings.

The second part of my study on producers' cognitive legitimacy focuses on the different components of cognitive legitimacy conceptualized in terms of organizational knowledge. As seen in Chapter 1 and Chapter 2, cognitive legitimacy is the acceptance of existing knowledge of a given organizational form, product or service, technology or routine

by the industry's stakeholders and society in general. The social acceptance of the knowledge produced by a given business venture legitimates this business venture.

Yet, organizational knowledge is produced about different areas of organizational and industrial activities. Through a qualitative content analysis, I identify seven categories of organizational knowledge produced around the tuna industry: 1) routines, 2) science and technology, 3) isomorphism, 4) outputs and productivity, 5) heroes and myths, 6) self-assessments, and 7) collective action. The more prevalent types of knowledge in the tuna industry are related to the categories of science and technology, isomorphism (or the reproduction of the organizational form), and outputs and productivity. Do different types of organizational knowledge play different roles in the processes of vessel foundings and disbandings? Analyses show that knowledge on collective activities and organizations has a negative effect on foundings. On the other hand, organizational knowledge on outputs and isomorphism was found to have a negative impact on disbandings.

The third part of my analysis examines the different types of negative impacts that became associated with the tuna industry. I identify eight areas where the interests of the industry conflicted with the interests of society or segments of society: 1) the setting of tuna tariffs on foreign imports, 2) the establishment of limits on territorial waters, 3) accidents involving tuna vessels, 4) unethical business practices, 5) overfishing and the depletion of tuna stocks, 6) dolphin bycatch, 7) health risks to consumers from canned tuna, and 8) unethical practices towards consumers. According to my qualitative content analysis, from a public perception perspective, the most prevalent negative impact identified with the tuna industry was dolphin bycatch. From the perspective of the industry, the main areas of conflict were tuna overfishing and the setting of tuna tariffs.

Finally, I examine the industry's strategies geared at building and protecting its legitimacy. The industry actively sought to raise awareness and acceptance for its novel product and for its innovative fishing methods among its consumers and other stakeholders. Tuna industry entrepreneurs raised cognitive legitimacy by attaching the image of its product and tuna fleet to already established products, popular culture products and celebrities, and to social and cultural events. They also sought to create an image of quality and technological sophistication and participated actively in the production of scientific and technological knowledge. Whenever confronted with restrictive regulations, the industry organized responses at the intra and inter-population level using trade and workers' associations and strategies, such as lobbying and co-opting of experts in fisheries and political officials. The industry was concerned with its moral standing and from an early period in the industry adopted an ethical code of business conduct. When faced with conflictive areas, the industry responded mostly in technological and political arenas.

5.2. PRODUCERS' COGNITIVE LEGITIMACY AT THE ORGANIZATIONAL, POPULATION, AND COMMUNITY LEVEL

Does the effect of cognitive legitimacy differ by level of analysis? Figures 5.1. and 5.2. present the distribution of the three levels of producers' cognitive legitimacy in the tuna industry during its period of existence. Organizational level cognitive legitimacy includes organizational knowledge on individual tuna-clippers, purse-seiners, or tuna cannerys operating in the Southern California tuna industry; population-level cognitive legitimacy encompasses organizational knowledge related to the Southern California tuna boat fleet, including the tuna clipper fleet, the tuna seiners' fleet, the Southern California tuna cannerys, Southern California tuna industry, and Southern California tuna fishermen. Lastly,

community-level cognitive legitimacy refers to the American tuna industry, the Pacific tuna industry or other types of tuna fisheries such as albacore in the Pacific Northwest or the bluefin fishery in the Atlantic Ocean. Figure 5.1. presents this information for the tuna clipper period (1920-1959), and Figure 5.2. presents the purse seiner period (1960-2000). As we examine these different levels of cognitive legitimacy, it is interesting to note that until 1948, cognitive legitimacy was predominantly created at the individual organizational level (both vessels and canneries) and the tuna population level (Southern California tuna industry). Around 1952, there were increases in community-level themes associated with cognitive legitimacy, such as the U.S. tuna industry or organizational populations in other regions, e.g., in the Northeast, Atlantic coast, Hawaii, Japan, or Europe. During the purse seiner period, producers' cognitive legitimacy was mainly built on the basis of individual tuna organizations and at the community level¹⁶. Additionally, from the eighties onwards, there seems to be an increase in the community type of cognitive legitimacy at the expense of the organizational-level type. This shift in the reference points for producers' cognitive legitimacy coincided with the decreasing importance of the tuna industry in California and the growing role occupied by other regional segments of the tuna industry in the American market.

¹⁶ Exception should be made here for the period referring to 1976.

Figure 5.1. Producers' Cognitive Legitimacy Levels in the Tuna Clipper Period (1920-1959)¹⁷

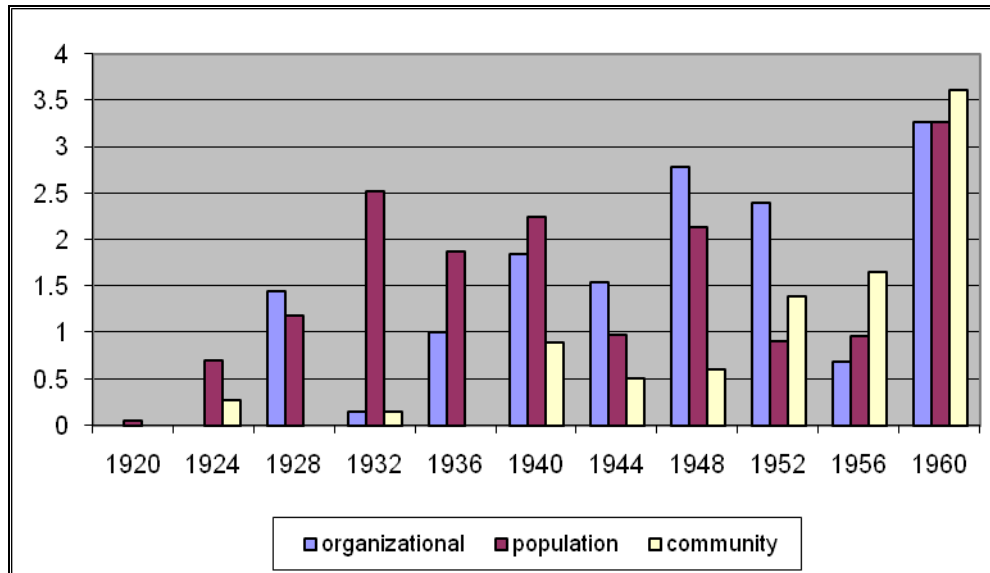
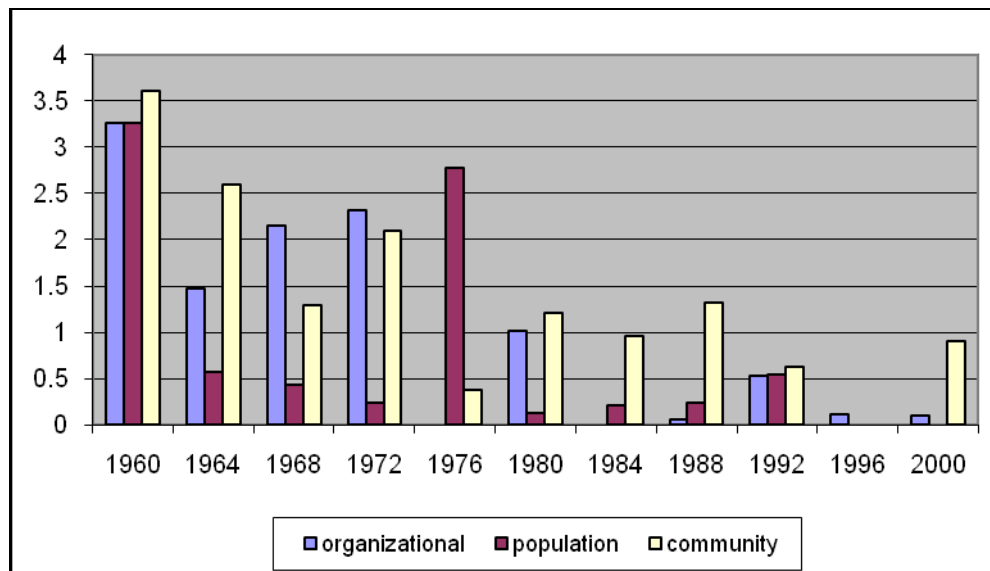


Figure 5.2. Producers' Cognitive Legitimacy Levels in the Purse Seiner Period (1960-2003)



To examine if the three levels of cognitive legitimacy have any differential impacts on tuna vessel foundings, I use a negative binomial model. To examine their impact on disbandings, I use an event history logit model. Results of these separate analyses are shown in Table 5.1. These models are similar to the ones presented in Chapter 4 with the exception

¹⁷ The year 1960 appears in both figures since it is a transition phase.

that the aggregated measure of cognitive legitimacy has been replaced by three variables of cognitive legitimacy. Following previous specifications of the producers' cognitive legitimacy variable, cognitive legitimacy was dichotomized into high and low levels of cognitive legitimacy with a dummy variable used to indicate a high level of cognitive legitimacy. Model 1 was estimated using SAS 9 *proc genmod* command, and Model 2 used SAS 9 *proc logistic* command.

Table 5.1. Comparative effects of organizational, population, and community cognitive legitimacy from a producer's perspective on the foundings and disbandings of tuna vessels

	Model 1		Model 2	
<i>Independent Variables</i>	Negative Negative Binomial Model of the Logs of Expected Foundings	% of factor changes (100[exp (β)-1])	<i>Discrete-time Event history analysis model of hazard of disbandings</i>	<i>Odds-ratio</i>
Intercept	2.119*** (0.371)	732.28%	-2.615*** (0.479)	_____
High Cognitive Legitimacy (low) (t-1)				
Organizational Level	0.657* (0.286)	92.9%	-0.859*** (0.179)	0.424
Population Level	-0.508 (0.352)	-39.83%	-0.567** (0.202)	0.566
Community Level	-0.5797 (0.385)	-43.95%	0.202 (0.187)	1.224
Consumers' Cognitive Legitimacy (t-1)	_____	_____	-0.007 (0.024)	0.993
Negative Moral Legitimacy (t-1)	0.006 (0.018)	0.6%	-0.013 (0.01)	0.987
Vessel Density (t-1)	-0.009 (0.008)	-0.895%	-0.007 (0.005)	0.993
Vessel Foundings (t-1)	0.035 (0.019)	3.56%	_____	_____
Vessel Disbandings (t-1)	_____	_____	0.011 (0.015)	1.011
National Regulation	0.237 (0.318)	26.74%	0.004 (0.181)	1.004

International Regulation	-0.3396** (0.108)	-28.79%	-0.044 (0.073)	0.957
Total/Average vessel capacity (t-1)	0.0002 (0.0005)	0.02%	_____	_____
Tuna landings (t-1)	0.0003 (0.0003)	0.03%	0.337* (0.137)	1.4
WW2 (1926-41; 1945-2003)	-0.076 (0.555)	-7.32%	1.24*** (0.302)	3.453
Ind. Vessel Capacity	_____	_____	-0.0004 (0.000)	1.000
Tuna Clipper (purse seiner)	_____	_____	1.037*** (0.185)	2.821
Change in Gear (no change)	_____	_____	-1.14*** (0.161)	0.320
Organizational age	_____	_____	0.094*** (0.016)	1.099
Organizational age squared	_____	_____	-0.001*** (0.000)	0.999
Pre-regulatory period (regulatory period)	_____	_____	-1.011*** (0.245)	0.364
N	77	_____	7753	_____
Dispersion	0.337 (0.0951)	_____	_____	_____
Log-likelihood/Likelihood Ratio (DF)	546.7269	_____	282.7044 (17)	_____
AIC	_____	_____	3047.745	_____
Wald Chi-Square (DF)	_____	_____	244.5287 (17)	_____

Standard errors in parenthesis.

*p<.05; **p<.01; ***p<.001

In the present model on vessel foundings, organizational cognitive legitimacy alone appears significantly related to foundings: when producers' cognitive legitimacy at the organizational level is high, the expected number of vessel foundings increases by 92.9% after adjusting for covariates and other forms of cognitive legitimacy. This finding suggests that potential entrepreneurs looking to enter the ETP tuna fisheries consider more relevant the type of cognitive legitimacy that conveys knowledge on individual organizations operating in the California tuna fleet than other types of information that may refer more generally to the California tuna industry (population level) or the American tuna industry and other neighboring populations (community level).

What role do these different levels of legitimacy play when established entrepreneurs are in the process of exiting the tuna fleet? What level or levels of cognitive legitimacy do they consider more relevant when making a disbanding decision? Looking at model 2, one can see that two levels of cognitive legitimacy remain relevant for a disbanding decision: the organizational and population levels. In fact, the odds of disbanding decline by 58% for periods of high levels of organizational cognitive legitimacy, and by 44% for years with high values of population cognitive legitimacy. The findings suggest that high levels of organizational cognitive legitimacy contribute to an increase in vessel foundings, and high levels of organizational and population-level cognitive legitimacy reduce the number of disbandings in the tuna fleet.

5.3. ORGANIZATIONAL KNOWLEDGE AND COGNITIVE LEGITIMACY IN THE TUNA INDUSTRY

As discussed in Chapter 3 (Methodology), the aggregated measure of cognitive legitimacy from the producers' perspective was based on a content analysis of media articles published in the monthly issues of the three trade publications used in this research (i.e. Pacific Fisherman, National Fisherman, and Pacific Fishing) between 1903-2003. On the basis of the content analysis, I identified seven categories of news articles published throughout the existence of the tuna industry. These are considered components of organizational knowledge in the tuna industry: 1) knowledge on organizational and industrial routines (*routines*); 2) contents related to the development of science and technologies used in the tuna industry, including in fisheries and cannery processes (*science and technology*); 3) information related to the levels of production and output of the tuna fisheries and canneries (*output*); 4) knowledge related to isomorphic trends in the tuna industry, i.e., the reproduction of tuna vessels and canneries as organizational forms (*isomorphism*); 5) contents related to

the history, main characters, heroes, champions, and traditions in the tuna industry, which one can roughly think of as the production of stories and narratives on a given industry (*heroes and myths*); 6) news pieces on the analysis of strategies for the industry, development outlooks, and self-assessments which usually look at the past and future of the industry from an analytical and critical perspective (*self-assessments*); and, finally, 7) information on collective actions undertaken by organizations and leaders of the tuna industry (*collective action*). These seven components can be thought of as key areas around which organizations and industries accumulate their knowledge. To identify possible categories and develop the study's coding grid, a three-stage grounded approach was applied (Neuendorf 2002: 102-104; see also Singleton and Straits 1999; and Bardin 1977). First, based on current theory and empirical research on organizational learning, I identified categories relevant to organizational learning (Aldrich and Baker 2001; Argote 1999; Levitt and March 1988). Second, I selected three years that had a high number of news articles (namely, 1940, 1956 and 1964) and constructed a working grid of coding categories. The third step was to apply the working grid to the remaining years, adjusting and redefining the original categories to the new data until reaching the final coding grid.

Figures 5.3. presents a historical overview of the different components of the industry's organizational knowledge for the tuna clipper period from 1920 until 1959. Figure 5.4. presents similar information for the purse seiner period from 1960 until 2003.

Figure 5.3. Elements of organizational knowledge in the tuna industry: the tuna-clipper period (1920-1959)

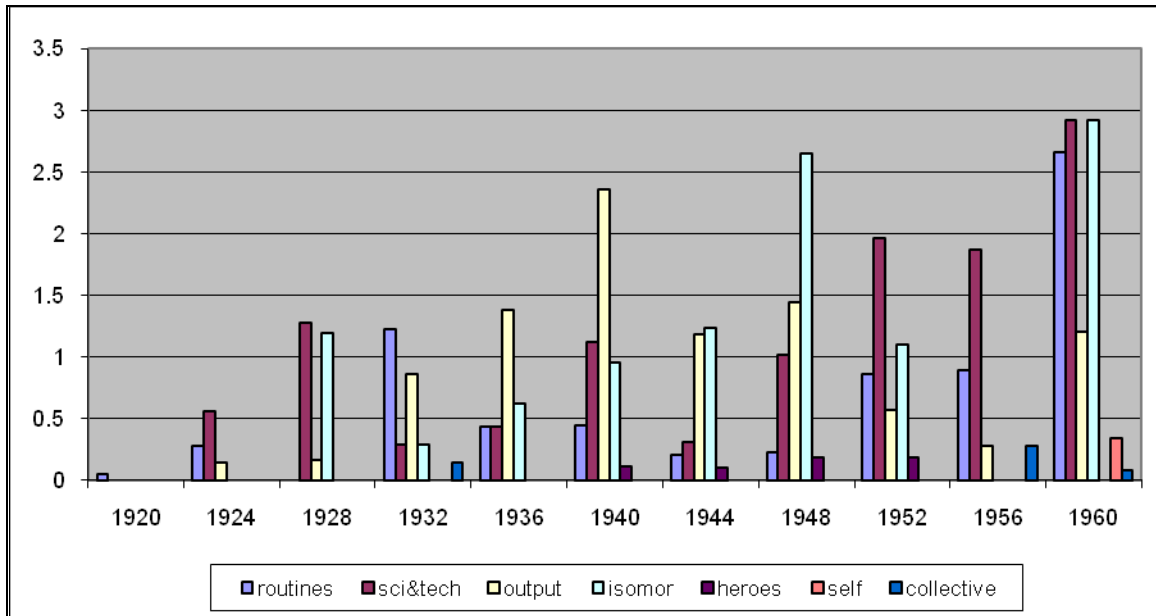
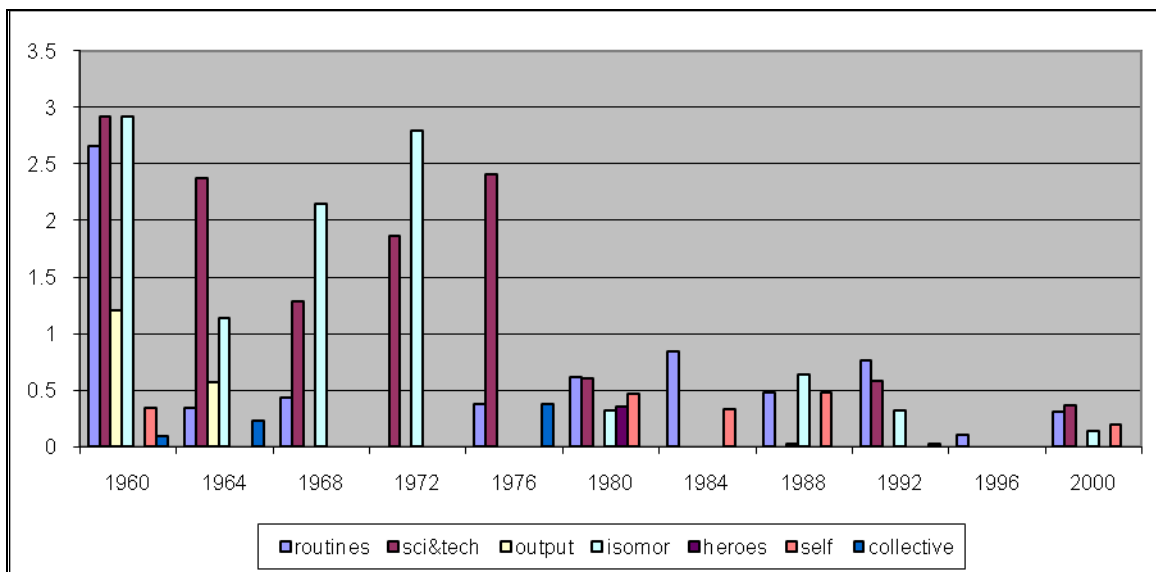


Figure 5.4. Elements of organizational knowledge in the tuna industry: the purse-seiner period (1960-2003)



Routines

During the decade of the 1920s, the routines component of organizational knowledge included topics on labor conflicts, the settlement of tuna prices, organization of work processes, the operation of production systems and industrial facilities, and inter-

organizational arrangements (for instance, shared used of equipment or functional specialization). Knowledge on routines is consistently present throughout the existence of the industry. In 1932 and 1960, there is a spike in the levels of stories and articles containing information on routines. The spike observed in 1932 appears related to two main topics: first, labor conflicts between fishermen and the packers (canners), specifically in the setting of prices for fish catch, and second, information related to job and task definition within the tuna clippers (for instance, occupations like “cook” and “engineer” are defined in terms of their tasks and jurisdiction). Across all the sample years, 1960 registers the highest number of articles containing information on “routines.” The main issues of concern in 1960 were the setting of tuna price and the re-organization of large cannery operations, such as the expansion of industry facilities into Puerto Rico.

Science and technology

Science and technology concerns all the information related to the development of technological and scientific innovations in the industry, such as knowledge on the fishing gear, vessel design, communication equipment, freezing technologies and equipment, design and equipping of cannery processing facilities, product development related to canned tuna, as well as scientific research on fisheries and tuna species and associated marine environments.

Knowledge produced on science and technology registered the highest total value of the seven categories for all the sample years. There is a trend toward an increase in the levels of scientific and technological knowledge during the periods when new organizational forms emerged: i.e., in 1928 the tuna clippers, and in the 1960s the purse-seiners. In 1976 the peak in scientific and technological knowledge corresponds to attempts to find technological

solutions to the dolphin mortality problem, either through the invention of new mechanisms that would adjust to purse-seining technology thus making it less lethal or through the development of new fishing techniques. Additionally, there was a surge in scientific research on dolphin mortality and bycatch caused by purse-seining techniques.

Outputs

Knowledge concerning productivity includes all the information on the production capacity of both vessels and canneries. Productivity measures the viability of an emerging industry or organizational form, and the degree of success of an established industry or organization, and therefore it is an important indicator for potential entrepreneurs to consider. Observing both figures, one can see that information on outputs is a relatively important component of legitimacy processes during the period of the tuna clippers; content on outputs reaches its peak in 1940, after which it tends to decrease with certain variations until its disappearance in 1964. The results from my content analysis suggest that the industry may have had to prove in its beginning phase that the organizational forms could be viable and successful, but once this knowledge became generally accepted, information on outputs was no longer required. In addition, news pieces on productivity and fleet capacity may have become a more sensitive arena from the producers' perspective when public concerns about overfishing of tuna stocks by the tuna fleet start to surface within generalist media, from the mid-sixties onwards,

Isomorphism

Isomorphism covers the information on the founding and construction of individual vessels and individual canneries. This is the component of knowledge that most closely follows the ecological definition of cognitive legitimacy, in the sense of reproduction of the

organizational form. However, this type of knowledge does not confer information on objective numbers of foundings or disbandings within a population, but encompasses more particular cases and examples of entrepreneurs and their new vessels or canneries. The information on new vessels focused on their technical capacities, gear and equipment and usually portrayed the vessels as products of technological advancement. Whenever information about a new boat, cannery, or event was framed in terms of technological innovation, the article was categorized under science and technology, instead of isomorphism. To a lesser degree, this category also includes information on the emergence of tuna fleets in the US or foreign countries.

Isomorphism is the second most important component of organizational knowledge in the tuna industry. It makes its first appearance in 1928, and like the components on routines and science and technology, isomorphism is present throughout the existence of the industry. It registered peaks in 1948, 1960, and 1972. In 1948, isomorphism issues focused on tuna clippers; in 1960, these issues centered on conversions from clippers to seiners; and, in 1972, isomorphic themes focused on the reproduction of purse seiners.

Heroes and myths

This component includes knowledge on charismatic figures, heroes, and other actors within the industry, and cultural aspects of the tuna fishing communities that coexisted alongside fishing activities. This type of knowledge makes its first appearance in the sample years 1940 through 1952 and then in 1980. It is the least important category in terms of the number of articles produced about the industry. This type of knowledge is not core information in that it does not provide essential information that allows the industry to survive and prosper. Instead, it relates more closely to the idea of the industry as a cultural

group or community. I expected the *heroes and myth* component to develop when an industry is solidly established and has reached a level of maturation, thus conveying a sense of stability to potential and already established entrepreneurs.

Self-assessments

This type of knowledge emerges once in 1960 and then returns again only in the eighties where it continues to appear until roughly 2000. *Self-assessments* refer to stories in which industry stakeholders and industry members reflect upon the industry, looking at its past and future. They might provide forecasts and analyses of possible development strategies. Given the timing of its appearance, we can also describe it as a type of knowledge that tries to make sense (Weick 1995) of changing economic, social, and political conditions.

Collective Action

The information included in collective action concerns news produced exclusively on 1) the formation, development, and disbanding of trade associations, and 2) the election and turnover in the directing bodies of those organizations. In short, this type of knowledge refers to civic events, activities or persons that involve organizing collective action in the tuna industry or when tuna associations themselves became the main focus of an article. Collective action organizations were involved in creating and promoting scientific knowledge in the tuna industry, in negotiating the establishment of new routines or adjusting existing ones, in producing statistics on the industry outputs (canners and vessels), or in developing assessments and promoting market strategies for the tuna industry. In this sense, the activities of collective action organizations are present in many other categories of organizational knowledge. However, this category includes exclusively those news that have as a main focus collective organizing events, individuals, and organizations and therefore is

not one of the most representative categories. The first type of information appearing in 1932 and 1956 concerned specifically the emergence and reorganization of collective action organizations which were industry-wide (e.g. the Tuna Institute, the American Tuna Association). In the remaining years the information started to focus on particular individuals or collective organizing industry leaders and their role within trade organizations and industry.

Do these types of organizational knowledge play different roles in explaining the founding and disbanding processes of tuna vessels? In order to answer this question, I first present bivariate binomial regressions and bivariate discrete event history analysis of the seven categories of organizational knowledge regressed on foundings and disbandings, respectively. The results presented in Table 5.2. include 1) whether the estimates were significant and their level of significance, 2) the direction of the effect on the dependent variable (whether it was a positive or negative effect), and 3) the value of the Wald chi-square statistic, which gives information on the weight of the explanatory variable. Following previous specifications of the aggregated measure of producers' cognitive legitimacy variable, I specify each category of organizational knowledge as dummy variables and present the results for high levels of each category of organizational knowledge. These variables were constructed in a similar way to their aggregated measure of cognitive legitimacy. The values of cognitive legitimacy pertaining to each category of organizational knowledge were ranked and split into two groups. I assigned the value of "1" to the group with highest values, and "0" to the group with lowest values. The dummy variable was named *high organizational knowledge on category x*, with low cognitive legitimacy as the reference category.

Table 5.2. Bivariate Regressions of High Levels of Organizational Knowledge per Category on Vessel Foundings and Disbandings

<i>Categories</i>	<i>Foundings Significance (direction) [Wald Chi-Square]</i>	<i>Disbandings Significance (direction) [Wald Chi-Square]</i>
Routines	*** (-) [20.0]	N.S. (+)
Science & Technology	N.S. (+)	** (-) [9.26]
Outputs	N.S. (+)	*** (-) [54.26]
Isomorphism	*** (+) [19.42]	*** (-) [47.7]
Heroes and Myths	N.S. (+)	N.S. (-)
Self-assessment	*** (-) [11.16]	*** (+) [15.59]
Collective Action	*** (-) [11.66]	N.S. (-)

*p<.05; **p<.01; ***p<.001.

The bivariate regressions show that the most important categories of organizational knowledge in tuna vessel founding processes are routines, isomorphism, self-assessment, and collective action. For vessel disbandings, the categories of science and technology, outputs and production, isomorphism, and self-assessment become salient, with outputs and isomorphism having the higher values of the Wald statistic.

Taking into account this information, and because parsimony is important particularly for the founding model, Table 5.3. shows the full models of disbandings and foundings with the categories of organizational knowledge that were significant in the bivariate regressions. Additionally, the explanatory variables in this analysis include the consumer and moral legitimacy variables, the previously used ecological variables, regulatory variables, and the control variables. In model 2, *consumers' cognitive legitimacy* and *vessel density* were excluded because their VIF values were also higher than 10. Model 1 was estimated using the *proc genmod* command, and Model 2 used the *proc logistic* command in SAS, version 9.

Table 5.3. Comparative effects of the selected categories of high levels of organizational knowledge on the foundings and disbandings of tuna vessels

	Model 1		Model 2	
<i>Independent Variables</i>	Negative Binomial Model of the Logs of Expected Foundings	<i>% of factor changes (100[exp (β)-1])</i>	<i>Discrete-time event history analysis model of hazard of disbandings</i>	<i>Odds-ratio</i>
Intercept	2.316 *** (0.319)	913.5%	***	_____
High Levels of Organizational Knowledge (low)				
Routines (t-1)	-0.262 (0.333)	-23.05%	_____	_____
Science & Technology (t-1)	_____	_____	0.021 (0.203)	1.021
Outputs (t-1)	_____	_____	-0.885*** (0.204)	0.413
Isomorphism (t-1)	0.595 (0.347)	81.3%	-0.599*** (0.141)	0.549
Collective action (t-1)	-0.674** (0.250)	-49.03%	_____	_____
Heroes (t-1)	_____	_____	_____	_____
Self-assessment (t-1)	-0.622 (0.432)	-46.3%	0.187 (0.164)	1.205
Consumers' Cognitive Legitimacy (t-1)	_____	_____	_____	_____
Negative Moral Legitimacy (t-1)	-0.013 (0.021)	-1.29%	-0.017 (0.011)	0.983
Vessel Density (t-1)	-0.006 (0.004)	-0.598%	_____	_____
Vessel Foundings (t-1)	-0.002 (0.004)	-0.199%	_____	_____
Vessel Disbandings (t-1)	_____	_____	0.001 (0.014)	1.007
National Regulation	0.275 (0.253)	31.65%	0.074 (0.166)	1.076
International Regulation	-0.433*** (0.079)	-36.046%	-0.037 (0.061)	0.963
Total/Average vessel capacity (t-1)	0.001 (0.0007)	0.1%	_____	_____
Tuna landings (t-1)	_____	_____	0.082 (0.079)	1.085

WW2 (1926-41; 1945-2003)	-0.857 (0.540)	-47.639%	0.646* (0.275)	1.907
Ind. Vessel Capacity	_____	_____	-0.0004* (0.0002)	1.000
Tuna Clipper (purse seiner)	_____	_____	1.077*** (0.182)	2.936
Change in Gear (no change)	_____	_____	-1.168*** (0.159)	0.311
Organizational age	_____	_____	0.093*** (0.016)	1.098
Organizational age squared	_____	_____	-0.001*** (0.000)	0.999
Pre-regulatory period (regulatory period)	_____	_____	-0.488* (0.247)	0.614
N	77		7823	
Dispersion	0.258 (0.085)			
Log-likelihood/ Likelihood Ratio (DF)	551.1257		276.3226 (15)	
AIC	_____		3327.121	
Wald Chi-Square (DF)	_____		239.7728 (15)	

Standard errors in parenthesis.

*p<.05; **p<.01; ***p<.001.

What types of organizational knowledge are relevant for vessel founding processes in the California tuna fleet? Model 1 shows that when fitted into the full model, the only type of organizational knowledge significantly associated with foundings is knowledge on collective activities and organizations. In other words, when knowledge on collective active is at high levels the number of foundings decreases by 49.03%. This seemingly unexpected finding calls our attention to the fact that collective action may also be an indicator of the industry's response to social and political attacks to its interests and that industry representatives choose to respond with collective strategies. Therefore, as an industry's collective action becomes more salient it may also signal to potential and already established entrepreneurs that the industry's jurisdiction is being questioned by significant stakeholders, or the public in general.

When established entrepreneurs are in the process of exiting the tuna fleet, the most salient types of knowledge are related to the industry's productivity and isomorphism. Model 2 shows that information on productivity has a discouraging effect on disbandings, i.e., when information on outputs is available at high levels, the odds of disbanding decline by 59%. Isomorphism has also a deterring effect on disbandings, with the odds of disbanding declining by 45%. Perceptions on high levels of isomorphic events, and productivity of the industry decrease the levels of disbanding, since they foster an image of growth in the tuna industry.

Finally, I would like to emphasize that some types of knowledge, such as isomorphism and self-assessment¹⁸, are relevant to both organizational processes. While isomorphism is a type of knowledge associated with the tuna industry's growth, the self-assessment component appears associated with the industry's decline (i.e., decreases foundings and increases disbandings). This is an interesting finding that suggests that self-reflective activities may be interpreted as nostalgic in connotation, and perhaps perceived as indicating a decline in the tuna industry.

In the next two sections, I proceed with my in-depth study of legitimacy processes by 1) examining the specific social problems that became associated with the tuna industry, and 2) identifying different types of strategic actions that the industry undertook that were aimed at building and protecting its legitimacy.

5.4. MORAL LEGITIMACY IN THE TUNA INDUSTRY

The erosion of moral legitimacy in a given industry (or organization) may be associated with the public's perception of the industry's negative impacts in local communities in particular, or in social and natural environments. Consequently, my

¹⁸ If we take into consideration the results of the bivariate regressions.

dissertation analyzes the different types of negative social impacts that were attributed to the tuna industry throughout its existence. When analyzing these negative impacts, it is important to capture two different perspectives: on the one hand, an external perspective that reflects the generalized public perceptions on the tuna industry's negative social, political, and environmental effects; and, on the other hand, an internal measure that captures the perceptions of industry's stakeholders on areas of conflict between the industry and society.

The external measure capturing societal perceptions of negative moral legitimacy in the tuna industry is based on a content analysis of the *New York Times* for the sampled years. This is the measure of negative moral legitimacy that was used in my previous analyses on the effects of different forms of legitimacy on vessel foundings and disbandings. Through a content analysis of the news articles on the tuna industry, I identified eight categories of negative impacts. Negative impacts refer to instances in which the tuna industry was perceived as causing some degree of social, environmental, economic or political damage to segments of society, or to society in general. The eight categories were: (1) conflicts over territorial waters, (2) the practice of tuna tariffs on imported tuna, (3) vessel accidents at sea, (4) unethical business practices, (5) overfishing and tuna stocks depletion, (6) the killing of dolphins, (7) health risks carried by canned tuna products, and (8) unethical practices towards consumers. Figure 5.5. shows the different weights carried by the different categories of negative moral legitimacy (external measure) throughout the industry's existence. The highest percentage (40%) of news stories was dedicated to the category of dolphins and the tuna industry. The second and third highest percentages of news pieces correspond to conflicts over territorial waters (22%) and the imposition of a tuna tariff on imported tuna

(21%), respectively. Problems such as overfishing, unethical business practices, consumer risks, and accidents with vessels were less frequently covered by the *New York Times*.

Figure: 5.5. Public perceptions of negative impacts associated with the tuna industry (all years)

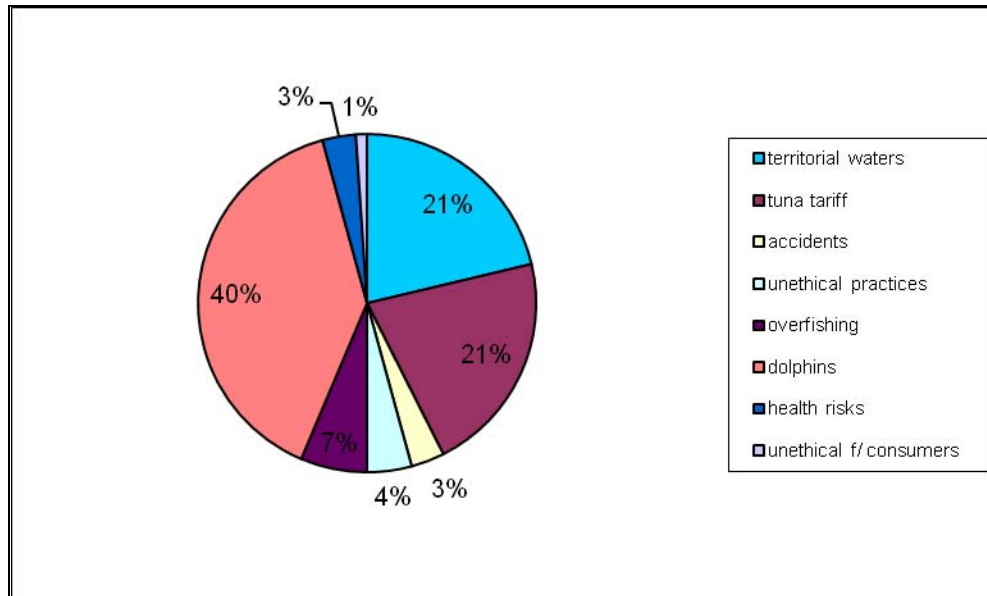
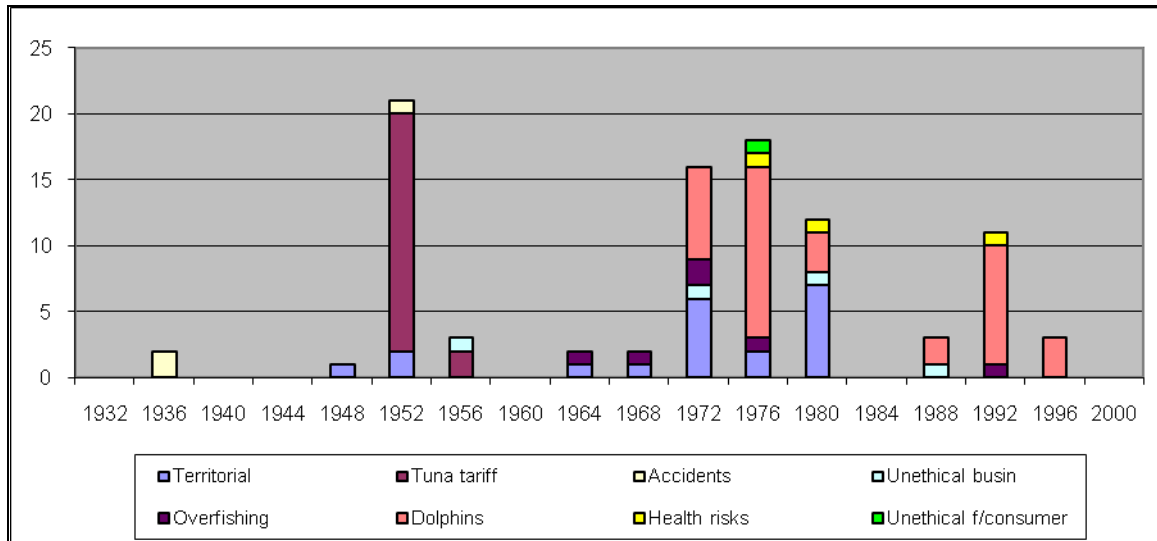


Figure 5.6. shows the yearly distribution of the eight categories of public perceptions of social problems. The values correspond – once again - to the number of articles published in the *New York Times*. Fishing conflicts over territorial waters plagued the tuna industry in its high seas operations in central and Southern America. This was the most recurrent problem associated with the tuna industry throughout its existence. It was recorded in the years 1948 and 1952, 1964-1980, with its peak years in 1972 and 1980. The high seas tuna fleet had an interest in keeping territorial waters under a small limit (usually 3 miles). This allowed fishing for yellowfin and skipjack tuna off the coast of South and Central American countries without having to incur in any financial or transaction costs from purchasing fishing licenses or having to comply with foreign regulations. However, small territorial waters conflicted with the interests of the U.S. coastal fisheries in general since they wanted to protect their own fisheries from foreign fleets. Some social groups also contended that

defending the interests of the high seas tuna fleet in this arena would damage U.S. foreign relations with Central and South American countries.

Figure 5.6. Public perceptions of negative impacts associated with the tuna industry by sample year (1932-2003)



A second area of conflict for the tuna industry was the existence of a tuna tariff, which protected the domestic catch of tuna at the detriment of low priced tuna imports. The existence of a tuna tariff – and tariffs in general - was strongly disputed among different sectors of the fishing industry in the U.S. and different industries in general. For instance, East Coast tuna packers were strongly opposed to this tariff, while the West Coast tuna industry supported the existence of such tariffs, claiming that the industry would collapse if such duties decreased. The industry was accused of seeking to establish a monopoly and of harming the American consumers since keeping tariffs high implied higher costs for canned tuna. Moreover, the industry was also blamed for straining U.S. foreign relations with tuna exporter countries (especially Japan, but also Peru, and Iceland, among other countries). Tuna tariff issues were the dominant category in 1952 and 1956, and the most prevalent problem during the tuna clipper period.

Overfishing of tuna stocks, and dolphin bycatch concerned environmental impacts caused by the tuna industry's fishing methods, notably purse seining. Overfishing appeared as a public concern in the sample year of 1964. It remained in the news until 1976, and then made another appearance in 1992. It includes news not only on the negative consequences of overfishing, but also on the international efforts to reduce tuna catch, and the international management of highly migratory tuna species through the establishment of fishing quotas.

The bycatch of dolphins is first mentioned in the sample year of 1972. With the exception of 1984, it remains a regular source of news until 1996. In the *New York Times* articles on dolphin bycatch and the tuna industry, words such as *death*, *massacre*, and *slaughter* are often used to describe tuna fishing activities. Both types of environmental problems are seen as affecting society in general through the destruction of the public good (Ostrom 1990). However, news coverage on the topic of dolphins elicited a greater degree of emotional coverage than the topic of tuna overfishing. It is also the most prevalent topic during the purse-seiner period and it is the dominant category of negative impacts in total.

The remaining topics are relatively less important in the news coverage. Accidents with tuna vessels at sea are considered a negative impact because tuna vessels (and fishing vessels in general) present hazardous working conditions for tuna fishermen. Accidents were reported during the decades of the 1930s and 1950s. Another focus of negative coverage was the use of unethical business practices by the tuna industry. Practices such as conspiring to fix prices, deceptive advertising, and violations of the anti-trust law were associated with the industry in the years of 1956, 1972, 1980 and 1988. The main sectors or groups affected by these type of unethical business practices – as identified in the news pieces – are the West coast high seas tuna industry's competitors, and the economy in general. Negative reports on

the industry would also come from industry practices or events that posed a risk for consumers' health (e.g. hygiene deficiencies, lead in tuna cans, or marketing inappropriate products for human consumption), and industry practices that caused non-health damages on consumers (e.g. selling tuna cans with lower weight than the advertised). These types of problems appear in 1976, 1980, and 1992.

The second type of negative moral legitimacy concerns the tuna industry's perceptions of areas of conflict between the industry and the social environment. These areas of conflict may even be viewed as posing a threat to the welfare of the industry. This measure is based on a categorical content analysis of news pieces from the trade publications during the sampled years. As with the measure of public perceptions, it is not intended to represent an exhaustive list of all social problems associated with the tuna industry since it is based on a selection of years.

Figure 5.7. exhibits the total count of articles by category involving the industry's perceptions of problematic issues for all years, and figure 5.8. shows the weight given to each category throughout the sample years. The values are based on trade publications and correspond to the ratio of the product of the number of negative articles in each category multiplied by the size of the articles and divided by the total number of pages of the monthly issues published in a given year.

$$\text{Negative articles_categories} = \frac{\sum (\text{tuna articles category } z * \text{size tuna articles cat } z)}{\text{Total number of pages}}$$

Figure 5.7. Tuna industry's perceptions of conflictive areas (all years)

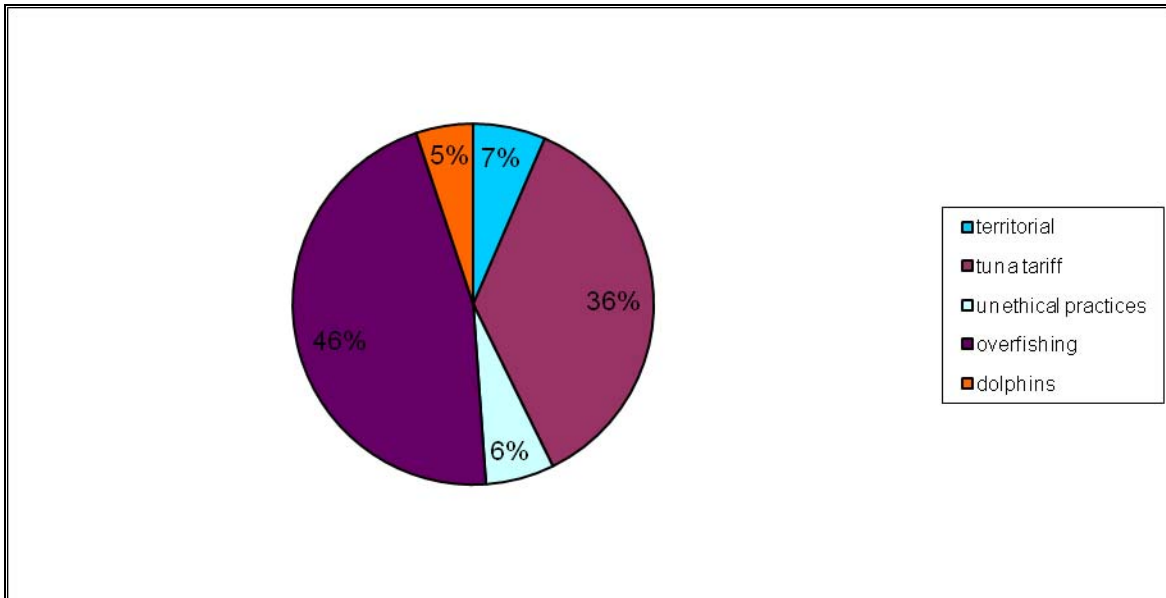
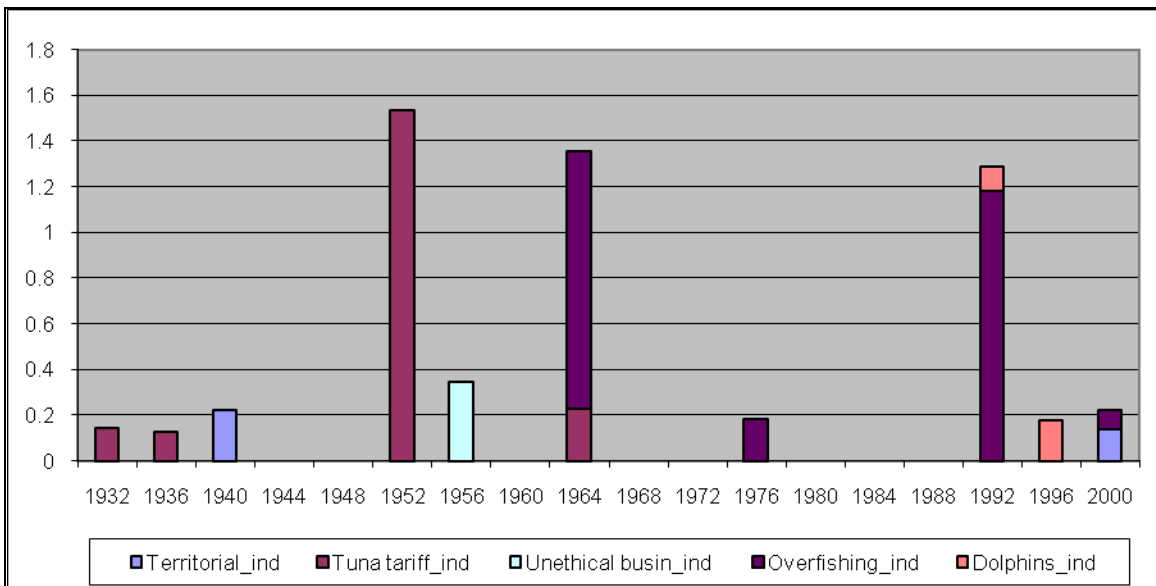


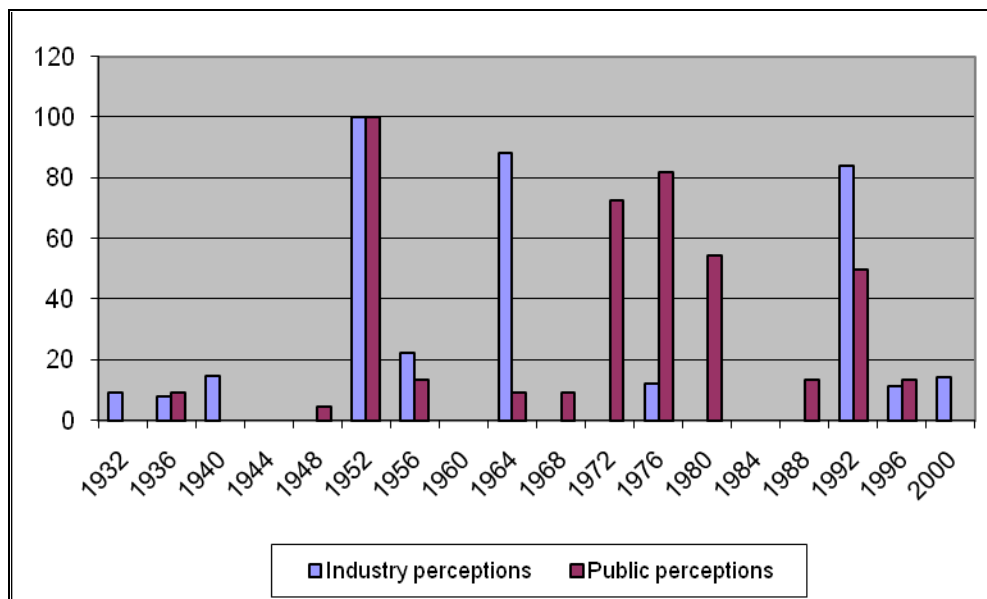
Figure 5.8. Tuna Industry's perceptions of conflictive areas by sample year (1932-2003)



The themes around which public perceptions and industry perceptions focus are similar. Yet, they present very different weights for each category. For the industry, the topic of overfishing is the area that receives most prominence, followed by the problem of tuna tariffs. The topics of territorial waters, unethical business practices, and dolphins receive much less attention. This difference in perceptions not only represents a difference in

interests, but more importantly, reflects a misalignment between the tuna industry and the social environment in which it operated. This misalignment is very clear in the tuna-dolphin question. In fact, news pieces were published about dolphins in the trade publications, but the contents of these articles referred mostly to new types of technologies developed by industry members to tackle the problem of dolphin by-catch, and did not depict this topic as potentially harmful to the industry. The misalignment was not limited to the content of the social problems: it also included a quantitative misalignment particularly evident in Figure 5.9.

Figure 5.9. Comparison between total public perceptions and total tuna industry’s perceptions of areas of conflict (1932-2003)



Until roughly 1960, there is a considerable overlap between the weight given to problem areas by the tuna industry and the general public. However, beginning in 1964, there is a large disparity between both perceptions. In 1964 and 1992, the tuna industry registered high levels of coverage of problem-issues, while in the remaining years the public perceptions present higher weight and the tuna industry has almost no coverage. In the next section, I discuss the type of strategic responses that the tuna industry developed in the effort

to gain legitimacy and the strategies it employed to address the areas of conflict that it had with society.

5.5. STRATEGIC RESPONSES OF THE TUNA INDUSTRY

The Southern California tuna industry developed a set of strategies by which it sought to build cognitive legitimacy for its product (canned tuna) and its populations (the tuna fleet and the tuna canners). It also tried to ensure its operation within a non-restrictive regulatory environment. Whenever a given population or industry is faced with significant conflicts of interests with other organizational populations or important segments of civil society, then the organizational population develops a set of strategies that aim at *protecting* its legitimacy. What type of strategies did the tuna industry pursue in seeking to establish its legitimacy? Table 5.4. presents an account of the industry's strategies identified through a categorical content analysis of the trade publications for my sample of years. Additionally, Aldrich (1999) introduces a framework of strategies geared at raising and protecting legitimacy applicable to all industries, and Nestle (2003) presents a critical review of strategies employed by the food industry. Some of the work focusing specifically on the tuna industry offers important contributions on this subject, namely Anderson, Stolting, et al (1952), National Research Council (1992), and Bonanno and Constance (1996). The trade publications *Pacific Fisherman*, *National Fisherman*, and *Pacific Fishing* provide several articles focusing on the market and political strategies pursued by the tuna industry, for instance, McGovern (2000), Stutz (1984a, 1984b), Laitin (1984), AAV (1980), and Miller (1980).

The tuna industry entrepreneurs faced the challenge of making a new and relatively different food product known and accepted among its potential consumers. In the emergence

phase, entrepreneurs used many different strategies to raise this type of awareness, acceptance, and widespread consumption of canned tuna. Some of the strategies included attaching the symbolic image of canned tuna to a staple food such as chicken, through the metaphor *chicken of the sea*. Canners also understood that linking the tuna industry with popular culture (e.g. movie industry and celebrities) was an important step to create acceptance among consumers. Additionally, social and sports events such as the *tuna fleet regatta* helped promote the industry, its members, and its products. These events also offered opportunities to meet and network with important political and social figures in the region.

At an early stage of the industry, canners sought to standardize the tuna pack into a set of clearly defined tuna products in order to maintain an image of consistency in their product. Consistency is important in a new product since it differentiates the product from other entrepreneurial initiatives that may offer lower quality versions of that product and which could as a result damage the already existent levels of cognitive acceptance (Aldrich, 1999). Tuna industry associations also promoted the idea of product quality through the realization of *tuna cutting* events (where different tuna packs were compared and evaluated) and professional meetings centered on the topic of quality. Entrepreneurs also created an image of canned tuna as a type of food that is healthy, cheap, and convenient. Industry-wide marketing campaigns were organized since as early as 1932, as well as the participation in food certification initiatives (e.g. American Medical Association granted in 1932 to a specific brand of canned tuna a “wholesomeness of the food product” certification). Furthermore, the industry was involved in the creation of scientific and technological knowledge by funding its own research on tuna processing facilities, vessel design, fishing equipment and

technologies, and fisheries. Additionally, the industry collaborated in government-sponsored or academic-led research on fisheries.

The tuna industry also sought to influence the regulatory environment whenever there were regulatory initiatives that could impose restrictions on the activities of the tuna industry. In order to influence regulatory authorities, the tuna industry would employ strategies such as lobbying, co-optation, or the issuance of policy reports organized at the level of industry associations. Two of the most important areas in which the tuna industry tried to influence regulations were the setting of tuna tariffs and dolphin by-catch. Curiously, the tuna industry also sought to establish ethical foundations for the industry at an early phase (1932) through the adoption of an ethical business conduct¹⁹.

What type of strategic responses did the tuna industry enact in the face of social criticism to seek to preserve its legitimacy? Were those responses different from the strategies aimed at creating repositories of legitimacy? Most of the strategies created to respond to particular problems were made at intra- and inter-population levels. Fishery industries were aware that regulators and political officials are more sensitive to multiple constituencies voicing a common interest than to a single constituency voicing its own interest. A coalition-building strategy in which the tuna industry partnered with other fishery industries was undertaken in the cases of the tuna tariff and the disputes concerning territorial waters. The strategies employed were based either on technological innovations and adjustments, or if, in a regulatory arena, strategies centered on the usual techniques of lobbying, co-optation, or use of the court system.

¹⁹ This behavior was not uncommon at the time since the west coast salmon and sardine industry had also adopted fair trade practices.

Of all the problems the industry faced, none was as severe as the tuna-dolphin question. At stake was the fishing method and technology that constituted the core technology of the purse seiner population. The tuna industry produced multiple technical innovations that they claimed would allow the use of the same technology (purse-seining) while reducing dolphin mortality to insignificant levels. However, the industry, particularly the tuna fleet, was not able to provide a technological response that would solve dolphin mortality and that would satisfy all (significant) interest groups involved in the matter. In the political arena, the tuna industry was able to postpone many judicial decisions and prolonged fishing operations within the ETP boundaries. Eventually, however, their political strategies were unsuccessful. One of the most significant strategies undertaken as a preemptive measure to proposed dolphin-protection regulations was the decision taken by the three major canneries (StarKist, Bumblebee, and Van Camp) to stop using tuna that was caught using methods that were not safe to dolphins. This self-regulation strategy, also known as *dolphin-safe label*, concerned all tuna caught with the purse seining method in the ETP waters. This self-regulatory strategy was hardly innovative since it anticipated a major bill (Dolphin Protection Consumer Information Act) that was approved in the same year (1990) and which made it illegal for processors to sell American consumers tuna caught in a way that endangered dolphins. However, the canners decision put even more restrictions on the activities of the purse-seiner fleet in the ETP. This type of strategy while aiming at the well being of the canner population excluded the tuna fleet.

Table 5.4. Legitimacy Building Strategies in the Tuna Industry

Cognitive Legitimacy	
<p>Attaching new products to pre-existing products</p> <ul style="list-style-type: none"> • (before 1932) attachment of the product canned tuna to the product <i>chicken</i>, as in “chicken of the sea;” • (1932) realization of motion pictures (Tiger Shark with Edward G. Robinson) and short talking film (Fishermen’s Paradise) with the drama taking place in the tuna industry; • (1948) motion picture ordered by tuna canners; • (1932) organization of a tuna fleet regatta (for vessels with at least 100ft in length), with the participation of movie celebrities and politicians; the objective are the promotion of the product canned tuna; 	
<p><u>Participation in independent certification initiatives</u></p> <ul style="list-style-type: none"> • (1932) specific brand of canned tuna is accepted by the American Medical Association, with a certification of the “wholesomeness of the food product”; 	
<p>Creating intra and inter-population initiative to promote population’s organizational knowledge</p> <ul style="list-style-type: none"> • (1932) creation of intra-population organization for tuna canners with the objective of standardization of tuna pack, development of advertisement campaigns, conservation, and protection of industry’s objectives (Tuna Institute); • (1932) population-wide (canners) tuna advertisement campaign to stimulate consumption through acquainting the public with the canned tuna product; • (1940) (1956) definition of industry’s tuna standards which implied a clear definition of the different types of tuna pack (i.e. fancy tuna, standard tuna, tuna flakes, tonno, etc); • (1952 and onwards) organization of tuna cutting events, where product samples are assessed for their quality; • (1956) organization of industry wide meetings to increase the quality of the product; • (1956) realization of promotional events directed at consumers, such as the National Tuna Week, organized by the Tuna Research Foundation, and aiming at homemakers with the general theme Back to School; • (1964) community-wide effort (Southern California Fisheries Association) to promote fish as a staple food near educational institutions (e.g. school teachers of the Los Angeles school system); • (1964) government sponsored marketing campaigns for canned tuna (e.g. Bureau of Commercial Fisheries conducted promotion activity based on the nutritional value of tuna); • (1980) tuna industry continuous education/ food publicity program included the development of tuna recipes; illustrated feature articles distributed to newspapers and 	

<p>special interest publications, home economists, supermarket directors,; setting tuna booths at food conventions, producing in-depth reports to media and other literature for public circulation (e.g. children, teachers);</p> <ul style="list-style-type: none"> • (1960) tuna industry participates at global community events such as the World Tuna Conference; <p>Creating cognitive knowledge through research and science</p> <ul style="list-style-type: none"> • (1948) Tuna research Treaty proposed between the US and Mexico. Each country constitutes a commission, which is intended to voice the interests of government, industry, and public. It's scope of action is limited to research, and it can make recommendations to governments • (1952) (1956) (1960) industry representatives participate in research programs on tuna fisheries, for instance industry advisory board for Pacific Oceanic Fishery Investigations, or the Inter-American Tropical Tuna Commission • (1960) industry association contracting research institutions for fishery research (i.e. albacore fishermen contract Stanford Research Institute)
<p style="text-align: center;"><i>Regulatory Environment</i></p> <p>Lobbying for the approval of more favorable legislation and co-opting governmental agencies and officials</p> <ul style="list-style-type: none"> • (1932) (1964) industry representatives present arguments for tariff increase near the US Tariff Commission • (1932) industry representatives press for currency legislation to fight low currency imports • (1952) intra and inter population industry organizations (several) effort to press Congress to enact a bill that sets a temporary duty on imported tuna (this effort became a community wide, integrating West Coast tuna industry) • (1956) producing policy recommendation documents for state officials and institutions • (1976) legal actions taken in collaboration with governmental bodies such as the National Marine Fisheries Service (e.g. appeal of federal judge's ruling to stop sets on porpoises) • (1994) (1996) lobbying to pass bill in the congress that allow for the catch of yellowfin while still setting on dolphin <p>Create industry self-regulations in order to anticipate restrictive federal or state-level regulations</p> <ul style="list-style-type: none"> • (1990) adoption of dolphin-safe tuna by the big three (StarKist, Bumblebee, and Van Camp)
<p style="text-align: center;"><i>Moral Legitimacy</i></p> <p>Integrating "ethical responsibilities" as a part of organizational goals</p> <ul style="list-style-type: none"> • (1932) (1940) adoption of rules of business conduct: code of ethics adopted for the conduction of tuna business (AKA fair trade practices) <p><u>Territorial waters</u></p> <ul style="list-style-type: none"> • (1928) technological innovations to surpass the problem of the 3 mile territorial

waters, large tuna clippers offer the capacity to fish in high seas water; installation of refrigerating machines aboard tuna clippers

- (1944) industry associations (fishermen) dialoguing either with U.S. State Department, Fish and Wildlife Service, or directly with the Mexican Government to exert pressure to decrease the price of the license to fish off the coast of Mexico (price established on a yearly basis)

Tuna tariff

- (1932) (1964) industry representatives present arguments for tariff increase near the US Tariff Commission
- (1952) intra and inter population industry organizations (several) effort to press Congress to enact a bill that sets a temporary duty on imported tuna (this effort became a community wide, integrating West Coast tuna industry)
- (1956) industry issues policy recommendation for state officials and institutions

Unethical business practices

- (1956) industry hires experts to counteract charges by the Federal Trade Commission

Overfishing

- (1964) trade associations voices disagreement with the implementation of recommended international quotas

Dolphins

- (1972) technological innovations developed in collaboration with state research and industry which try to solve problem of by-catch (e.g. recorded cry of the killer whale employed to scare dolphins away from yellowfin schools, redesign of nets; use of porpoise-herding boats)
- (1972) (1976) (1980) industry-led technological innovations and equipments that help prevent dolphin fatalities (e.g. stern seining by Puretic, automatic fishing poles; backdown procedure by Missetich, the Medina panel, seaweed rafts)
- (1972) industry representative dismisses “what is said about tuna and porpoise in the popular press as wrong and that fishermen do not wish to hurt porpoise”;
- (1976) legal actions taken in collaboration with governmental bodies such as the National Marine Fisheries Service (e.g. appeal of federal judge’s ruling to stop sets on porpoises)
- (1992) tuna canners private donations to implement research on new dolphin-safe technologies (e.g. on Fish Aggregating Devices)
- (1994) (1996) lobbying to pass bill in the congress that allow for the catch of yellowfin while still setting on tuna

5.6 DISCUSSION AND CONCLUSION

In this chapter, I discussed the different components of legitimacy and how these different components relate to organizational foundings and disbanding. This in-depth analysis of the producers’ cognitive legitimacy (either *layered* into different levels of analysis, or *vertically* sliced into different components or types) provides a more thorough

understanding of the mechanisms and strategies employed in building or seeking to preserve legitimacy.

The analysis of different types of organizational knowledge in the tuna industry also provides insight into the ways in which this industry – and its main stakeholders – constructed its identity and how its identity adapted to the social and political environment. Along with the different types of cognitive legitimacy, the different levels of organizational knowledge were relevant for understanding founding and disbanding processes. Do these differences result from a conscious *rational* choice from entrepreneurs, or do these differences result from the type of knowledge available to established entrepreneurs and neophyte entrepreneurs? In fact, information on individual organizations may be more readily available to outsiders than information on industry-level mechanisms. Information on collective action may be more accessible to outsiders than information on technology.

The tuna industry was very successful at raising cognitive legitimacy for its product, its technologies, and its populations. It was also very successful at creating population and community-wide coalitions to defend its interests and in establishing links to government officials or experts. It was able to face problems if those problems had technical or managerial solutions. But the tuna-dolphin question meant a novel type of social problem that industries were not accustomed to confronting. In order to solve this particular problem the tuna fleet would potentially need to dissolve their most successful organizational form – the purse seiners.

Lastly, one of the findings that I would like to highlight concerns the misalignment between tuna industry's perceptions of risk and the public perceptions of the negative impacts of the industry. When an organization or industry is not aware of the negative

perceptions that its consumers and the general public have of its activities, there is a legitimacy gap that can threaten the survival of the industry.

CHAPTER 6

CONCLUSION

Existing research on organizations has examined the role played by legitimacy in the survival of organizational populations, but has given less attention to the constitutive elements of legitimacy and the mechanisms by which organizations and industries acquire and lose legitimacy. My research seeks to address this gap in research and knowledge of organizational legitimacy processes. In this concluding chapter, I first outline the main theoretical contributions that informed my study of organizational legitimacy; secondly, I summarize the story of the tuna industry with a focus on legitimacy processes; thirdly, I present my main empirical findings and explain how these findings contribute to current sociological theory; finally, I discuss limitations of the present study and directions for future research.

6.1. LEGITIMACY IN THE TUNA INDUSTRY: A SUMMARY OF THE THEORETICAL FRAMEWORK

The research in this dissertation was based on ideas and theories of legitimacy that developed within the evolutionary school (Aldrich and Ruef, 2006; see also Aldrich and Fiol, 1994; Aldrich and Baker, 2001). The evolutionary school contends, like the institutional school, that legitimacy processes are multidimensional (i.e., they encompass different forms of legitimacy) and, like the ecological school, evolutionary theory emphasizes the importance of longitudinal studies of organizational populations, from their inception. Moreover, the

evolutionary model accommodates different levels of analysis in the study of legitimacy: the organizational, population (or industry) and community levels (interrelated populations).

Two main types of legitimacy are identified in the model: 1) *cognitive legitimacy*, which can be distinguished between consumers' and producers' cognitive legitimacy, and 2) *sociopolitical legitimacy*, which can be distinguished between moral and regulatory legitimacy. Cognitive legitimacy corresponds to the "taken-for-granted" characteristic of forms, products, or services, while sociopolitical legitimacy corresponds to the "conforming" quality of forms, products or services, with prevalent cultural, social, and juridical frames in society (Aldrich and Ruef, 2004; Aldrich and Fiol, 1994; Ranger-Moore et al 1991).

Cognitive legitimacy is conceptually intertwined with organizational knowledge, in the sense that cognitive legitimacy is the acceptance of organizational knowledge by organizational stakeholders. Organizational founders in emergent populations must address low levels of organizational knowledge about new activities, products, or organizational forms, and must also overcome the lack of cognitive legitimacy in these same areas to assure their chances of survival. Industries and organizations build organizational knowledge around existing routines, technical systems and competencies, products or services, and organizational forms (Aldrich and Ruef 2006; Aldrich and Baker 2001; Levitt and March 1988; Argote 1999). The acceptance of organizational knowledge as legitimate among producers' facilitates and maximizes the reproduction of organizational forms attached to this type of knowledge. Among consumers, high levels of cognitive legitimacy mean that they are regular users of the product or service, or have a considerable amount of information about that product, service, or organizational form.

Sociopolitical legitimacy implies the acceptance of an organizational form and respective products or services by significant social actors (e.g., investors, consumers and the general public, opinion leaders, government officials) within the prevailing cultural and normative framework. Sociopolitical legitimacy may be divided into two elements: moral and regulatory acceptance. Moral acceptance is defined by conformity to widespread values and cultural patterns, while regulatory acceptance refers to an organization's or industry's compliance with the juridical framework (Aldrich, 1999).

Strategic and resource dependence scholars portray legitimacy as the result of strategic actions developed individually by organizations or collectively by populations or communities. In this regard, legitimacy is not achieved as a result of structural dynamics but is actively sought, and therefore unequally achieved by different organizations and industries. According to Dowling and Pfeffer (1975; see also Oliver 1991; and Suchman 1995), organizations and industries can use different degrees of strategic action (i.e. more or less manipulative of the environment) to pursue legitimacy. *Identification strategies* imply intentional identification and selection of established market niches, symbols, values, products, or clienteles in an attempt to gain legitimacy by association. *Transforming or manipulative strategies* involve higher levels of strategic action by organizations actively seeking to change or manipulate existing social values and norms, or regulatory frameworks in order to gain legitimacy for their organizational or industry goals, activity systems, or outputs.

Some of the strategies that organizations or industries might use to raise cognitive legitimacy include attaching new products or organizational forms to established forms and products and participating in independent certification contests. At higher levels of

manipulation, organizations can pursue strategies that include the creation of trade associations, professional organizations, or standard setting organizations (Aldrich, 1999). These types of strategies manipulate the environment by i) influencing the acceptance of certain types of technological models or routine bundles, and ii) changing social values or attitudes about existing products or forms by promoting some types of organizational knowledge through official channels (e.g. trade fairs, congresses, exhibits, and marketing campaigns, school visits, among others (Aldrich 1999; Oliver, 1991; Rao, 2004).

Educational and research institutions offer another way to legitimate organizational knowledge (Aldrich, 1999). Since these institutions produce knowledge, they also have the capacity to diffuse knowledge to potential entrepreneurs and stakeholders, and select which type of knowledge or standard is to be disseminated. The endorsement of specific organizational knowledge by educational and research institutions in itself creates legitimacy among the users or promoters of an organization's goods, products, or services.

Moral legitimacy can be reinforced by incorporating ethical or philanthropic concerns into organizational goals (Dowling and Pfeffer 1975). Philanthropic activities include financial contributions to education, arts, or community resources or non-financial contributions in the form of voluntary work from organizational members (Carroll, 1991). In addition, organizations seeking to increase moral legitimacy might also organize collective marketing campaigns and collective lobbying efforts (Aldrich, 1999). Another strategy to increase moral legitimacy includes the co-optation of politicians, celebrities, and professional and scientific experts into the governing boards of corporations or trade associations, or appointing them as consultants or advisors (Dowling and Pfeffer 1975; Selznick, 1949; Nestle, 2003).

In the regulatory arena organizations, populations, and industries may pressure state or federal authorities to regulate their markets and activities, adopt industry-wide regulations, or co-opt governmental agencies or officials as supporters of populations' interests against detrimental regulations (Aldrich 1999; Dowling and Pfeffer 1975; King and Lenox 2000; Nestle 2003; Selznick 1949).

Why do organizations, or organizational populations lose legitimacy? Delegitimation processes are based on cultural, normative, or regulatory *misalignments* between organizations or populations and their environments (Glynn and Marquis 2004). There are two main causes for declines or losses in the legitimacy of organizations and populations. The first is that some types of organizational activities inevitably encounter some degree of resistance from relevant interest groups or social movements. The moral, cultural, or social acceptance of an organization's activity may thus be questioned. In these cases, the cause of legitimacy erosion is exterior to the organizations or industries. It resides in the non-alignment of organizational activities or production and technological systems with specific sectors of society. The second cause for legitimacy loss might arise from organizational crisis. An organizational crisis occurs when events such as organizational mistakes, accidents, or illegal activities take place and that cause stakeholders to stop trusting in the competence or accountability of that organization or group of organizations to accomplish their organizational goals. In this instance, the source of delegitimation is within organizations or industries themselves and directly involves organizational features such as routines, production or technological systems, organizational goals, organizational outcomes, or even the organizational form itself.

Legitimacy links organizations to their cultural, normative, and regulatory environments. The theoretical framework on which this study was built consisted of two key dimensions of organizational legitimacy. First, from a structural perspective (i.e., institutional, ecological, and evolutionary) legitimacy is viewed as the *alignment or conformity* of organizational goals, outputs, and routines with the cultural, normative, and regulatory expectations on those organizations (and organizational activities). Second, from a strategic perspective, legitimacy is the ability of organizations to *perceive and respond* to their social environments. This dissertation used a model that accounted for both of these interpretations of legitimacy.

6.2. THE CASE OF THE SOUTHERN CALIFORNIA TUNA INDUSTRY

The U.S. tuna industry originated as a coastal and seasonal fishery in Southern California in 1903. It was not until 1926 when the first tuna clippers emerged that tuna fishing became a year-round high-seas fishery. At the same time, the industry began to expand slowly to the northwest Pacific and the East Coast of the United States. However, San Diego and San Pedro lead the harvesting sector and the production of canned tuna in the United States during most of its existence (Anderson and Stolting, 1952; Bonanno and Constance, 1996; Swift, 1956; Richardson, 1981; Rockland, 1978; Wolff, 1980; Bureau of Marine Fisheries, 1949). In the U.S. market, tuna was used mostly for canning. Canned tuna progressively gained market acceptance, becoming in the 1950s the most valuable canned fish product (Anderson and Stolting, 1952). The tuna industry first struggled to gain cognitive legitimacy in different areas. Consumers had to accept canned tuna as a food-product and ideally as a staple; producers had to accept tuna as a profitable food industry and view tuna vessels and related gear as efficient harvesting forms.

Starting in the 1960s, the tuna industry had to confront the public controversy surrounding the issue of dolphin by-catch. Southern California fishermen had developed a specific fishing technique that used dolphins as indicators of the presence of yellowfin tuna schools. This was because tunas tend to swim with dolphins in the ETP waters (Bayliff, 1980; NRC, 1992; Shomura, Majkowski, and Langi, 1994; USITC, 1992). The fishermen's use of this technique along with the increasing use of giant purse-seiners in the ETP tuna fisheries led to a dramatic rise in dolphin mortality rates (NRC, 1992; Richardson, 1981). Environmentalists became active in the defense of the dolphins and in accusing the tuna industry of using unethical fishing techniques that caused the death of dolphins. The conflict that opposed environmentalists to fishermen and the tuna industry occurred within a social context in which mainstream values about the preservation of endangered species and the rights of animals were beginning to gain weight.

As a result of public and scientific concerns about the preservation of marine mammals, the U.S. Congress passed the 1972 Marine Mammal Protection Act (MMPA). From 1972 on, the tuna industry operated in a charged regulatory environment in which the increasing number of regulations made tuna fishing activities more difficult and created greater instability in the canners' regular supply of tuna. Furthermore, tuna canners faced severe protests organized by animal-rights' activists and environmentalist groups. The tuna industry addressed the tuna-dolphin problem at different levels. First, new technical innovations were created that sought to protect dolphins while using purse-seining nets. Secondly, trade and industry organizations became involved in research on gear and techniques that would be less damaging to dolphins. Thirdly, the industry adopted an

internal regulatory measure called the “dolphin-safe label” in 1990 and 1991 (USITC, 1992; NRC, 1992; Richardson, 1981; Bonanno and Constance, 1996).

StarKist first adopted the “dolphin-safe label” in 1991 but all the major tuna processors quickly copied the idea (USITC, 1992). The label meant that the tuna processors had voluntarily excluded from its line any tuna that had been harvested by domestic or foreign producers in such a way that could endanger dolphins. While the “dolphin-safe label” was being enacted by the industry, the Congress approved new legislation, denominated the Dolphin Protection Consumer Information Act (DPCIA). The DPCIA regulated the harvest and importation of tuna products from the consumers’ perspective, by preventing American consumers from eating tuna caught with purse-seiners (domestic or foreign owned) in the ETP or with driftnets in the Northern Pacific (USITC, 1992). Since the 1980s, tuna vessels have exited the U.S. tuna fleet to enter foreign tuna fleets, or alternative domestic fisheries, or were just sold to foreign fleets. The three main domestic tuna processors – Bumble Bee Foods, Starkist, and Chicken of the Sea - went through several changes of ownership, relocation of facilities to other regions and generalized disinvestments in corporate fleets operating in the Eastern Tropic Pacific. Although nearly extinct, the California tuna industry still has some vessels in operation.

The institutional management of international natural resources - in this case a highly migratory fish species - needs to integrate the interests of different nations with often conflictive stakes. The Inter American Tropical Tuna Commission (IATTC) was an intergovernmental organization that pursued the protection of dolphins while also managing tuna stocks in the ETP. It was therefore directly implicated in overseeing purse-seining operations in the ETP. This organization developed and managed international agreements

and programs, - e.g., the International Dolphin Conservation Program²⁰ - through voluntary agreements with ETP fishing member nations. Among other conservation measures, the IATTC 1) established annual mortality quotas for dolphins, which were to be applied to each participating fleet; 2) managed an independent observers' program which stationed observers aboard tuna purse-seiners; and 3) set annual fishing quotas for yellowfin tuna in the ETP. The enforcement of this program was left to each participating country, since the IATTC did not possess any enforcement powers (Buck 1997; NRC 1992).

Given existing U.S. environmental regulations, U.S. tuna fishermen felt they had to comply with stricter regulatory requirements than the ones existing for fishermen from neighboring nations, such as Mexico, Panama, and Peru. On the other hand, U.S. fishermen contended that they applied fishing techniques that avoided dolphin mortality more frequently than fishermen from other member nations. Therefore, U.S. environmental activism— according to the U.S. fishermen – benefited competing fishing nations who were also causing higher levels of dolphin mortality. The Consumer Protection Dolphin Information Act tried to address the problem of dolphin mortality caused by foreign fishing fleets while simultaneously recognizing the weight of the U.S. consumer market for canned tuna. The creation of the “dolphin-safe label” raised a number of trade disputes, mainly with Mexico. Mexico claimed that US green laws were nothing but “unfair” trade practices (Bonnano and Constance 2008). As a result, the U.S. environmental movement encountered a new arena of contention, one that opposed the interests of consumers and environmentalists in wealthier nations to the economic interests of poorer nations.

Why did the tuna fleet insist in using purse-seiners, and even increasing the capacity of purse-seiners when dolphin mortality and depleted tuna stocks were increasingly the focus

²⁰ Also known as the La Jolla Agreement of 1992, and later the Declaration of Panama of 1995

of public attention? What prevented the U.S. tuna fleet from returning to friendlier and less intensive fishing methods, such as the tuna clippers? One of the reasons may reside in the international programs that protected tuna and dolphin resources. In fact, the international management of tuna stocks, by setting annual fishing quotas per fleet, encouraged a type of intensified fishery that made super purse seiners the most competitive organizational form in the fishery. A less intensified and more sustainable fishing method would not likely outlast competition.

6.3. MAIN EMPIRICAL FINDINGS, THEORETICAL CONTRIBUTIONS, AND LIMITATIONS OF THE STUDY

Cognitive Legitimacy as Organizational Knowledge

One of the main contributions of this research is to examine the concept of cognitive legitimacy in connection with organizational knowledge. The identification of different categories of organizational knowledge is based on a grounded analysis of the news pieces in the selected trade publications. During the coding process, I identified different elements upon which knowledge of the tuna industry was built. Organizational knowledge is conceptualized as the type of knowledge that supports the main activities and products of the tuna industry.

From the onset, technology was the hallmark of the tuna industry. Technological sophistication is particularly evident in the type of vessels built for the tuna fisheries and the canning systems used in order to achieve homogeneous and high quality canned tuna. Reproduction of the organizational form is the second category that sustains the identity of the tuna industry, particularly, the building of powerful, and technologically advanced vessels that could help fishermen control the sea and the uncertainties of the fishing activity.

Routines constitute another fundamental basis of tuna knowledge. Routines concern the daily operations of the tuna industry, both in the fishing and cannery fields, from describing the functioning of canneries, to the different tasks on board fishing vessels, and including information on how prices for tuna are established or the occurrence of fishermen strikes. Routines also include the written and unwritten norms signaling when there are disputes about those norms. Outputs and production capacity of both boats and canneries is yet another important pillar of organizational knowledge. This type of knowledge is particularly important in order to convey the image that the tuna industry is a successful and enduring enterprise. Other types of knowledge also identified are the production of self-assessments and forecasts on the industry itself, narratives on characters, stories, and heroes, and finally collective action tuna trade organizations. However, these latter categories appear less frequently.

Understanding what lies behind the knowledge produced by and for this industry sheds light on what cognitive legitimacy is and how its contents can vary according to changes in organizational knowledge.

Is cognitive legitimacy important for vessel foundings and disbandings?

Cognitive legitimacy can be differentiated according to the *type* of knowledge that is available about an organization, industry, or community. Additionally, cognitive legitimacy can be differentiated according to *whom* receives or *utilizes* the knowledge available about an industry or organization. In my dissertation, I examine knowledge conveyed to producers and consumers. Producers' (i.e., boat owners, fishermen, and cannery owners) knowledge covers the different types of knowledge discussed in the previous section. Consumers' knowledge is viewed along one dimension, i.e. the consumption of canned tuna.

Findings support the original hypothesis that high cognitive legitimacy is positively associated with vessel foundings and negatively associated with vessel disbandings.

Therefore, one can conclude that among producers, the availability of knowledge and its acceptance at high levels constitutes a positive incentive for the creation of new organizations and their continuity in operation.

Consumers' cognitive legitimacy is measured in terms of canned tuna consumption: the higher the consumption of canned tuna, the higher the levels of cognitive legitimacy. Originally, I expected that an increase in cognitive legitimacy among consumers would convey trust and confidence to producers about the strength and success of the industry, and would increase the founding rates and diminish the rate of disbandings. Methodological limitations prevented me from testing the importance of this variable for vessel foundings. On the other hand, tests of this variable on disbandings did not show significant results.

Therefore, the measurement and modeling of consumers' cognitive legitimacy is one of the main limitations of my research. This limitation prevented a full understanding of the role of consumers' cognitive legitimacy in organizational events. As a suggestion for future research, the measurement of consumers' cognitive legitimacy should be based on indicators that are more buffered from market conditions or with which it is possible to introduce important control variables.

The different shades of cognitive legitimacy

When linking the different categories of organizational knowledge to events such as foundings and disbandings, certain categories seem to be more influential than others. On the other hand, different levels of analysis of cognitive legitimacy bear different degrees of importance for organizational foundings and disbandings. In summary, bivariate regressions

show that routines, isomorphism, self-assessment, and collective action are significant categories for foundings and show that science and technology, outputs, isomorphism, and self-assessment are relevant fields of knowledge for disbandings. On the other hand, the analysis shows that high levels of cognitive legitimacy at the organizational level contribute to higher foundings while high levels of cognitive legitimacy at the organizational and population levels decrease disbandings.

I assume that behind these differences there is not so much a conscious selection by potential and established entrepreneurs of the type of knowledge that is important for them, but rather I assume that entrepreneurs have only access to and are only able to *make sense* of specific types and levels of organizational knowledge (Weick 1995). For instance, outsiders may be more prone to understand the functioning and characteristics of single organizations than the complex dynamics and power struggles that occur at a population level. For outsiders, technological systems and machinery may be more difficult to understand than descriptions of new vessels and self-assessment opinion pieces.

However, one should be aware that some of the new foundings were created by insiders. Established entrepreneurs sometimes added another boat to their fleet, or tuna fishermen became owners themselves, or vessel ownership would be passed through family generations. To have more accurate information on the importance of knowledge for foundings, one should distinguish between those founders who are outsiders (lacking the industry's specific knowledge) and those that are insiders. My study was not able to distinguish 'insider versus outsider' foundings so this lack of information is another limitation to this study. This information could have shed more light on the relation between available knowledge and founding processes. Future research however might address the

relation of insider and outsider foundings and the types of organizational knowledge that are relevant to these different types of entrepreneurs. However, this study does show that entrepreneurs look at different aspects of organizational knowledge and thus carry different degrees of information on the industry.

Is moral legitimacy important for organizations and industries?

Moral legitimacy concerns the social and cultural conformity between an industry's goals and activity systems and social values and norms. Following Aldrich and Ruef (2003), I assume that the social worth of an industry or an organization is generally not questioned until the moment when its' worth is subject to negative assessments by opinion leaders, civil society organizations, or other significant stakeholders. Therefore, I expected that low moral legitimacy would have a negative effect on foundings and a positive effect on disbandings.

Contrary to the original hypothesis, the findings show that moral legitimacy has no influence on either vessel foundings or vessel disbandings. When tuna entrepreneurs (either outsiders or insiders) make the decision to enter or add a new boat to their existent fleet, reports of the negative impacts of the tuna industry or the existence of conflicts between the industry and other social groups appear irrelevant. Differentiation between "insider" and "outsider" entrepreneurs would possibly provide additional insight into the importance of moral legitimacy. If one is already a member of an industry they may be less likely influenced by negative exposure than entrepreneurs who may still choose among alternative industries (or at least industries which do not have bad exposure). Likewise, moral legitimacy decreases have no effect on disbanding events. Assuming that disbandings are intentional (and are not the result of accidents, or any other involuntary cause), vessel owners

will probably give more importance to other factors (such as cognitive legitimacy) when exiting the tuna fleet.

The qualitative analysis reveals the different categories of problems related to the tuna industry in the public arena and in the industry arena. In the public arena, the negative impacts associated with the tuna industry include conflicts over territorial waters, the practice of tuna tariffs on imported tuna, vessel accidents at sea, unethical business practices, overfishing and tuna stocks depletion, the killing of dolphins, health risks carried by canned tuna products, and unethical practices towards consumers. The tuna industry perceptions of negative impacts overlap with the public arena with the exception of health risks and unethical practices towards consumers, which are not covered in my sample of industry perceptions.

According to my qualitative analysis each category of negative impacts receive different degrees of media coverage (exposure) depending on whether the coverage is made by the generalist media (public) or trade media (industry). The generalist media gives most prominence to dolphin issues while the trade media highlights overfishing. Secondly, after 1964, news coverage not only reflect a discrepancy in the subject matter covered but also reflect a quantitative difference, with some years having a great deal of negative news in the trade media but little negative coverage in the public media, and vice-versa.

I consider this finding to be promising for future research because it reflects the existence of a misalignment²¹ between the perceptions of the industry and the perceptions of the public about negative impacts associated with the tuna industry from 1964 onwards. This analysis suggests that two different sets of events may promote the downfall of industries and organizations: one set concerns the existence of negative impacts associated with these

²¹ Glynn and Marquis, 2004.

industries, and the second set is an apparent lack of awareness that industries and organizations may have of existing public perceptions.

Is regulatory acceptance important for foundings and disbandings?

I distinguish between national and international regulations. National regulations refer to all legislation issued by the U.S. national regulatory channels that in some way affected the tuna industry. On the other hand, international regulations were voluntarily adopted by countries and were also voluntarily enforced by national entities. Therefore, one law could be issued in a given year, but its enforcement would only take place years later and in different degrees. International regulations include such regulatory instruments as the Tuna Convention Act of 1950 and the International Dolphin Conservation Act of 1992.

Findings showed that international regulations have a negative influence on vessel foundings but are not significant for disbandings. National regulations are not significant for both foundings and disbandings. A possible explanation for why national regulations have a lesser effect than international regulations on foundings and disbandings is that vessel owners, canners, and fishermen involved in the tuna industry may assume that they have lower degrees of control over decision making in the international regulatory arena. As a result they may perceive international regulations as more threatening than national regulations. Moreover, these international platforms also offer a channel for different countries and competitive fisheries to voice their own interests and exert their own influence. Two examples where the tuna industry collectively organized to make their viewpoints known to national regulators are the case of the tariff imposed on tuna imports and the juridical battles concerning dolphin bycatch which resulted in a delay in the application of stricter “dolphin-friendly” laws.

Should organizational research use direct measures of legitimacy?

Yes, organizational research should use direct measures of legitimacy to capture legitimacy effects. Clearly, one of the advantages of using ecological measures of legitimacy is their comparability across industries, and their undeniable contributions to theory building. However, I think it is possible to achieve a degree of replication and comparability with direct measures of legitimacy. Not only it is possible to use similar measures based on trade publications, as it is also possible to develop and apply similar models of organizational knowledge to different organizational populations. The present research shows not only that direct measures of legitimacy can coexist with ecological measures of legitimacy, but that they measure different dimensions of the same phenomena.

Why study natural resource industries in organizational studies?

The study of the tuna industry provides a unique case against which to examine legitimacy processes. Research in organizational ecology has focused primarily on industries in the manufacturing sector and service sector, such as finance and insurance, health, education, labor, trade, and voluntary organizations. Empirical research has seldom examined industries in the agriculture, forestry, fishing, and hunting sector, and mining sectors. My dissertation helps fill this particular gap in research on the sociology of organizations.

Organizations operating primarily in the fishing, agriculture, or forestry industries offer some distinctive traits that make their study pertinent for organizational theory. These organizations have to deal with very specific demands, which are the result of their direct interaction with the natural environment. Unlike organizations active in the service and retail sectors, which are buffered from the natural environment, fishing and farming industries have

to manage routinely unexpected events such as unforeseen weather events, natural disasters, and other changes in ecosystems that can have serious consequences for their business operations.

Secondly, these organizations are located within a disputed and highly conflictive arena of environmental social values and jurisprudence. This tends to create high levels of uncertainty for organizations and dense regulatory environments. Thirdly, many of the activities of organizations operating within natural resource industries tend to produce secondary effects on the environment. For instance, improving the fishing process may result in over-fishing, depletion of stocks, or by-catch of other species; and crop and animal production may cause environmental degradation. These examples show that even though farmers and fishermen may believe that they are exercising their activity in conformance with valid and legitimate norms, secondary effects of their activities may expose them to public criticism. These industries may be particularly susceptible to legitimacy problems and, thus, constitute a privileged site for the analysis of organizational legitimacy processes.

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