

**MANAGING THE GULF SHRIMP FISHERY: ARE  
INDIVIDUAL QUOTAS AND OTHER LIMITED  
ACCESS MECHANISMS NEEDED?**

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## I. INTRODUCTION

John Selden, in his classic response to Hugo Grotius' treatise *Mare Liberum*, stated that, "the sea, by the law of nature or nations, is not common to all men, but capable of private dominion."<sup>1</sup> Although generations of scholars have derided Selden's contention that the seas are capable of ownership,<sup>2</sup> current realities of fishery management necessitate a reevaluation of certain aspects of this conceptualization, specifically with regard to the open access system that underlies shrimping in the Gulf of Mexico and Louisiana today.

At present, the time-honored shrimping industry in the Gulf of Mexico and Louisiana finds itself at a crossroads. Although open access has been a policy fixture and a *de facto* "right" for generations, the negative economic and ecological implications of continuing this regime beg the question of whether access to Gulf shrimp resources should be limited, and, if so, in what manner.

While a variety of limited access mechanisms have been devised and implemented in different jurisdictions, one of the most successful, and parenthetically controversial, techniques utilized in the management and conservation of fisheries involves the creation of a system of "individual quotas" (IQ). IQ systems limit access to a given species via the issuance of annual quotas based typically on historic catch to a finite number of fishermen (or vessels). Moreover, such quotas, which can be legislatively made "transferable," represent the privatization of a natural resource and the ultimate vindication of Selden's thesis.

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1. James Brown Scott, *Introductory Note to HUGO GROTIUS, THE FREEDOM OF THE SEAS* ix (Ralph van Deman Magoffin trans., 1916) (1633) (quoting JOHN SELDEN, *MARE CLAUSUM*). Grotius, a Dutch lawyer, published his treatise advocating free access to the oceans in 1608 at the request of the Dutch East Indies Company; the aim was to refute Spanish and Portuguese claims to specific portions of the world's seas and to the right to exclude foreigners therefrom. Selden, an English lawyer, countered on behalf of English, who, like the Spanish and Portuguese, also claimed portions of the high seas. *Id.* at v-ix.

2. James Brown Scott writes that while "the *Mare Liberum* is still an open book, the *Mare Clausum* is indeed a closed one, and as flotsam or jetsam on troubled waters, [*Mare Liberum*] rides the waves, whereas its rival, heavy and water-logged, has gone under." *Id.* at ix.

This Article will assess the applicability of "individual quotas" (IQs) to the Gulf shrimp fisheries. Upon evaluation of the problems faced by these fisheries in light of the biological particularities of shrimp, the scope of shrimping in Louisiana, the current management structure, and other alternative limited access strategies, the bottom line that emerges is that access to Gulf shrimp fisheries should be limited and that individual quotas represent the most effective way of accomplishing this end.

## II. THE FACTUAL PREDICATE

### A. *The Fishery Itself*

The Gulf of Mexico shrimp fishery is dominated by the three main species, commonly known as white, brown, and pink shrimp.<sup>3</sup> These three species comprise roughly 98% of the annual commercial catch of shrimp in the Gulf.<sup>4</sup> The remaining 2% of the catch is composed of seabobs, sugar shrimp, rock shrimp, and royal reds.<sup>5</sup>

All three of the major species inhabit the waters along the North American seaboard from Martha's Vineyard in Massachusetts to the Yucatan in Mexico.<sup>6</sup> The highest concentrations of brown shrimp are located off the coast of Texas, with relatively high concentrations along the coast of Louisiana, as well.<sup>7</sup> White shrimp exist in their highest concentrations along the Louisiana coast between the Mississippi River and the Texas state line.<sup>8</sup> Pink shrimp concentrations are highest along the southwest tip of Florida.<sup>9</sup>

The biological lifecycle of shrimp is a critical factor in designing mechanisms to manage and conserve the fishery. Each adult female

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3. HAROLD F. UPTON, ET AL., THE GULF OF MEXICO SHRIMP FISHERY: PROFILE OF A VALUABLE NATIONAL RESOURCE 4 (1992).

4. *Id.* In 1984, brown shrimp comprised 55% of this catch, white shrimp 33%, and pink shrimp 10%. Although annual fluctuations inevitably occur, these percentages have remained relatively constant over the past thirty years (+/- 2%). *Id.* at 31.

5. *Id.* at 4. In the scientific community, brown, white, and pink shrimp are respectively known as *Penaeus aztecus*, *Penaeus setiferus*, and *Penaeus duorarum*. The four minor species are scientifically classified as *Hymenopenaeus robustus* (royal reds), *Xiphopenaeus kroyeri* (seabobs), *Sicyonia brevirostris* (rock shrimp), and *Trachypenaeus similis* (sugar shrimp). *Id.*

6. *Id.* at 11. The only exception is on the Gulf coast of Florida where only pink shrimp can be found. *Id.* at 12.

7. UPTON, *supra* note 3, at 13.

8. *Id.* at 13.

9. *Id.*

shrimp lays hundreds of thousands of eggs at sea each year.<sup>10</sup> These eggs hatch within twenty-four hours of being externally fertilized.<sup>11</sup> Over the next two to three weeks, ocean currents carry the planktonic larvae into coastal estuaries/marshes.<sup>12</sup> In the nutrient rich environment of the protected coastal marshes and estuaries, the postlarvae develop over the next two to four weeks into juvenile shrimp.<sup>13</sup> Gradually, the maturing shrimp exit the marshes/estuaries, move out to sea, assimilate into the adult shrimp fishery and, in time, repeat the annual cycle by spawning.<sup>14</sup> In so far as lifespan, most shrimp do not live for more than one year.<sup>15</sup>

### B. *The Scope of Shrimping in Louisiana*

Shrimping in the Gulf of Mexico, and Louisiana in particular, represents a highly lucrative industry that provides a source of livelihood for many individuals. Of all the major United States fisheries, shrimping ranks second in terms of revenue generated and seventh in the number of pounds harvested.<sup>16</sup> Moreover, of these figures, eighty-one percent of the total value of United States landings and seventy-two percent of the total quantity harvested nationally come from the shrimping industry in the Gulf of Mexico.<sup>17</sup> Although Louisiana has traditionally been the nation's top shrimp producer, Texas has in recent years replaced Louisiana as the nation's dominant shrimp producing state.<sup>18</sup> Nonetheless, shrimping in Louisiana continues to generate substantial amounts of revenue as was

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10. *Id.* at 7. The average brown shrimp lays 100,000 to 300,000 eggs per spawn, with one spawn per year. *Id.*

11. UPTON, *supra* note 3, at 6.

12. *Id.*

13. *Id.*

14. *Id.* at 6-7.

15. Tommy C. Simmons, *From Sea to Table*, BATON ROUGE ADVOCATE, Aug. 3, 1995, at 1F (quoting Brand Savoie, head of the Louisiana Department of Wildlife and Fisheries' shrimp division).

16. *Id.*

17. UPTON, *supra* note 3, at 1. In 1990, 346.5 million pounds of shrimp were landed in the United States, of which 249.5 million pounds were derived from the Gulf shrimp fishery. The total value of United States landings in 1990 was calculated at \$491.4 million, of which \$398.6 was attributable to Gulf shrimping. *Id.*

18. *Id.* at 26. Although Louisiana accounted for two-thirds of the value of Gulf landings in the late 1940s, by 1981, Texas' share of this value had grown to 46% while Louisiana's share declined to 28%. *Id.*

demonstrated by the total 1994 dockside valuation for landed shrimp of \$157 million.<sup>19</sup>

C. *Competing Interests: Commercial versus Recreational*

Of the approximately thirteen thousand boats that make up the commercial shrimping fleet in the Gulf of Mexico, five thousand are off-shore shrimpers that target predominantly adult brown and red royal shrimp.<sup>20</sup> The remaining eight thousand are in-shore food and bait shrimpers that target principally juvenile white, pink, and brown shrimp.<sup>21</sup> In comparison to the commercial fleet, the recreation shrimping fleet is comprised of approximately forty-five thousand boats in the Gulf and Atlantic.<sup>22</sup> Moreover, commercial shrimping in Louisiana is dominated by small-scale operations as opposed to large-scale, corporate shrimping fleets.<sup>23</sup>

In addition to the two primary user groups, the Louisiana legislature has created a sub-grouping of Cajun and Creole shrimp trawlers.<sup>24</sup> Specifically, the relevant statute stipulates that "shrimp trawls are part of the Cajun and Creole heritage of the state and, as such, should be preserved in order to help maintain the Cajun and Creole culture."<sup>25</sup> Accordingly, trawling by Cajun and Creole shrimpers has become a sacrosanct activity that cannot be prohibited.

III. NATURE OF THE PROBLEM

As managed under the current open access system, the Gulf shrimp fishery faces a number of serious problems that threaten not only the biological stability of the associated shrimp populations, but also the macroeconomic utility derived by society from such endeavors. Among the most serious issues facing the fishery are: (1) overcapacity and overcapitalization, (2) overfishing, and (3) habitat loss.

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19. Simmons, *supra* note 15, at 9F. Of the \$157 million landed, the dockside value for brown shrimp was \$57 million, while white shrimp brought in \$96 million dockside.

20. UPTON, *supra* note 3, at 13-15.

21. *Id.*

22. *Id.* at 16.

23. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, in Baton Rouge, La. (Oct. 20, 1995).

24. LA. REV. STAT. ANN. § 49:170.3 (West 1995).

25. *Id.*

A. *Overcapacity and Overcapitalization*

Overcapacity and overcapitalization are conceptually related problems with serious economic and biological repercussions. Specifically, a fishery becomes overcapitalized when harvesting capacity exceeds that necessary to harvest a given resource. Overcapitalization ultimately results in declining financial performance and the dissipation of economic rent. Unlike declines in financial performance that are detrimental to the *individual* capital investor in a particular fishery, the dissipation of economic rent poses a far greater threat to *society* at large.

“Economic rent” is a macroeconomic concept grounded in societal utility. It is defined as the surplus that remains after all costs and normal profits have been deducted from total revenues.<sup>26</sup> Within this setting, “normal profits” constitute “the return on investments in capital and labor that could be expected in another economic activity outside of the shrimp fishery.”<sup>27</sup>

As harvesting capacity increases beyond that needed to harvest the resources, total costs (and normal profits) rise at a rate faster than revenues. As this occurs, economic rent gradually dissipates until total revenue includes nothing but costs and normal profits. Theoretically, once economic rent disappears, the continually increasing costs begin eating away at normal profits, at which point in time the prudent investor would exit the industry. Economists argue that by: (1) utilizing management strategies that increase size of stock and size of shrimp, (2) increasing shrimp prices, and/or (3) reducing costs via technical innovation, an overcapitalized shrimping industry can increase “economic rent.”<sup>28</sup> However, adoption of any of these factors will attract

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26. UPTON, *supra* note 3, at 60. Economic rent is comprised of two unique components: (1) entrepreneurial rent and (2) resource rent. Entrepreneurial rent is defined as “the portion of surplus profits arising from the specific skills of the operator or fishermen.” Resource rent, on the other hand, is a concept unique to ventures utilizing common resources. In the context of the harvesting of shrimp, a common resource under the current open access regime, resource rent specifically refers to the “value a fisherman would be willing to pay [on the open market] for the right to harvest shrimp.” *Id.* In economic endeavors utilizing resources that are not common, economic rent is solely the product of entrepreneurial rent.

27. *Id.* Although functionally distinguishable, “normal profits” are similar to the economic concept of “opportunity cost.” Given a multiplicity of input options, the output, whether profit or cost, will vary according to the initial choices and allocations. Accordingly, attempts to maximize profit or, in the alternative, to minimize cost require front-end determinations of the optimal utilization of limited resources.

28. *Id.* at 61.

more entries to the market.<sup>29</sup> Consequently, even market manipulation in a free access system will invariably lead to continued dissipation of economic profits.

Overcapacity and overcapitalization have, in fact, occurred in the Gulf shrimp fishery, specifically with regard to the brown and white shrimp populations.<sup>30</sup> Between 1960 and 1990, nominal directed effort for brown and white shrimp increased dramatically.<sup>31</sup> Moreover, a significant increase in the number of boats and vessels trawling in Gulf waters occurred during this time span.<sup>32</sup> Industry experts argue that the current optimum fleet size is 30% less than the existing fleet size.<sup>33</sup> The combination of increases in the number of days trawled and fleet size has not, however, lead to equally sizable increases in catch. As Ken Roberts articulated in a 1992 analysis of the Gulf shrimp fishery, “[e]ven though the size of the shrimp fleet has expanded significantly during the past two decades, catch has only increased marginally.”<sup>34</sup>

Although not exclusively responsible for these problems, it is generally believed that overcapacity and overcapitalization are the direct result of open access.<sup>35</sup> As such, the only viable solution to these problems involves the limitation of access to the fishery itself.

### B. Overfishing

In contrast to the predominantly economic implications of overcapacity and overcapitalization, overfishing represents primarily a

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29. *Id.*

30. Evidence does not indicate the existence of a similar threat to the pink shrimp fishery in the Gulf of Mexico; catch and effort figures from the past thirty years have remained remarkably constant.

31. UPTON, *supra* note 3, at 33. In this thirty year period, the number of days fished for brown shrimp increased over 300% (from roughly 65,000 to 205,000 days per year), while the corresponding figure for white shrimp jumped over 400% (from roughly 40,000 to 190,000 days per year). *Id.*

32. *Id.* at 61. Although precise statistics are unavailable, government port records indicate that the number of “vessels” (defined as five net tons or more) in such waters increased from 3,487 (in 1971) to 5,930 (in 1988). Similarly, the number of “boats” (defined as five net tons or less) trawling the same waters rose from 4,828 (in 1971) to 10,729 (in 1988). *Id.*

33. *Id.* at 59.

34. *Id.* at 61. From 1960 until 1989, annual shrimp landings for both brown and white shrimp increased approximately 125%. Catch for brown shrimp rose from 60 million pounds to 85 million pounds, while catch for white shrimp increased from 29 million pounds to 36 million pounds. *Id.* at 32.

35. The creation of federal loan programs that give tax incentives to investors in the shrimping industry represents an example of an additional factor that exacerbates the problem.

biological dilemma, despite the existence of strong economic undercurrents. Analysis of these issues involves evaluation of both “growth” and “recruitment” overfishing.<sup>36</sup>

Although both growth and recruitment overfishing occur as the result of high levels of effort, the associated impact of each phenomenon is distinctive. Growth overfishing causes decreases in the average size of shrimp harvested over time and is typically a consequence of overfishing early in the season.<sup>37</sup> In comparison, recruitment overfishing occurs when the take of adult shrimp in a given year is so great that the species is biologically incapable of replenishing its stocks to the preexisting levels.<sup>38</sup> Moreover, “species that only live for one or two years are susceptible to population crash from recruitment overfishing because there is only one generation able to reproduce.”<sup>39</sup> Given the fact that larger shrimp net higher prices and greater revenue than smaller shrimp, growth overfishing has obvious economic ramifications. Recruitment overfishing, in contrast, represents a serious biological problem that places the fishery’s very existence in jeopardy.

With regard to brown and white shrimp in the Gulf fishery, growth overfishing is unquestionably occurring. Research indicates that in the period from 1960 through 1990, the average tail weight of brown shrimp decreased from approximately 9.0 grams to 5.5 grams, and the corresponding tail weight of white shrimp decreased from approximately 10.75 grams to 6.25 grams.<sup>40</sup> Despite these decreases in the weight of the average shrimp, shrimping experts in Louisiana argue that even if growth overfishing is occurring, it is not of critical importance to the Louisiana shrimp industry.<sup>41</sup> Although growth overfishing is a problem for states like Texas that place emphasis on larger shrimp, Louisiana’s shrimp industry is centered predominantly on smaller shrimp that are typically dried or peeled.<sup>42</sup>

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36. UPTON, *supra* note 3, at 63.

37. *Id.*

38. *Id.* According to the Gulf Council’s shrimp FMP, recruitment overfishing is indicated when parent stock levels of: brown shrimp are reduced below 125 million shrimp; white shrimp are reduced below 330 million shrimp; and pink shrimp are reduced below 100 million shrimp.

39. *Id.* Population crash occurs when the population precipitously plummets rather than gradually declining. *Id.*

40. UPTON, *supra* note 3, at 35. No comparable trend is discernible from available statistics with regard to pink shrimp populations. *Id.*

41. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, in Baton Rouge, La. (Oct. 20, 1995).

42. *Id.*

According to the Gulf Fishery Management Council and other regional experts, recruitment overfishing is “statistically impossible” with regard to the Gulf shrimp fishery (and shrimp in general).<sup>43</sup> This assertion is premised on the fact that a single female shrimp lays hundreds of thousands of eggs each year. As such, a large surviving adult shrimp population is not required to replenish the stocks.

Other scientists argue that recruitment overfishing is not only a “statistical impossibility,” but that it specifically contributed to a white shrimp population “crash” in the 1940s.<sup>44</sup> Furthermore, some scientific evidence indicates that recruitment overfishing is presently occurring with regard to white shrimp populations in the Gulf of Mexico.<sup>45</sup> At this point in time, however, it is unclear whether recent decreases in white shrimp recruitment are merely the product of a normal deviation from the statistical norm.<sup>46</sup>

### C. *Habitat Loss*

The “weakest link,” as it is often termed, in a shrimp’s life cycle occurs as postlarvae shrimp transform into juvenile shrimp in the estuaries and marshes lining the Gulf coast.<sup>47</sup> Such habitats are essential for these shrimp because they provide abundant nutrients, protective

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43. UPTON, *supra* note 3, at 45 (citing the Gulf Council’s findings that “(1) there is no demonstrable relation between stock size and recruitment levels for Gulf of Mexico shrimp stocks; (2) recruitment overfishing of shrimp stocks is impossible; (3) there should be no constraint on the quantity of shrimp taken each year; (4) the environment—especially temperature and salinity—and not stock size, controls the success of recruitment . . .”). *Id.*

44. UPTON, *supra* note 3, at 64.

45. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, in Baton Rouge, LA (Oct. 20, 1995). Assertion corroborated by decline in Gulf white shrimp recruitment populations from 14 billion shrimp (in 1985) to 6 billion shrimp (in 1989). However, this decline must be evaluated in consideration of the fact that between 1960 and 1990, Gulf white shrimp recruitment populations have varied from a low of 2 billion shrimp (in 1962) to a high of 14 billion (in 1985). Since the aforementioned decline occurred after the 1985 record high, it would be premature to reach any final conclusions with regard to this issue.

46. *Id.* The aforementioned decline must be evaluated in consideration of the fact that between 1960 and 1990, Gulf white shrimp recruitment populations have varied from a low of 2 billion shrimp (in 1962) to a high of 14 billion (in 1985). Since the this drop occurred after the 1985 record high, it would be premature to reach any final conclusions with regard to this issue. Additionally, it is important to note that the Gulf Council’s recruitment overfishing criteria do not support the assertion that such overfishing is currently occurring in the white shrimp fishery; for the past three decades, parent stock levels have been appreciably higher than 330 million level established in the shrimp FMP.

47. UPTON, *supra* note 3, at 68.

vegetation, and relatively low concentrations of predators.<sup>48</sup> The basic survival of estuarian shrimp also requires the existence of very precise salinity levels and water temperatures.<sup>49</sup> Accordingly, slight variations in temperature and/or salinity in the marshes and estuaries can have dire effects on shrimp populations.

Based on available research, loss of the fragile marsh and estuarian habitats required by developing shrimp is unquestionably occurring. In Louisiana, 500,000 acres of salt marshes have been lost since the late 1950s.<sup>50</sup> Moreover, at present, marshes in Louisiana disappear at a rate of 50 square miles per year.<sup>51</sup> In addition, the normal hydrology of the remaining habitat has, in many instances, been disturbed. The causes of these ecological crises include urbanization, global warming, industrial development, toxic dumping, levee construction, oil exploration, and agricultural development.<sup>52</sup>

Although rapid habitat loss does pose a serious biological problem to the Gulf shrimp fishery, it is not the sole threat to the aforementioned species. Shrimpers who oppose the implementation of limited access mechanisms argue vehemently that any perceived biological crisis in the fishery is exclusively attributable to habitat loss, not increased industry effort. However, lasting solutions to the biological and economic problems facing the Gulf shrimp fishery today require the realization that the dilemma is multi-faceted with neither fishing pressure nor habitat erosion being independently responsible.

#### IV. CURRENT MANAGEMENT OF THE GULF SHRIMP FISHERY

Although Gulf shrimp fisheries were managed by the individual states prior to 1949, the current management system divides authority between the federal and state governments.<sup>53</sup> The Magnuson Fishery and Conservation Act of 1976 (FCMA) granted the federal government authority to manage and conserve all fishery resources (save highly migratory species) in a zone extending from three nautical miles out to

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48. *Id.* at 7.

49. *Id.* Specifically, at the estuarian stage of development, brown shrimp require water temperature greater than 68 degrees Fahrenheit and salinity between 10ppt and 15ppt; white shrimp require water temperatures greater than 77 degrees Fahrenheit and salinity less than 10ppt. *Id.*

50. *Id.* at 6.

51. UPTON, *supra* note 3, at 6.

52. *Id.* at 68-70.

53. *Id.* at 41-42.

two hundred nautical miles off the coastline; this area is referred to as the “Exclusive Economic Zone” (EEZ).<sup>54</sup> Responsibility for fisheries within three nautical miles of the shoreline was reserved to the individual states.

*A. The Federal Approach to Shrimp Management*

Structurally, the FCMA created eight Regional Fishery Management Councils, each responsible for preparing, monitoring, and revising fishery management plans (FMPs) for the fisheries located in the applicable federal waters.<sup>55</sup> The Gulf Council, the regional council charged with the management and conservation of Gulf of Mexico fisheries, adopted an FMP for the shrimp fishery in 1981.<sup>56</sup> The principle objective of the FMP was to maximize yield and value of shrimp recruitment by deferring harvest via seasonal and area closures to allow shrimp to reach larger, preferred sizes.<sup>57</sup> In order to achieve this objective, the Gulf Council proscribed three specific measures.<sup>58</sup>

First, the Gulf Council established a permanent closure off the south-west coast of Florida to protect small pink shrimp until they reached a size of roughly sixty-nine tails per pound.<sup>59</sup> This closure, known as the “Tortugas Shrimp Sanctuary,” is a cooperative effort by the state of Florida and the Department of Commerce.<sup>60</sup> As implemented, the area serves as a nursery for young pink shrimp. Although the Tortugas Shrimp Sanctuary has been successful in addressing growth overfishing, Florida pink shrimpers strongly oppose the Sanctuary and continually complain of economic hardship.<sup>61</sup> In response to such complaints, the Sanctuary has been partially opened to shrimping on two

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54. 16 U.S.C. § 1811 (1988). The “Exclusive Economic Zone,” statutorily defined in 16 U.S.C. § 1802(6) (1988), was established via Presidential Proclamation No. 5030 on March 10, 1983. The exclusion for “anadromous species” is provided in 16 U.S.C. § 1812 (1988).

55. 16 U.S.C. § 1801(b)(5) (1988). The national standards for fishery conservation and management upon which the FMPs are to be based are outlined in 16 U.S.C. § 1851 (1988). Moreover, the specific contents that are to be contained in FMPs are provided in 16 U.S.C. § 1853 (1988).

56. UPTON, *supra* note 3, at 45. The FMP applied to the Gulf shrimp fishery was applicable with regard to brown, white, pink, red royal, seabob, and rock shrimp species. *Id.*

57. *Id.* at 47.

58. *Id.* at 46.

59. *Id.*

60. UPTON, *supra* note 3, at 46, 51.

61. *Id.* at 51.

occasions; however, due to excessive taking of smaller shrimp, the Sanctuary was closed shortly thereafter.<sup>62</sup>

Second, the Gulf Council established a closure of the territorial sea of Texas and adjacent federal waters during periods in which a substantial portion of the brown shrimp are less than a count of sixty-five tails per pound.<sup>63</sup> This closure, known as the "Texas Closure," has been operated since 1981 as a cooperative effort between the state of Texas and the Department of Commerce.<sup>64</sup> Under the Texas Closure, the EEZ is closed to brown shrimp fishing for approximately forty-five days each year.<sup>65</sup> State waters are also closed during this same period.<sup>66</sup> The closure has succeeded in increasing the yield and value of brown shrimp.<sup>67</sup> Since the closure was initiated, catch per unit of effort has been consistently higher in Texas than in neighboring states.<sup>68</sup>

Third, the Gulf Council recommended that all states consider establishing shrimp sanctuaries in important segments of nursery grounds under their sole jurisdiction.<sup>69</sup> At present, no states have implemented the Gulf Council's recommendation.

With regard to "recruitment overfishing," the FMP for the Gulf shrimp fishery emphasizes that shrimp are biologically immune to the effects of intense fishing pressure because shrimp have a rapid rate of growth, reach sexual maturity within a year, and have a high capacity to reproduce.<sup>70</sup> In addition, the Gulf Council acknowledges that overcapacity is a problem, but argues that a large-scale reduction of participants in a fishery has never successfully been accomplished.<sup>71</sup> In the final analysis, the Gulf Council has concluded that the chief threat to the Gulf shrimp fishery comes from habitat loss.<sup>72</sup> As such, the Council established a committee to assess the problem.

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62. *Id.*

63. *Id.* at 46.

64. UPTON, *supra* note 3, at 46.

65. *Id.* at 49.

66. *Id.* at 50.

67. *Id.*

68. UPTON, *supra* note 3, at 51.

69. *Id.* at 46.

70. *Id.* at 47.

71. *Id.* at 54.

72. UPTON, *supra* note 3, at 47.

*B. The Louisiana Approach to Shrimp Management*

Louisiana's approach to shrimp management, premised on the concept of "open access," is the least restrictive of the five Gulf states. Current Louisiana statutory regulations require all participants to obtain a license for a nominal fee.<sup>73</sup> However, once they obtain a license, shrimpers are only limited by a proscribed shrimping season<sup>74</sup> and a one hundred shrimp per pound count limitation (applicable at all times save the spring open season).<sup>75</sup> In comparison to similar count restrictions in the other Gulf states, Louisiana's limitations are very lax.<sup>76</sup> Finally, Louisiana has additional stipulations regarding standard gear restrictions.<sup>77</sup>

*C. The Texas Approach to Shrimp Management*

In comparison to Louisiana's *laissez faire* approach to shrimp management, Texas has regulated its shrimp fishery through a combination of relatively progressive mechanisms. In addition to the aforementioned "Texas Closure," Texas has recently enacted legislation that limits access to its shrimp fishery via a license limitation.<sup>78</sup> As officials at the Texas Parks and Wildlife Department noted with regard to the old regime, "uncontrolled access leads to an overcapitalized, economically stressed industry and eventually to overfished populations."<sup>79</sup>

The "Shrimp License Management Program," as it is titled, stipulates that after August 31, 1995, Texas will not issue any new

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73. LA. REV. STAT. ANN. § 327 (West 1994).

74. *Id.* § 497. Fishing seasons are set annually on the basis of biological & technical data.

75. *Id.* § 498.

76. UPTON, *supra* note 3, at 42. The following are the count restrictions in the other Gulf states: Florida, 47-55 shrimp per pound (depends on location); Alabama, 68 shrimp per pound; Mississippi, 68 shrimp per pound; Texas, 50 shrimp per pound. *Id.*

77. *Id.* Specifically, Louisiana requires: (1) mandatory use of "turtle excluder devices" (TEDs); (2) mesh size of 5/8 inches bar or 1-1/4 inches stretched mesh; (3) in Chandeleur Sound, two trawl nets <65 allowed, with one try-net; and (4) no more than four trawls used simultaneously in off-shore waters. *Id.*

78. TEX. PARKS & WILD. CODE ANN. § 77.111-123 (West 1995).

79. *Texas Adopts Limited Access in Bay Shrimping*, ST. BERNARD FISH TALES (Louisiana Cooperative Extension Service, Louisiana State University, Baton Rouge, La.), Aug. 1995, at 2. Prior to the institution of the license limitation plan, the Texas bay and bait shrimp fishery had experienced a 300% increase in bay shrimping effort and a 600% jump in landings of small brown shrimp (67 count and greater) since the early 1970s. *Id.*

commercial bay or bait shrimp boat licenses.<sup>80</sup> Existing licenses are not transferable except to another licensed market participant, heirs/devisees, and “historical shrimp boat captains.”<sup>81</sup> Moreover, no person is allowed to directly hold more than four such licenses.<sup>82</sup> Furthermore, licenses are revocable if the shrimper violates any number of provisions.<sup>83</sup> In addition, the plan implements a buy-back mechanism in which the state establishes a commission which buys licenses from shrimpers and proceeds to retire them.<sup>84</sup> This plan, however, is limited in its application in that it only applies to Texas’ inland waters. The scope of coverage does not extend to the state’s nine mile territorial waters or the federal EEZ.<sup>85</sup>

## V. APPLICABILITY OF INDIVIDUAL QUOTAS

### A. *In General*

“Individual Quotas” (IQs) are a limited access mechanism at the cutting-edge of fishery management. Implementation of a system of IQs involves defining “Total Allowable Catch” (TAC) and allocating shares of TAC to participants of a fishery on an equitable basis.<sup>86</sup> The original allocation of shares can be accomplished in any number of ways including by lottery, auction, historical landings, or vessel capacity.<sup>87</sup> Ultimately, IQs constitute a flexible method of addressing many of the problems confronting modern fisheries via the de facto privatization of a natural resource.

Individual Quotas come in many forms and variations and should be tailored to meet the specific needs of a particular fishery. Shares can be allocated by poundage, quantity of shrimp, or percentage of TAC.<sup>88</sup>

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80. TEX. PARKS & WILD. CODE ANN. § 77.112 (West 1995).

81. *Id.* § 77.113.

82. *Id.* § 77.114.

83. *Id.* § 77.117.

84. TEX. PARKS & WILD. CODE ANN. § 77.119 (West 1995).

85. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, in Baton Rouge, La. (Oct. 20, 1995).

86. UPTON, *supra* note 3, at 77. TAC is defined as “[t]he annual recommended catch for a species or species group. A regional Council sets TAC from the range of allowable biological catch.” KENNETH J. ROBERTS, DECISION GUIDE TO INDIVIDUAL QUOTA (IQ) MANAGEMENT OF FISHERIES 23 (1995).

87. UPTON, *supra* note 3, at 78. Criteria for participation in an auction or lottery could be limited based on historic landings, investment, or recent participation. *Id.*

88. One of the benefits of distributing shares as a percentage of TAC is that TAC can be adjusted on a year-to-year basis without having to recalculate poundage or quantity allocations.

Moreover, IQs can be allocated by fishermen (termed IFQ) or by vessel (termed IVQ).<sup>89</sup> In addition, IQs can be made to be transferable (ITQ) or not.<sup>90</sup> The bottom line is that one size does not fit all when it comes to the creation of a system of IQs.

### B. *Currently Implemented Plans*

In the past decade, individual quota systems have gained momentum as a viable option for limiting access to strained world fisheries. At present, IQs are utilized by numerous countries including Canada, Iceland, Australia, and New Zealand.<sup>91</sup> Although no state has yet to implement such a system with regard to any fishery in state waters, several of the federal Fishery Management Councils currently utilize IQs in the management of specific fisheries.<sup>92</sup>

In 1990, the Mid-Atlantic Council implemented a system of ITQs for the Mid-Atlantic surf clam and ocean quahog fisheries.<sup>93</sup> This program, the first of its kind in the United States, was based on historic landings during the period from 1979 through 1988.<sup>94</sup> The quotas in this regime can be sold or leased among vessels meeting minimal licensing requirements.<sup>95</sup> Although participant displacement has inevitably occurred,<sup>96</sup> the overall benefits of these ITQs have been positive from both an ecological and economic standpoint. As a result of implementation, prices for the fish have increased, "derby fishing" has

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89. Roberts, *supra* note 87, at 1.

90. *Id.* Transferability can be statutorily defined such that shares are: (1) restricted to certain classes of people (e.g., only current fishery participants); (2) required to be transferred in their entirety or in part; (3) permanent or only temporary (a "lease" of sorts). *Id.*

91. *Id.* at 17-18.

92. *Id.* at 16.

93. Roberts, *supra* note 87, at 16.

94. *Id.*

95. *Id.*

96. Myles Raizin, *Individual Transferable Quotas of the Surf Clam and Ocean Quahog Fishery of the Northwest Atlantic*, in *THE USE OF INDIVIDUAL QUOTAS IN FISHERIES MANAGEMENT* 161, 167-171 (1993). Within four months of the system's establishment, the number of shareholders decreased from 154 to 121 owners in the surf clam fishery and from 117 to 90 owners in the quahog fishery. *Id.* Moreover, after two years, the number of participants had decreased even further to 118 owners in the surf clam and 80 owners in the ocean quahog fishery. *Id.* Although recent data indicates that share concentration levels have reached a new equilibrium, such levels experienced marked initial increases; presently, 10% of the participants in the surf clam fishery own approximately 40% of the allocated shares (up from an initial 25%), and 10% of the participants in the ocean quahog fishery own approximately 60% of the allocated shares (up from an initial 35%); however, an equilibrium appears. *Id.*

ended, fleet size has been reduced dramatically, operating flexibility and efficiency have increased, and foreign ownership (via the purchase of United States fishing companies) has also increased.<sup>97</sup>

As a result of the rapid increase in fishing from the 1980s to the 1990s, wreckfish fishing off the Georgia coast came under ITQ management in 1992.<sup>98</sup> In many ways, this regime represents the ideal scenario for quotas; not only is the fishery located exclusively in federal waters, it is fished by relatively few commercial fishermen and has little impact on recreational fishing.<sup>99</sup> Participation in the program is based on historic landings.<sup>100</sup> Once in the program, 50% of TAC is allocated on the basis of historic landings and the remaining 50% of TAC is divided equally among the participants.<sup>101</sup> The results of this program have been positive: (1) prices have doubled; (2) the wreckfish fishery has become more efficient and less capital has been required of market participants; (3) the number of vessels has decreased and share values have increased.<sup>102</sup>

Two additional quota systems (both ITQs) were implemented in 1995 for the sable and halibut fisheries (North Pacific Council)<sup>103</sup> and the red snapper fishery (Gulf Council).<sup>104</sup> Although evaluation of the impact of these programs is still pending, the result should be as positive as the aforementioned programs.

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97. Roberts, *supra* note 87, at 16.

98. *Id.* In 1987, when commercial harvesting of wreckfish began, only two vessels worked the fishery; this figure expanded to six vessels in 1988, 25 vessels in 1988, and roughly 40 vessels in 1990. Tom Haynes, *Council Crafts Plan For Wreckfish*, ORLANDO SENTINEL TRIB., Aug. 4, 1991, at E3.

99. Roberts, *supra* note 87, at 16.

100. *Id.*

101. *Id.*

102. *Id.* Of the 51 participants initially allocated shares in 1992, only 39 participants remained as of 1994. Betsy Carpenter & Lisa Busch, *Not Enough Fish in the Stormy Sea*, U.S. NEWS & WORLD REP. Aug. 15, 1994, at 55.

103. Roberts, *supra* note 87, at 16.

104. Jerald Horst, *Snapper Limit Falls, Size Increases*, TIMES-PICAYUNE, Nov. 2, 1995, at 4F1.

VI. SHOULD A SYSTEM OF INDIVIDUAL QUOTAS BE ADOPTED FOR THE GULF SHRIMP FISHERY?

A. *Limiting Access to the Gulf Shrimp Fishery is Necessary*

If access is to be limited to the Gulf shrimp fishery, it is going to be limited for primarily economic rather than biological reasons. As previously discussed, the Gulf shrimp fishery faces the following problems: (1) overcapacity and overcapitalization, (2) growth overfishing, (3) possible recruitment overfishing with regard to the white shrimp populations, and (4) habitat loss. Although habitat loss is a significant problem, it is a problem that limited access mechanisms will not address; independent regulation is required to confront this issue. With regard to the remaining problems, however, limiting access is the only solution since these problems are largely born of the open access system itself. Continuation of the open access system will only serve to exacerbate these problems.

B. *Individual Quotas in General: The Optimal Solution for Limiting Access*

Once decision-makers determine that limited access is preferable to the continuation of the current open access regime, they have three varieties of implementing mechanisms from which to choose; specifically, (1) closures, (2) license limitations, and (3) individual quotas. Although closures and license limitations have proven effective means of addressing, respectively, the problems of growth overfishing and overcapacity, neither modus successfully confronts the issues of overcapitalization and potential recruitment overfishing.

Closures, whether permanent as with the Tortugas Shrimp Sanctuary or temporary as with the Texas Closure, are excellent means of protecting younger, developing shrimp. In creating an effective system of regulation for the Gulf fishery, such closures should be used *in conjunction with* other mechanisms that address the issues of overcapitalization and recruitment overfishing.

While license limitations, as implemented in Texas, address the serious issue of the number of participants utilizing a fishery (and, theoretically, overcapitalization), such mechanisms do not, however, prevent those licensed participants from perpetuating the race for as large a portion of TAC as possible. "Derby fishing," as it is known, inevitably continues, but within the realm of a smaller pool of participants. Not only

does derby fishing place continued biological pressure on the fishery, it also leads to continued overcapitalization; in order to remain competitive, each licensed participant is forced by the marketplace into spending ever greater amounts of capital on better technology. The bottom line with regard to license limitations is that they naively ignore the realities of normal marketplace behavior and, in so doing, merely shift the parameters of the problem.

Individual quotas, on the other hand, not only confront the issue of overcapacity, but, more importantly, they also confront the problems associated with overcapitalization and potential recruitment overfishing. By specifically allocating portions of TAC to individual fishermen, the problem of derby fishing along with the associated implications of overcapitalization vanish. Once allocated, the individual fisherman is free to catch his/her quota all at once or spread it out evenly over the course of the year. It should be noted that individual quotas are not without their problems. Among the suggested negatives are (1) the possibility of "high-grading" (i.e. shrimpers discarding lower-valued shrimp in an effort to fill their quota with the most highly valued product) and (2) "quota busting" via the large number of landings cites.<sup>105</sup> While such problems are conceivable, specific restraints can be built in to the individual quota program so as to minimize the occurrence of such events.<sup>106</sup>

Although imperfect, individual quotas represent the most effective means of limiting access to a given fishery.

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105. UPTON, *supra* note 3, at 80.

106. *See infra* note 114.

C. *Implementing Individual Quotas for the Gulf Shrimp Fishery*<sup>107</sup>

1. Structural Impediments

In contrast to the near optimal predicate underlying the wreckfish fishery in the South Atlantic, the Gulf shrimp fishery is clearly not the ideal fishery in which to create a system of individual quotas.<sup>108</sup> Implementation of individual quotas for the Gulf shrimp fishery is complicated by a number of factors. First, unlike the wreckfish fishery in which there were less than one hundred commercial participants at the time quotas were implemented, the Gulf shrimp fishery is comprised of thousands of commercial shrimpers. Second, commercial shrimpers are not the only user group involved in the fishery. Large numbers of recreational shrimpers and smaller enclaves of subsistence shrimpers, each having unique and often disparate needs, simultaneously seek to derive utility from the resource's bounty. Third, enforcement of individual quotas is complicated by the large number of ports scattered along the Gulf coast. Finally, the fishery does not lie exclusively in federal waters. Shrimp migrate between state and federal waters in the course of their biological lifecycles.

Of these factors, shrimping experts consider the aforementioned jurisdictional duality to be a relatively large impediment to successful implementation of individual quotas in the Gulf shrimp fishery.<sup>109</sup> Based on precedent, the federal government, in contrast to state governments, has been far more aggressive in creating progressive modes of

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107. As previously articulated, individual quotas are a highly flexible means of effectuating specific ends with regard to a particular fishery. Accordingly, the first step in formulating any system of individual quotas is to clearly establish the objectives sought to be achieved. Defining such "objectives" in the context of fisheries management is, however, a task inherently mired in subjective value judgments based on divergent worldviews; the goals conceptualized by a commercial shrimper will, for example, innately differ from those of an environmental activist. In the forthcoming discussion, various methods of implementing the core aspects of individual quotas will be presented. Of these aspects, the options ultimately advocated will be designed to achieve the one or more of the following objectives: (1) Maximize societal utility by addressing the economic inefficiencies inherent in the currently overcapitalized Gulf shrimping industry; (2) Relieve the pressure currently placed upon the shrimp fishery as a result of overfishing; (3) Minimize governmental displacement of "mom and pop" commercial shrimping operations; (4) Safeguard subsistence shrimpers' traditional access to Gulf shrimp resources; and (5) Ensure programmatic legitimacy by involving shrimpers more actively in the process.

108. WADE L. GRIFFIN ET AL., CONSIDERATIONS FOR THE POTENTIAL USE OF INDIVIDUAL TRANSFERABLE QUOTAS IN THE GULF OF MEXICO SHRIMP FISHERY 33 (1992). Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, in Baton Rouge, La. (Oct. 20, 1995).

109. GRIFFIN, *supra* note 108, at 34.

environmental regulation. As such, it is highly unlikely that the Gulf states would enact legislation creating a system of individual quotas for the Gulf shrimp fishery prior to analogous federal action. Assuming the federal government created such quotas without compatible state legislation, it is argued that the core objectives of the system would be placed in serious jeopardy, particularly because of difficulties regarding enforcement.<sup>110</sup> The willingness to enact regulations compatible with existing federal individual quota systems has varied from state to state.<sup>111</sup> Strict enforcement mechanisms will be needed to counter the impact of state nonparticipation in the operation of such a program.<sup>112</sup>

Successful implementation of a system of individual quotas in the Gulf shrimp fishery is also largely contingent on programmatic acceptance by the affected shrimpers.<sup>113</sup> As the ongoing debacle regarding the turtle excluder device (TED) requirement has shown, when government entities issue regulatory fiats, the new policy initiatives “often heighten the frustrations and sense of powerlessness among fishermen.”<sup>114</sup> Moreover, fishermen who feel alienated by the system are less likely to adhere to the guidelines imposed by a particular bureaucratic enactment.

In the context of an individual quota system in the Gulf shrimp fishery, such nonadherence would exacerbate already complex enforcement formulations. Ultimately, if the system lacks legitimacy among the industry participants, attainment of the desired objectives will be rendered infeasible. In order to establish a legitimate quota system in

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110. *Id.*

111. By way of example, the Gulf Council recently established a system of individual quotas for red snapper. Within this context, the Regional Director of the National Marine Fisheries Service contacted the relevant fishery departments in the five Gulf states regarding the issue of whether compatible state regulations could be enacted. Although state officials from Florida, Alabama, Mississippi, and Texas responded in the affirmative, Louisiana, by way of a legal memo drafted by the Chief Counsel of the Department of Wildlife and Fisheries, answered with an unequivocal “no;” specifically, Louisiana argued that implementation of such quotas would be violative of state constitutional, statutory, and case law. (Letter from William S. “Corky” Perret, Assistant Secretary, Office of Fisheries, La. Dep’t of Wildlife).

112. Propounded enforcement mechanisms include, but are not limited to, the use of a dockside credit card system (*see supra* dockside agents, and electronic tracking). Ideally, the costs associated with such measures should be billed to the states whose intransigence precipitates the problem of tracking which shrimp come from whose waters. Such an approach would, however, inevitably be challenged on constitutional grounds.

113. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, in Baton Rouge, La. (Oct. 20, 1995).

114. GRIFFIN, *supra* note 108, at 34.

the Gulf shrimp fishery, it has been proposed that the Gulf Council adopt the managerial approach, successfully utilized by Japan, Norway, and the United Kingdom, termed “co-management.”<sup>115</sup>

As opposed to the current structure in which fishermen act only as “consultants” to the government’s administrative body, co-management, by definition, entails governmental entities and the relevant fishermen sharing in the management functions associated with a particular fishery.<sup>116</sup> Conceptually, all shrimpers would be required to participate in one of various shrimping cooperatives. These cooperatives would rely on membership participation. All member shrimpers would form the organization’s “general assembly” and a “board of directors,” elected by the general assembly, would be empowered to make strategic decisions.<sup>117</sup> The government’s role in the process would involve providing overall planning, determining TAC, solving conflicts between cooperatives, providing legal support for cooperatives, and enforcing regulatory decisions.<sup>118</sup> The shrimping cooperatives would, on the other hand, be responsible for controlling access to the fishery, distributing individual quotas among individual fishermen, and regulating fishing practices.<sup>119</sup> The bottom line is that by actively engaging shrimpers in the decision-making process, co-management provides a potential solution to the aforementioned impediments to programmatic acceptance.

## 2. Determination of the Individual Quota

### a. Duration of Rights

In establishing a system of individual quotas for a particular fishery, it is important to delineate the nature of the property right

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115. *Id.* at 35. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, in Baton Rouge, La. (Oct. 20, 1995).

116. GRIFFIN, *supra* note 108, at 35.

117. Anthony Davis & Leonard Kasden, *Bankrupt Government Policies and Belligerent Fishermen Responses: Dependency and Conflict in the Southwest Nova Scotia Small Boats Fisheries*, 19 J. CAN. STUD. 147 (1984). Several structural variations have been suggested to enhance such a regime. First, to prevent conflicts within and between groups, property rights to the shrimp resources should be granted to the cooperatives exclusively; only individuals belonging to one of the cooperatives would be able to obtain the right to fish. Second, group size should be limited so as to encourage responsiveness to membership concerns and to prevent larger cooperatives from overshadowing smaller ones. Third, shrimpers should be allowed to choose the cooperative to which they belong; limiting governmental coercion increases legitimacy. GRIFFIN, *supra* note 108, at 37.

118. *Id.*

119. *Id.*

involved, specifically with regard to its duration. The duration of the ownership right can be defined as either "term" or "permanent."<sup>120</sup> Term rights are limited to a fixed period of time with a specified ending point. Permanent rights, on the other hand, theoretically extend indefinitely.<sup>121</sup> The General Counsel for the National Oceanic and Atmospheric Administration (NOAA) has, however, stipulated that permanent rights constitute a "privilege of indefinite duration" that "last[s] for the life of a fishery management plan."<sup>122</sup> In other words, when a fishery management council decides to terminate a system of individual quotas, the permanent rights granted to individual fishermen will revert back to the state.<sup>123</sup> Although term rights provide the government with the greatest flexibility, particularly with regard to dismantling an unsuccessful individual quota program, permanent rights enable long term planning and efficient allocation of resources by fishery participants.<sup>124</sup> Considering the needs of the Gulf shrimp fishery, ownership rights defined as "permanent," tempered by the NOAA's clarification, provide the best possible solution; not only is the government allowed qualified flexibility, but, more importantly, requisite marketplace efficiency is assured.<sup>125</sup>

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120. *Id.* at 57.

121. GRIFFIN, *supra* note 108, at 57.

122. *Id.* at 57, 59.

123. *See id.* at 57.

124. *Id.* at 58-59.

125. The aforementioned durational decisions overlie one of the more contentious areas of conceptual debate surrounding the formulation of a system of individual quotas. At the core of this controversy is the fundamental inquiry into the nature and implications of the allocation itself; specifically at issue is the question of whether the allocation is, in fact, a "property right."

Property, by definition, is a "legally protected 'expectation' of deriving certain advantages from a 'thing' . . . ." ROGER A. CUNNINGHAM, ET AL., *THE LAW OF PROPERTY* 3 (1984). Among the interests conveyed with property that enable the attainment of the expected advantages under a private property regime are duration, exclusivity, and divisibility. Carrie A. Tipton, Note, *Protecting Tomorrow's Harvest: Developing a National System of Individual Quotas to Conserve Ocean Resources*, 14 VA. ENVTL. L.J. 381, 411 (1995). The difficulty with regard to individual quotas is that while they typically possess some of the aforementioned characteristics (e.g., exclusivity and divisibility), they lack, as a result of NOAA's caveat, others (e.g., duration). As such, individual quotas fall short of the designation of "complete property" rights and, therefore, more accurately constitute "quasi-property" rights.

This distinction is significant in that it affords the government with needed protection from incessant litigation under the Fifth Amendment's Takings Clause which states that "private property [shall not] be taken for public use, without just compensation." U.S. Const. amend. V. If defined as a "complete private property" right, "the government would have to compensate the owners for the values lost during regulation . . . ." Carrie A. Tipton, Note, *Protecting Tomorrow's Harvest: Developing a National System of Individual Quotas to Conserve Ocean Resources*, 14 VA. ENVTL.

b. Initial Allocation

Decisions regarding the initial allocations involved in a system of individual quotas focus on two primary inquiries: first, who is eligible to participate in the system, and second, how many shares each eligible participant is entitled to. National Standard 4 of the FCMA provides guidance in these formulations via its stipulation that allocation or assignment of fishing privileges among United States fishermen must be: (1) fair and equitable to all fishermen, (2) reasonably calculated to promote conservation, and (3) carried out in such a manner that no individual, corporation, or other entity acquires an excessive share of privileges.<sup>126</sup> Moreover, the initial allocations should be structured to minimize governmental displacement of “mom and pop” commercial shrimping operations and to safeguard subsistence shrimpers’ traditional access to Gulf shrimp resources. In addition to being politically pragmatic, such protections honor the FCMA’s requirement of “fair and equitable [allocation] to all fishermen.”<sup>127</sup>

Depending on the management approach utilized, eligibility requirements can either be established by shrimping cooperatives under a co-management regime or by governmental entities (e.g., the Gulf Council).<sup>128</sup> Typically, vessel ownership is the primary criterion for determining who is eligible for the initial allocation of quotas.<sup>129</sup> Possible approaches utilizing variations of this criterion include initial allocation to (1) “all persons with documented shrimp landings for the past “x” years and who presently own a vessel licensed to shrimp in any of the Gulf states or have made a significant investment in the construction or purchase of a shrimp vessel”; or (2) “all persons who currently own a vessel licensed to shrimp in any one of the Gulf states or have made a significant investment in the construction or purchase of a

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L.J. 381, 412 (1995). Exemplifying the types of scenarios that would generate claims capable of consuming the system are the following: (1) the Council is forced to temporarily set TAC at zero in response to a catastrophic oil spill in the Gulf; or (2) the Council terminates an unsuccessful system of individual quotas, thus reverting the participant’s “expectation” interest to the state. In all these formulations, it is critical to remember that “the rights are provided [to fishery participants] as a function of environmental conservation, not as a benefit requiring protection under the Constitution;” such protections would undermine overall systemic stability. *Id.*

126. WADE L. GRIFFIN ET AL., CONSIDERATIONS FOR THE POTENTIAL USE OF INDIVIDUAL TRANSFERABLE QUOTAS IN THE GULF OF MEXICO SHRIMP FISHERY 60(1992) (citing 16 U.S.C. § 1851 (1988)).

127. See 16 U.S.C. § 1851 (1988).

128. GRIFFIN, *supra* note 108, at 60.

129. *Id.* at 61.

shrimp vessel.”<sup>130</sup> A third, equitable approach to the allocation dilemma would include “all those who are ‘significantly dependent’ on the shrimp fishery.”<sup>131</sup> Broadly defined, “significantly dependent” could provide the protection necessary to effectively guarantee the participation of Gulf subsistence and small-scale commercial shrimpers in the individual quota system. Without such guaranteed participation, the proposed system would be politically unpalatable and, as such, “dead on arrival.”<sup>132</sup>

Once deemed eligible for participation in the program, shares are typically allocated based on historical landings, vessel size, or some combination of both factors.<sup>133</sup> Moreover, under a co-management structure, quotas would be allocated to the shrimping cooperatives. Such cooperatives would, thereafter, independently formulate criteria for distributing shares of their quota.<sup>134</sup> Absent the co-management scenario, the approach taken by the South Atlantic Council represents a particularly equitable way of distributing shares; in this approach, 50% of TAC was allocated on the basis of historical landings and 50% of TAC was divided equally, in conjunction with an initial allocation limitation of

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130. *Id.*

131. *Id.*

132. In light of industry concerns regarding the possible mass acquisition of ownership rights in domestic fisheries by foreign concerns, it is important to note that such foreign ownership of individual quotas can be indirectly limited by making quota ownership dependent on United States-flagged vessel ownership. Dan Huppert, *Foreign Ownership, in* CONSIDERATIONS FOR THE POTENTIAL USE OF INDIVIDUAL TRANSFERABLE QUOTAS IN THE GULF OF MEXICO SHRIMP FISHERY 123-25 (1992). Although there is no basis for such restrictions under the National Standards of the FCMA, 16 U.S.C. § 1851 (1988), both the Merchant Marine Act of 1920 (Jones Act), 46 U.S.C. § 883 (1993) (stating “No merchandise . . . shall be transported by water . . . between points in the United States . . . in any other vessel than a vessel built in and documented under the laws of the United States and owned by persons who are citizens of the United States . . .”), and the Commercial Fishing Industry Vessel Anti-Reflagging Act of 1987 (“Anti-Reflagging Act”), 46 U.S.C. § 12102 (1988), establish that foreign built or rebuilt vessels are prohibited from operating in domestic fisheries. Dan Huppert, *Foreign Ownership, in* CONSIDERATIONS FOR THE POTENTIAL USE OF INDIVIDUAL TRANSFERABLE QUOTAS IN THE GULF OF MEXICO SHRIMP FISHERY 123 (1992). Moreover, so as to protect domestic interests from foreign-controlled United States corporations, the Anti-Reflagging Act requires that United States corporations owning fishing vessels be controlled by United States citizens. 46 U.S.C. § 12102(a), cited in Dan Huppert, *Foreign Ownership, in* CONSIDERATIONS FOR THE POTENTIAL USE OF INDIVIDUAL TRANSFERABLE QUOTAS IN THE GULF OF MEXICO SHRIMP FISHERY 123 (1992) (“controlled” in this context is equated with possessing a majority of the voting shares). A “grandfather clause” exception exists, however, with regard to foreign owned and controlled vessels active in the fishery prior to law’s enactment. 46 U.S.C. § 12102(b)(1), cited in Dan Huppert, *Foreign Ownership, in* CONSIDERATIONS FOR THE POTENTIAL USE OF INDIVIDUAL TRANSFERABLE QUOTAS IN THE GULF OF MEXICO SHRIMP FISHERY 123 (1992). It is unclear whether such foreign vessels could participate in the individual quota system.

133. GRIFFIN, *supra* note 108, at 62-63.

134. *Id.* at 63.

10% per participant.<sup>135</sup> Such an approach would provide additional protection for small-scale operations and subsistence shrimpers by giving them more than their actual marketshare. Furthermore, the system should require adequate documentation of the aforementioned historic landings (i.e. “no sales receipts, no participation”) in order to prevent inevitable misrepresentations. An exception to this facially draconian requirement should be allowed for subsistence shrimpers, who, by definition, will not possess sales receipts from dockside dealers.

### 3. Transferability

A critical consideration in the formulation of any system of individual quotas is whether to legislatively define such quotas as “transferable.” In general, transferability is a beneficial aspect of any quota program because it promotes the optimal use of societal resources. According to industry experts, “[f]ully transferable quotas will promote a competitive marketing system and allow quotas to move to their highest valued use.”<sup>136</sup>

Due to the large number of isolated participants spread over a wide geographic area, however, it has been advocated that transferability be phased in several years after the implementation of the program.<sup>137</sup> Under this approach, participants in the system would have the opportunity to rationally determine the true value of their shares, thus avoiding impetuous, front-end sales.<sup>138</sup>

Furthermore, to provide additional protection to small-scale and subsistence shrimpers, transferability can be restricted to transfers within a particular vessel class or within a specific region.<sup>139</sup> In addition, the managerial authority can structure the system such that no single participant can accumulate more than a specified percentage of market shares.<sup>140</sup> Although these approaches undeniably entail “significant

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135. Roberts, *supra* note 87, at 16. Tom Haynes, *Council Crafts Plan For Wreckfish*, ORLANDO SENTINEL TRIB., Aug. 4, 1991, at E3.

136. GRIFFIN, *supra* note 108, at 64.

137. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, in Baton Rouge, La. (Oct. 20, 1995).

138. *Id.*

139. GRIFFIN, *supra* note 108, at 64-65.

140. Interview with Kenneth Roberts, Marine Economist, Louisiana Cooperative Extension Service, Louisiana State University, Baton Rouge, La. (Jan. 31, 1996). Although it is deemed unlikely that a “monopoly” could ever emerge in the context of an individual quota system in the

losses in economic efficiency in the long run,” the “economic and political stability” derived therefrom arguably outweigh such detrimental implications.<sup>141</sup>

#### 4. Miscellaneous Features

First, given the scope of the Gulf shrimp fishery both in terms of scattered port facilities and copious participants, it is feared that an individual quota system in the fishery would be unmanageable. To assuage such fears, however, it has been advocated that a mandatory dockside credit card system be created in conjunction with the establishment of a quota system.<sup>142</sup> Under this approach, all commercial shrimpers would be issued a credit card encoded with their individual quota.<sup>143</sup> Upon entry into port, such shrimpers (regardless of whether they intend to sell their haul dockside) would be required to land at a dockside dealer, have their credit cards run through a scanner, and, thereafter, have the relevant information on their landing and effort entered into the central computer system.<sup>144</sup> According to analysts, such a credit card system is “the central feature that will enable an ITQ system to work in the Gulf of Mexico.”<sup>145</sup>

Second, because participation will only be minimally reduced as a result of the original allocations, a “buy-back” program should be instituted through which the government actively purchases shares from shrimpers and proceeds to “retire” them. Although a bit inefficient, such an approach is premised on fairness (i.e. minimal displacement via government line-drawing regarding quota allocation) with an awareness of the need to relieve pressure on the shrimp fishery.

## VII. CONCLUSION

Limiting access through the use of individual quotas involves difficult decisions. While there can be little doubt that the current open access regime is inadequate, breaking with the status quo will require sacrifice on the part of current participants. Such sacrifice entails the

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Gulf shrimp fishery, establishing a percentage cap on share ownership may “relieve some of the fear small operators may have of implementing an ITQ system.” GRIFFIN, *supra* note 108, at 68.

141. *Id.* at 65.

142. *Id.* at 42-44.

143. *Id.* at 43.

144. GRIFFIN, *supra* note 108, at 43.

145. *Id.* at 42.

abandonment of an ideal that predates the founding of the Republic and, more specifically, the notion of absolute freedom of the seas as extolled upon by Grotius. In this brave, new era of fishery management, economic, biological, and societal utility are arguably best served in the conceptual realm of John Selden, a realm in which private dominion over the seas takes on new meaning.